

# Adapting Developmental Course Content to Align with Changing Realities

Daryl Stephens  
East Tennessee State University

Handout for NADE 2003, Austin, Texas, February 12-15, 2003

**Abstract:** Declining revenues prompted the state of Tennessee to eliminate the lowest-level remedial courses at state universities. At East Tennessee State University, students needing these courses were placed in the next higher level of developmental courses. These students tended to do about the same in the reading and writing courses as those who did not need the remedial courses, but considerably poorer in mathematics courses.

As with most states, Tennessee has been hit by budget shortfalls. These have happened earlier than in some other states, and state funding for higher education has been below the statutory formula for allocations for several years now, and the financial situation continues to deteriorate. The appropriations bill from the state legislature for 2001-02 mandated that the Tennessee Board of Regents and the trustees of the University of Tennessee “study their operations to determine how they can operate more efficiently and with more limited resources” (Manning, 2001) and report back. The result from TBR was a document called *Defining Our Future* (TBR, 2001). The report cautioned that “[t]his report is not a blueprint for success in higher education. . . . more funding is required” (p. 5). One recommendation in the report was that universities in the system phase out all remedial (0700) classes within five years. These courses will then only be taught in the community colleges. Remedial courses are defined as arithmetic/prealgebra and the lowest level of reading and writing courses. The courses numbered 0800-0899 are called developmental courses. (In press reports, remedial courses are compared to middle school level and developmental to high school level courses.) At one point, there was concern that developmental courses would also be eliminated from universities and remedial courses even from community colleges (THEC, 2000), but apparently that will not happen any time soon.

Students are still being admitted to the universities with a need for the content of 0700 courses. Developmental studies programs at TBR universities across the state are taking different approaches to deal with these problems.

## The Experience at East Tennessee State University

Though the 0700 level courses were scheduled to be phased out of the universities within five years (TBR, 2001), the director at ETSU decided to eliminate them early. Students were placed in courses on the basis of ACT scores and the COMPASS test, although even that is changing as well. Students for whom the placement process indicated that they should enroll in a remedial (0700) course were placed in the corresponding 0800 course instead beginning in the fall of 2002.

Instructors in the 0800 classes in reading, writing, and mathematics (elementary algebra) made modifications to their curriculum to a certain extent in order to accommodate these students.

Results were mixed. We pulled the grades for all students who took any 0800 course in the fall of 2002 and separated record for the students who would have been in the 0800 course anyway from the students who were placed in 0800 but would have taken 0700 in previous semesters. An analysis of the grades for students in 0800 courses follows below.

By Board of Regents policy, students in remedial and developmental studies courses must pass with a grade of C or better. Consequently, there are no grades of C-, D+, or D for any students in these courses. ETSU developmental faculty consider 70% to be a minimum score for a C. Grades at ETSU are given using a plus/minus system on a 4-point scale, where A = 4.0 points, A- = 3.7, B+ = 3.3, B = 3.0, etc., with no final grades of A+ or D-. In all statistics that follow, students' grades of W, WF, or I were eliminated from consideration, since the circumstances for receiving those grades usually involve nonacademic problems. With the exception of rare cases approved by the director of developmental studies, students are prohibited from dropping developmental studies courses unless they withdraw totally from the university.

### Reading

In the fall of 2002, a total of 72 students completed DSPR 0800, (fundamental reading). Of those, 63 had placement scores that put them into DSPR 0800, nine students would have been placed in DSPR 0700 (basic reading); one student withdrew from the university and was eliminated from the other statistics. The instructor who teaches most of the sections of reading said that they spent more time than usual at the beginning of the semester on basics (context clues, word parts, using the dictionary, etc.) which were previously covered in the 0700 course. Students with individual concerns were encouraged to meet with her if they had any questions or concerns. She felt that the students who tested into the 0700 course tended to be the hardest workers in the course.

For the 63 students who were originally placed in 0800, the mean grade point average for the reading course was 3.060 with only 9.5% of the students failing. For those nine who ordinarily would have taken the 0700 course first, the mean GPA for the course was 3.078, with 11.1% (1 person) making a failing grade. A two-proportion  $z$ -test, which shows whether two percentages can be considered statistically equivalent, showed that these percentages for failure are not statistically different at the .05 level of significance ( $z = -.15$ ,  $p = .095$ ). (For a difference to be considered statistically significant, the general rule is that the value of  $p$  should be .05 or less.)

An independent samples  $t$ -test, which looks to see if means for two groups are actually different, shows there is no significant difference in the course grades ( $p = .969$ , meaning that there's an almost 97% chance that the difference in failure percentages could be due to chance).

### Writing

A slightly less rosy situation was found in DSPR 0800 (fundamentals of composition). A total of 245 students completed the course. (Twenty others had grades of W, WF, or I.) Of these 245, most (192) had tested into 0800, but 53 would have been placed in 0700 (basic writing). Instructors of this course made worksheets on review of basic grammar available to students. Students had the option of completing them and turning them in for extra credit. The students most likely to do the extra credit worksheets were those at the highest and lowest ends of the grade spectrum; those at the low end tended to do poorly on the exercises.

Students who were originally placed in 0800 had a mean grade of 2.41 for the course, and those originally placed in 0700 had a mean score of 2.192. Although these means are certainly different, they are not significantly so: an independent samples  $t$  test gives a  $p$  value of .323.

