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# The intensity of teachers' use of teaching methods and its impact on learning outcomes<sup>1</sup>

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## Summary

- One of the two principal aims of the Czech Republic's national *Strategy for Education Policy up to 2030+* is to transform both the content of school curricula and the methods used to teach them. For example, greater emphasis is to be placed on group activities, project-based teaching, the application of knowledge to various contexts and enquiry-based learning. Yet, to date, rather few studies have analysed how different types of teaching methods are used by primary school teachers in the Czech Republic or at the equivalent level abroad and what impacts their use has on learning outcomes.
- This study uses longitudinal data from a representative sample of primary school pupils to analyse what percentage of lessons – in the Czech Republic and abroad – make use of four specific teaching approaches: 1) lecturing, 2) appropriation, 3) comprehension and 4) testing. We then look into the relationship between these teaching methods and pupils' progress in reading skills and mathematics between the fourth and sixth years of primary school. The data on teaching methods was gathered from fourth year primary school teachers via a questionnaire as part of TIMSS 2011. To estimate the relationship between teaching methods and learning outcomes, we make use of the fact that the pupils were tested in two subjects in both years. This means that we can estimate the difference in progress made when pupils are taught using each method with greater or lesser intensity in the two subjects (*pupil level fixed-effects*).
- Our results point to three key findings:
  - In the 4th year of primary school (in the Czech Republic), or at the equivalent level abroad, lessons teaching maths or reading in Europe most frequently involve lecturing and methods that lead to comprehension; these are used in approximately  $\frac{3}{4}$  of lessons. In  $\frac{2}{3}$  of lessons teachers use methods that lead to

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appropriation. Pupils are tested in slightly more than 1/3 of lessons. In Western and Northern European countries teachers use all four listed approaches less intensively; they are used most intensely in Romania and Hungary.

- The Czech Republic is one of the countries in which teachers use these methods with lower intensity. Czech teachers in the lower stage of primary school most often use comprehension methods (in 3/4 of lessons). In more than half of all lessons, teachers lecture and pupils work on subject appropriation (individual work). Tests take place in 30 % of lessons. Lecturing and testing are used more frequently in mathematics lessons than in reading lessons. Other teacher and school characteristics are not correlated with the intensity of teaching method use.
- For Czech pupils, methods leading to comprehension are positively related to progress in reading and mathematics between the 4th and 6th years of primary school, while methods leading to appropriation are negatively related to progress. Lecturing is not significantly associated with the rate of progress in either subject.
- These results suggest that teachers' methodological choices can affect pupils' educational trajectories. Nevertheless, the methodological and data limitations of our analysis mean that further applied pedagogical research is needed in order to establish whether our results are robust, as well as how well suited the various methods are to particular educational situations and particular groups of pupils. Such findings would be of substantial added value for the planned revision of the Framework Education Programmes, and especially for their subsequent effective implementation in the classroom.