

RELATIONSHIP BETWEEN STUDENTS' READING ABILITY AND THEIR SUCCESS IN MEDICAL TERMINOLOGY AT A TWO-YEAR COLLEGE

MARY GENE RYAN
MIDLANDS TECHNICAL COLLEGE

Health sciences faculty members at a two-year college were concerned about the poor pass rates in medical terminology, a gateway course for all students planning to major in health-related fields. Faculty suspected that students coming out of developmental reading might not have adequate reading skills to do well in medical terminology. Developmental studies faculty undertook a project that compared students' grades in medical terminology during the fall 2009 semester with their COMPASS-R and ASSET Reading entrance scores and their final grades in developmental reading to determine if there was a relationship between students' reading ability and their success in medical terminology. Results revealed that developmental students who enrolled in medical terminology during fall 2009 failed or withdrew from the course at a higher-than-expected rate compared to regular- or transfer-admitted students.

Introduction

At a meeting in September 2010, members of the health sciences faculty at a two-year college met with faculty from the developmental studies (DVS) department to discuss student success rates in medical terminology, which is a gateway course for all students planning to major in health sciences-related fields. The health sciences faculty members were concerned about the poor pass rates in medical terminology, and they suspected that students coming out of developmental reading might not have adequate reading skills to do well in that course. The DVS faculty

agreed to undertake a research project in which students' grades in medical terminology were compared with their entrance test scores on the COMPASS-R and ASSET Reading assessments and their grades in developmental reading to determine if there was a relationship between students' reading ability and their success in medical terminology. The cohort included all those students who were enrolled in medical terminology during fall 2009.

Background

According to Adelman (1996), "Deficiencies in reading skills are indicators of comprehensive literacy problems, and they significantly lower the odds of a student's completing any degree." McCusker (1999) found that students who entered community colleges requiring only developmental mathematics fared better academically than those who needed developmental reading. In addition, Tadlock (2005) found that concentrating primarily on word identification is the primary cause of students' reading problems; she developed a program aimed at improving students' reading by focusing on the development of the student's neural network, thereby improving vocabulary and critical thinking skills. Paulson and Mason-Egan (2007) stress the importance to first-year college students of understanding complex assignments, using appropriate reading strategies and monitoring their own understanding of what they read; these tasks are very difficult for students who enter college underprepared for the reading demands of college-level texts. Wang (2006) reports that developmental students' performance on textually implicit questions on standardized tests indicated limited vocabulary and lack of understanding of the author's message. She states that "... these developmental students need explicit instruction in reading strategies, a broader knowledge base, and more sophisticated analytical skills."

Since two-year colleges are frequently "open door" institutions designed to admit all high school graduates who seek admission (Roueche & Hurlburt, 1968), students enter with a wide range of abilities in reading. The health professions' faculty at Midlands has tried to solve this problem by requiring all students entering health-related programs to have completed remediation

in reading before enrolling in their first curriculum-related course, medical terminology. The premise was that students who had completed the developmental reading sequence would be reading at the 11th- or 12th-grade level as determined by their scores on the COMPASS-R.

Methods and Materials

The class rosters and grade sheets of all medical terminology sections offered during fall 2009 were downloaded from the college's student database. The only classes that were left off the list were the online courses or "hybrid" (combination of online and classroom instruction) courses. This resulted in a total of 745 students broken down as follows:

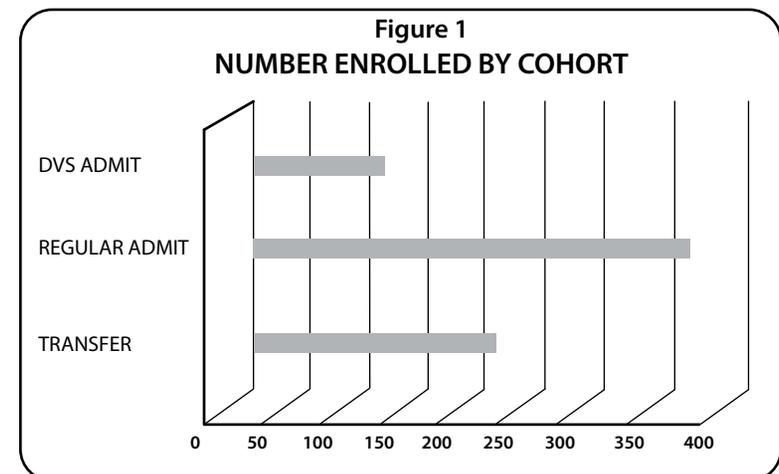


Table 1.

