Anxiety in Pisa: A Brief Overview

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Subject

In [1], the authors wanted to do a holistic in-depth study (i.e., for math, reading, and science) of the relationship between school anxiety and academic performance (i.e., in test scores and school work) and to what degree it negatively affects high-skilled students disproportionately compared to lower-skilled students.

Approach

The authors analyzed data from the PISA 2015 assessment to examine the relationship between school-related anxiety and academic performance across math, reading, and science. They employed statistical methods to assess the extent to which anxiety negatively impacts students, particularly those with high academic performance. The study controlled for individual and school-level variables to isolate the specific effect of anxiety on test scores and schoolwork. The analysis incorporated socioeconomic, geographic, and demographic factors to provide a comprehensive view of potential influences. The researchers aimed to determine whether high-achieving students are disproportionately affected by anxiety and how this varies across different subjects.

Results

As the authors hypothesized and set out to investigate the deeper relationship and implications between anxiety (i.e., test and school work anxiety) and student performance, using PISA 2015 data, their findings confirmed that anxiety negatively affects students, particularly high achievers, across math, science, and reading. While controlling for individual and school-level factors, they also identified other influences on performance. Students from high-income households, those with better educational resources, and those in Northern Italy performed better than their peers. Gender differences were evident, with males excelling in math and science but lagging in reading compared to females. These insights highlight the widespread impact of anxiety and the role of external factors in shaping academic outcomes.

The authors concluded that teachers should do more to promote a less anxious learning environment for students in general—with special attention to high achievers who are more affected by anxiety. They, also, believe that parents should be encouraging their children to believe more in their capabilities.

Lastly, the authors suggested that more research into the relationship between anxiety and unrealized student potential should be conducted to ensure we're not underestimating latent potential in students due to performance anxiety.

References

1. D'Agostino, A., Schirripa Spagnolo, F., and Salvati, N. Studying the relationship between anxiety and school achievement: evidence from pisa data. *Statistical Methods Applications*, 2022, **31**(1):1–20.

Variable	Min	1st Q	Median	Mean	3rd Q	Max.
SCIENCE	120.42	425.73	493.28	489.48	544.69	803.30
MATHEMATICS	140.80	432.16	498.19	496.39	560.72	822.64
READING	168.38	435.94	500.51	496.14	560.97	775.59
ESCS	−2.99	−0.70	−0.04	−0.05	0.66	3.56
Anxiety index	−2.51	−0.08	0.52	0.48	1.05	2.55
Female				0.51		
Immigrant				0.07		
Grade repetition				0.13		
Lack of punctuality				0.35		
South Italy				0.44		
Lyceum				0.42		
Mean gender				0.50		
Mean Immigrant status				0.09		
Mean Grade repetition				0.16		
Mean Lack of punctuality				0.36		
Mean ESCS				−0.20		
Number of units	7142					
Number of clusters	283					

Figure 1. Descriptive statistics of the outcome variable and covariates