The failing percentages look a bit more alike. The failure rate for those originally destined for 0800 was 21.9% (42 students out of 192), and for those who should have been in 0700 it was 28.3% (15 students out of 53). Again using the two-proportion  $z$  test, the difference in the two groups for proportions of students failing was not statistically significant ( $z = -.98, p = .33$ ).

### Mathematics

The situation was somewhat different in the mathematics classes. In all, 444 students completed DSPM 0800 (elementary algebra), and 36 withdrew or received incompletes. Of the students finishing the course, 363 were destined for 0800 and 81 would have been placed in 0700 (prealgebra). All instructors used the same text (*Beginning and Intermediate Algebra*, second edition, by Elayn Martin-Gay, published by Prentice Hall). The course began with the first chapter, which is titled "Review of the Real Numbers," and reviews fractions, variables, and all operations with real numbers - in other words, a review of prealgebra and arithmetic. All the other content prescribed for elementary algebra was covered. It may be worth noting that the scope and sequence of topics in elementary algebra changed in the fall semester of 2002. To ease transfer within the colleges and universities of the TBR system, a committee met and mapped out the minimum course content for prealgebra (DSPM 0700), elementary algebra (0800), and intermediate algebra (0850) to be followed by all institutions in the system. ETSU implemented the new curriculum in 0800 during the fall 2002 semester and then changed to the new 0850 topics in the spring of 2003.

For those students in the course who were originally tested into 0800, the mean course grade was 2.438; for those who would have been placed in 0700, it was 1.653—considerably lower. Not surprisingly, an independent samples  $t$  test shows a very significant difference ( $p = .00006$ ) in grades.

The difference in passing percentages was also discouraging. Of students whose placement indicated they should have taken the 0800 course, the failure rate was 25.9% (94 out of 363). For those who would have been placed in prealgebra (0700), the failure rate rose to 45.7% (37 out of 81). The two-proportion  $z$  test shows the difference in failure rates to be quite significant ( $z = -3.53, p = .0004$ ).

### **Discussion and future directions**

It is too early to tell for sure what effect the loss of 0700 level courses is going to have on developmental studies program students at ETSU. A preliminary look at grades in the 0800 courses seems to indicate that students who test into the 0700 level course in reading or composition but have to take the 0800 course can do about as well as their fellow students who were tested into 0800 courses to begin with. The math situation is somewhat different. Students in the elementary algebra course who tested as needing a prealgebra course failed the course at a rate nearly twice that of their peers. What is yet unknown is the effect the change in developmental course placement will have on students when they take college-level core courses such as history, freshman English, probability and statistics or calculus, and so forth. We plan to follow up on these students in future semesters and track their grades and retention rates.

Composition instructors I talked with, though happy with the grades at the end of the semester, feel that something more needs to be done. Mathematics instructors feel that students who test into the 0700 level need additional help beyond what is offered in class. One possibility is to send these students to a local community college to take the 0700 level courses, especially if they fail the 0800 course. This can lead to scheduling and other problems for students, though. Given the recent history of higher education funding in Tennessee and new looming budget crises (such as a funding equalization for the K-12 systems and costs for TennCare, the state's version of Medicaid), additional funding for tutors, supplemental instruction, and the like for these students is just not available, and that situation is not likely to improve in the next few years. For now ETSU developmental studies program faculty and staff will continue to make do within the parameters set by the state.

## Summary Tables

### Passing Percentages for Students in 0800 Developmental Classes Broken Down by Placement Test Results Fall, 2002

	Reading			Writing			Mathematics*		
	0800	0700	Total	0800	0700	Total	0800	0700	Total
Failed	6 9.5%	1 11.1%	7 9.7%	42 21.9%	15 28.3%	57 23.3%	94 25.9%	37 45.7%	131 29.5%
Passed	57 90.5%	8 88.9%	65 90.3%	150 78.1%	38 71.7%	188 76.7%	269 74.1%	44 54.3%	313 70.5%
Total	63	9	72	192	53	245	363	81	444

\*Difference in proportion of failures is significant at  $p = .0001$ .

### Average Grade on 4.0 Scale Fall, 2002

	Reading	Writing	Mathematics*
Tested into 0700	3.078	2.410	2.438
Tested into 0800	3.060	2.192	1.653
All students	3.063	2.363	2.295

\*Difference in means is significant at the .0001 level.

## References

Manning, C. (2001). Review of *Defining Our Future* Work Process. Online at  
[http://www.tbr.state.tn.us/press\\_releases/definingfuture.htm](http://www.tbr.state.tn.us/press_releases/definingfuture.htm)

Tennessee Board of Regents (2001). *Defining our Future*. Nashville: Author. Online at  
[http://www.tbr.state.tn.us/press\\_releases/future/FinalDOFApproved.pdf](http://www.tbr.state.tn.us/press_releases/future/FinalDOFApproved.pdf)

Tennessee Higher Education Commission (2000). *Statewide master plan for Tennessee higher education 2000 - 2005*. Nashville: Author. Online at  
<http://www.state.tn.us/thec/mastplan.pdf>

Daryl Stephens  
Assistant professor (math)  
Division of Developmental Studies  
East Tennessee State University  
Box 70620  
Johnson City, TN 37614

E-mail: [stephen@mail.etsu.edu](mailto:stephen@mail.etsu.edu)  
Phone: 423-439-4676  
Fax: 423-439-7446