Students' final grades in the course were as follows:

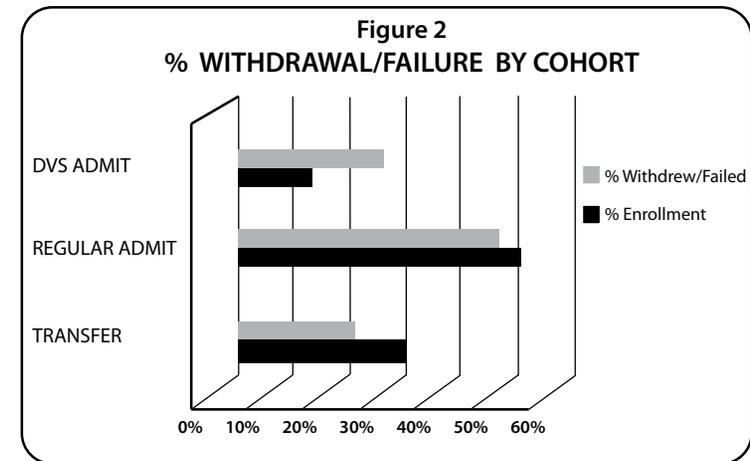
FALL 2009 GRADES IN MEDICAL TERMINOLOGY BY STUDENT TYPE

ENTRY STATUS	A	B	C	F	WF	W	#	%
TRANSFER	80	69	44	18	1	21	233	31
Percent	34%	30%	19%	8%	0%	9%	100%	
REGULAR ADMIT	102	101	100	34	8	42	387	52%
Percent	26%	26%	26%	9%	2%	11%	100%	
DVS AMIT	20	27	29	22	9	18	125	17%
Percent	16%	22%	23%	18%	7%	14%	100%	
TOTAL	202	197	173	74	18	81	745	100%
Percent	27%	26%	23%	10%	2%	11%	100%	

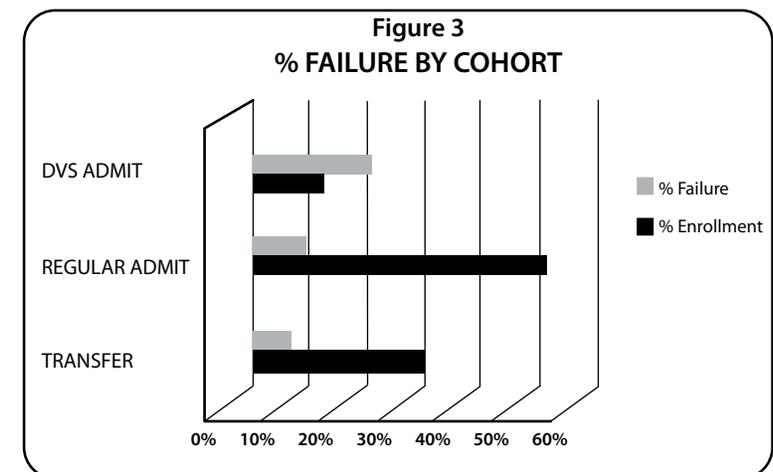
It is important to note that all DVS-admitted students who were enrolled in medical terminology during fall 2009 had completed their required remediation by passing developmental reading prior to enrolling in medical terminology as described above and were presumed to be able to read college-level texts.

Results

A review of the information in Table 1 above indicates that 39% of the students who came into the college as DVS-admits made grades of F, WF or W in medical terminology during fall 2009. There was a higher rate of failure/withdrawal among the DVS-admit group than either of the other two groups (17% of Transfer admits and 22% of Regular admits). Figure 2 presents a breakdown of failure/withdrawal grades by student type.

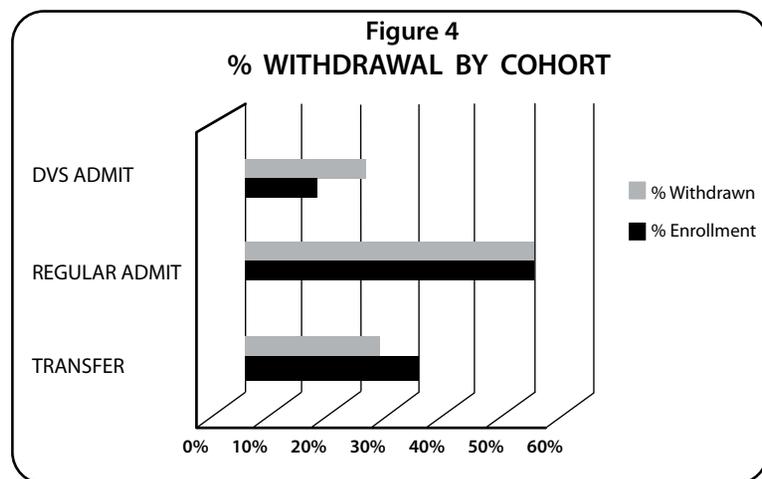


Since the reasons for withdrawing from the course are unclear (students withdraw for a variety of reasons that may or may not have to do with whether they are passing the class), it is perhaps more instructive to consider only those who failed (earned a grade of F or WF) for the purposes of this study. A review of only those who earned grade of F or WF appears in Figure 3.



