

TUTORING LAB ATTENDANCE AND TIME SPENT ON HOMEWORK: IMPACT ON STUDENT PERFORMANCE IN COLLEGE ALGEBRA

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The aim of this research is to investigate how College Algebra students utilize a peer-staffed tutoring lab during a spring semester. Records of students' ID cards swipes as they enter the lab were analyzed to explore trends in attendance. In addition, the relationship between final course grades and the time spent studying math content using Assessment and LEarning Knowledge Spaces (ALEKS), a web-based, adaptive learning system, was explored. The results found 79% of the students who used the tutoring lab made a D or better, a passing grade, versus 48% of the students who did not visit the lab. Also, for every 100-minute increase in time spent in ALEKS, a student's final course grade increased on average by 1%.

Keywords: Post-secondary, Instructional activities and practices

While a large number of students take College Algebra each year, only 50% earn a C or higher (Ganter & Haver, 2011). Research shows that peer-tutoring has a positive impact on student performance in College Algebra (Xu, Hartman, Uribe, & Mencke, 2001), and time spent on homework out-of-class has a substantial effect on grades (Keith, Diamond-Hallam, & Fine, 2004). Based on this existing literature, this study aims to investigate 1) student attendance in a peer-staffed tutoring lab, 2) lab attendance's impact on final course grade, and 3) the relationship between time spent studying in ALEKS and final course grade.

During a spring semester, six College Algebra classes were included in the study. The students were expected to spend three hours each week completing homework assignments in ALEKS (with one-hour goals staggered throughout the week). The students could complete the time requirement from anywhere but were encouraged to attend a peer-staffed tutoring lab to work on homework. Lab attendance was incentivized by earning extra credit on the exams if a certain amount of time was met before each exam. Overall, students were encouraged to increase the time spent on studying math content in the lab and stagger that time throughout the week.

Lab attendance was collected through swipe-card access using students' university ID cards when students entered the lab. Total time spent working in ALEKS and final course grades were also collected for each student. The statistical software R was used for linear regression to model the relationship between final course grade and time spent working in ALEKS.

Among the 166 research participants, 57% attended the tutoring lab at some point during the semester. Half of the students who attended the lab came only once or twice during the semester with very few students coming on a weekly basis. During the week of exams, there were small peaks in lab attendance. Five to eight more students came during exam weeks, and there were 10 to 16 more swipes. Of the students who came to the lab, 79% made a D or better, a passing grade for the course. For the students who did not attend the lab, only 48% made a D or better. There was a positive relationship ($r = 0.639$) between final course grade and time spent studying in ALEKS. The r -squared value was 0.4083, so about 41% of the variance can be explained by the model. For every 100-minute increase in time spent in ALEKS, a student's grade will increase by about 1%. The preliminary results of this study point to the peer-tutoring lab having a positive impact on students' College Algebra course grades.

References

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