

The More Experienced the More... Boring?

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Teachers are arguably one of the most important ingredient of education systems. If countries want to improve their students' education and skills, it is therefore natural to analyse what characteristics make teachers more effective, as this can provide valuable information for policymakers.

Does teacher experience matter?

An aspect that has been widely investigated in the teacher-related literature is the impact of teacher experience on student test scores. While there is a long-held belief that teachers will become more effective as their experience grows, this has not always been confirmed in empirical studies. This might come as a surprise, as we expect that the more experienced a teacher is, the better she or he will be able to manage a classroom, master the curriculum and so forth. However, other aspects related to teaching methods and enthusiasm may deteriorate as teachers get more experienced.

It does! But not necessarily in a good way...

In my latest paper,¹ I analyse the impact of science teacher characteristics, including experience, on students' science test scores as well as on the engagement and enjoyment of students in learning science. I use data from TIMSS 2015, an international large-scale assessment, and in this blog post I focus on the impact of teacher experience on whether students find the teaching engaging and whether students like

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¹ <https://www.ifo.de/publikationen/2021/working-paper/effect-teacher-characteristics-students-science-achievement>

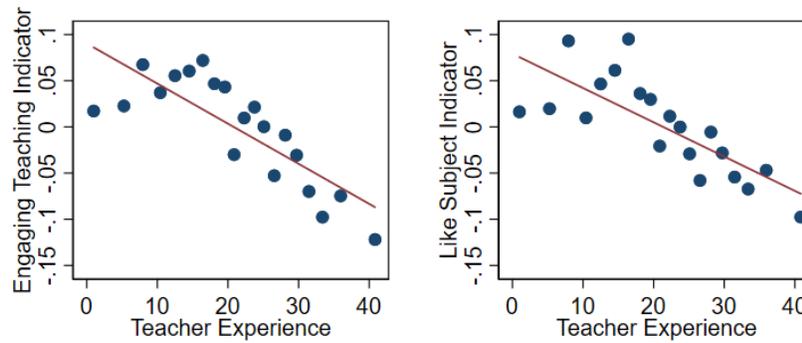


Fig. 1 The Impact of Teacher Experience on the *Students Find the Teaching Engaging* and the *Like Learning the Subject Indicators*

Source: own elaboration of TIMSS 2015 data. The figures show the impact of years of teacher experience on standardized students' indicators after controlling for students' and teachers' background characteristics (like student SES, gender etc.) for 39,827 students in 10 countries (Armenia, England, Georgia, Hungary, Kazakhstan, Lithuania, Malta, Russia, Slovenia and Sweden)

learning a subject using 4 four science subjects: Physics, Chemistry, Biology, and Earth science.

I restrict the analysis to countries where these four science subjects are taught by at least two different teachers, which gives me a sample of 10 countries and roughly 40,000 students. In this setting, the deviation of outcomes in one subject from the average science outcome of each student is associated with the deviation of teacher characteristics in the same subject from the average science teacher characteristics of each student. This procedure has several advantages. First, it controls for important factors, such as student socio-economic status or average science knowledge, that are likely to affect the outcomes of interest. Second, the estimated coefficients are not affected by the fact that students from more affluent background tend to be matched with more prepared teachers. In this scenario, we can credibly attribute the impact on the outcomes of interests to the teacher characteristics.

My results consistently show that experience has a negative and statistically significant impact on both the engaging teaching and enjoying learning indicators. The results are consistent across all subjects and are also confirmed when using standard regression models.

This is clearly shown in Figure 1, where I report the impact of teacher experience on the students' indicators net of many students' and teachers' background variables. In both cases, the slope of the line capturing this relationship is clearly negative.

So what?

Keeping students engaged should be the objective of every teacher. Similarly, teachers should strive to make their students enjoy learning the subjects they teach. These aspects, in turn, also contribute to students' success. While the relation between teacher experience and students' test scores has been widely investigated, we know relatively little about the relation between teacher experience and students' engagement or students' enjoyment of a subject. There is therefore need for further research on what aspects can maintain teachers engaging throughout their careers. For example, teachers (and, consequently, students) could benefit from professional development programs aimed at the deployment of digital technologies in class. This has the potential of keeping teaching methods in line with students' interests and preferences, an aspect that could play an important role in maintaining a high level of pedagogical efficacy for teachers.

References:

Sancassani, P. (2021). *The Effect of Teacher Characteristics on Students' Science Achievement*. ifo Working Paper No. 348

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