As shown in the Figure 3, the DVS admits represented the majority of the failures in medical terminology during fall 2009.

A review of students who withdrew of their own accord (grade of W) from AHS 102 during fall 2009 appears in Figure 4.



DVS admits withdrew at a slightly higher than expected rate (22% withdrew, 17% enrolled), while the regular admits withdrew at the expected rate (52% withdrew, 52% enrolled) and the transfer admits withdrew at a slightly lower than expected rate (26% withdrew, 31% enrolled).

One interesting item should be noted: Of the 745 students enrolled in medical terminology during fall 2009, 20 were students who tested into the lowest level of developmental reading on admission and had to complete an additional remedial course before they could enroll in developmental reading. At the time, an intensive reading tutoring program (Read Right®)¹ was available to them but not required. Eleven of those 20 students attended Read Right® tutoring on a voluntary basis, and all 11 of those students passed medical terminology with a grade of C or better.

Results and Discussion

Students who entered the college as DVS admits with the goal in mind of pursuing a career in health sciences fields appeared to have had a difficult time in medical terminology during fall 2009. As shown above, they made up 17% of the students enrolled in

AHS 102, yet they failed or withdrew at a higher-than-expected rate (28% and 22%, respectively). However, while students who participated in Read Right® tutoring in conjunction with their DVS reading courses constituted a very small fraction (only 3%) of the students enrolled in AHS 102, those students had a pass rate of 100% in AHS 102.

Conclusion

The results of this study indicate that DVS-admitted students who had completed their developmental reading requirement and enrolled in AHS 102 during fall 2009 still failed or withdrew from the course at a higher-than-expected rate. However, all of the students who participated in Read Right® tutoring in conjunction with their developmental reading course passed medical terminology during that term. Further study will be required to see if this holds true for DVS students who took medical terminology in future semesters (any students enrolled after fall 2009 would have been required to take Read Right® tutoring as a pre-requisite for developmental reading). These results suggested three interventions:

- 1) Set up a special section of developmental reading in which the focus will be on reading and vocabulary pertinent to health care for students who plan to enter health sciences fields.
- 2) Require all students who test below 79 on the COMPASS-R to enroll in Read Right® tutoring as a prerequisite for medical terminology.
- 3) Create a “medical vocabulary” course that will be a requirement for all students who are pursuing a health services-related major and whose COMPASS-R score is below 79 on admission to the college. The course would introduce students to the vocabulary they will encounter in the healthcare field and focus on medical word derivations, along with the meanings and spellings of prefixes and suffixes. This course would be a pre-requisite for medical terminology for those students.

These interventions will be implemented during the fall 2011 semester, and students will be tracked to determine if they are successful.

¹Read Right Systems, 310 West Birch St. Shelton, WA 98584

References

- Adelman, C. (1996). The truth about remedial work: It's more complex than windy rhetoric and simple solutions suggest. *The Chronicle of Higher Education*, 43(6), 56.
- McCusker, M. (1999). Effective elements of developmental reading and writing programs. *Community College Review*, 27(2), 93-105.
- Paulson, E.J., & Mason-Egan, P. (2007). Retrospective miscue analysis for struggling postsecondary readers. *Journal of Developmental Education*, 31(2), 2-13.
- Roueche, J.E., & Hurlburt, A.S. (1968). The open-door college: the program of the low achiever. *Journal of Higher Education*, 39(8), 453-456.
- Soldner, M. (2011). *Persistence and attainment among Pell Grant recipients: results from the Beginning Postsecondary Students longitudinal study 2004/09. Web tables 2011-275*. National Center for Educational Statistics, ED518607, 16 pp.
- Tadlock, D. (2005). *Read right! Coaching your child to excellence in reading*. New York: McGraw Hill, 222 pp.
- Ukpabi, C.V. (2008). Predictors of successful nursing education outcomes: a study of the North Carolina Central University's nursing program. *Educational Research Quarterly*, 32(2), 30- 40.
- Wang, D. (2006). What can standardized reading tests tell us? Question-answer relationships and students' performance. *Journal of College Reading and Learning*, 36(2), 21-27.
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Dr. Mary Gene Ryan is the retention coordinator at Midlands Technical College.