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Abstract

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What is the relationship between student performance in language and mathematics tasks? This is an important question that has been studied extensively. For example, Abedi and Lord (2001) found that students frequently feel anxiety in foreign language classes. XXX combined several studies on language achievement and found that language-minority students may need special treatment plans. Interestingly, language appears to be related to performance in mathematics [XXX]. In one study based on a survey of 1,174 8th grade students, XXX found that students who were English language learners (ELLs) scored lower on math tests than proficient speakers of English.

The purpose of the present research was to see if previous results replicate in a new sample of language and mathematics learners. To test this, we analysed data of student performance in Mathematics and Portugese classes.

Methods

Participants

Data were collected from the UCI machine learning repository at http://archive.ics.uci.edu/ml/datasets/Student+Performance. Data from 395 students in a Mathematics class, and 2 students in a Portugese class were collected.

Procedure

The primary measures were three exam scores taken at the beginning, middle, and end of each class.

Results

Distributions of the three exam scores for the Mathematics and Portugese classes are presented in Figure 1.

Correlations between numeric predictors in the Math data are shown in Figure X:

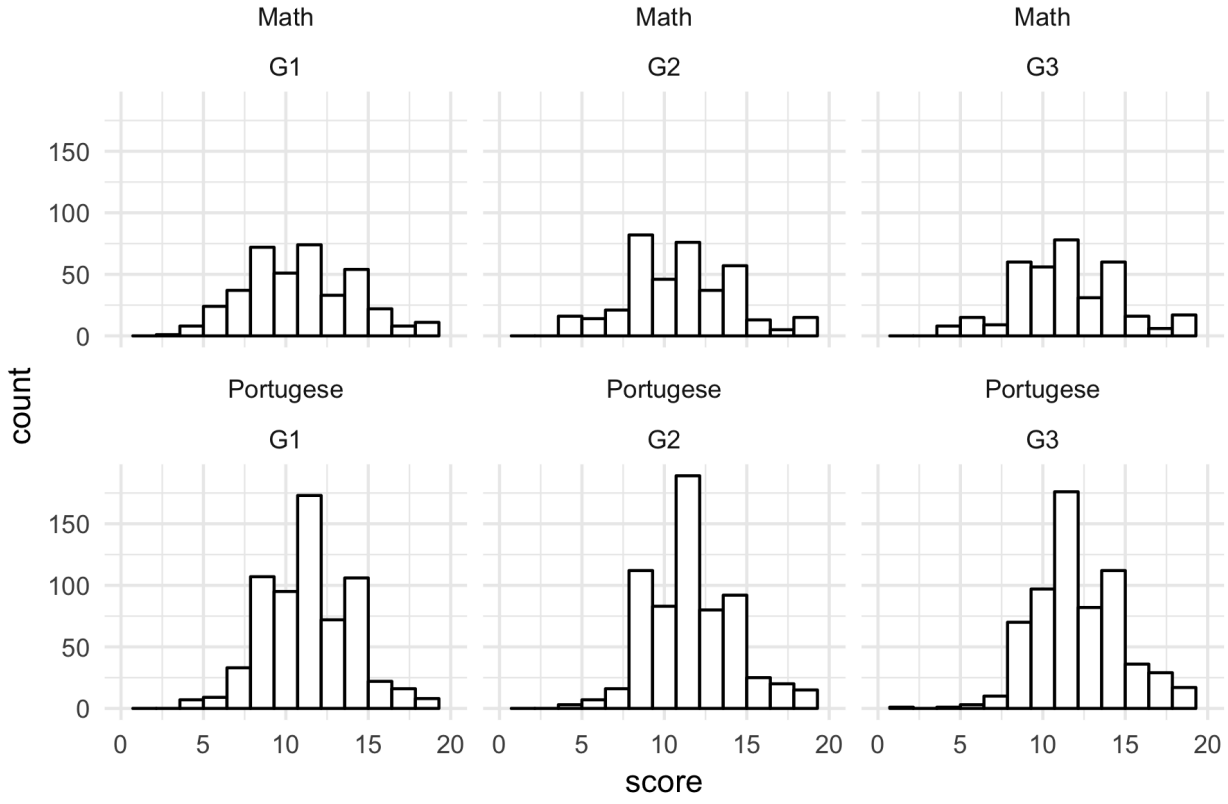

Figure 1. XXX

Descriptive statistics of grades separated by sex and school are presented in Tables 1 and 2. Grades tended to increase over the course of the semester. For example, the mean grade in the first Portugese exam was 2 which increased to 2 by the last exam.

Did men and women perform differently on the first exams in each class? To tese this, we conducted two separate two-sample t-tests on first exam scores as a function of sex. The t-test on Portugese exam 1 was significant ($t(589.90) = 2.69$, $p = 0.01$), showing that women performed better than men on the first Portugese exam.

The t-test on Math exam 1 was non-significant ($t(2) = 2$, $p = 2$), showing no evidence for a difference between men and women on Math exam 1.

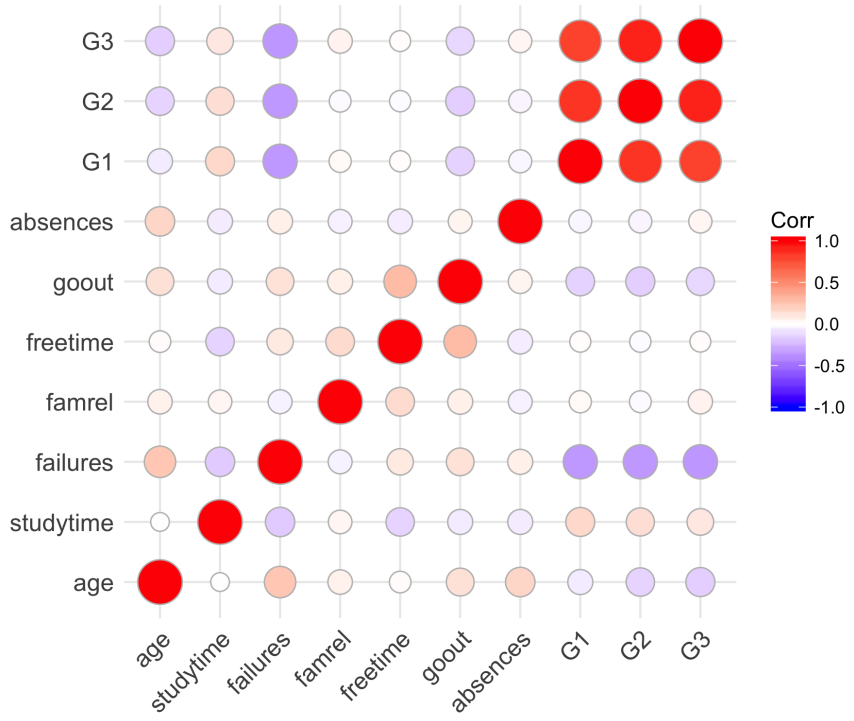

Figure 2. XXX

Discussion

Understanding the relationship between language and math performance is important for understanding learning. Our results are generally in line with who found a relationship between language and mathematics performance.

References

Abedi, J., & Lord, C. (2001). The language factor in mathematics tests. *Applied Measurement in Education*, *14*(3), 219–234.