

Hot for Teacher

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Implications and valorization

The results of this thesis have several implications for policies aimed at reducing teacher shortages and increasing the average quality of teachers in the Netherlands. Chapters 2 and 3 are geared towards addressing the quantitative teacher shortage, while chapters 4 and 5 are aimed at addressing teacher quality.

Chapter 2

First, based on the results of chapter 2 it can be argued that the majority of teaching potential is wasted. Because of student dropout, the fact that a proportion of teaching graduates starts working outside of the education sector, and the propensity of graduates to work part-time, an average sized teacher preparation program entry cohort of 400 students supplies only around 122 FTE of teaching per year. Put another way, every 10 additional students sorting into primary school teacher education reduce teacher shortages by only three FTE. Therefore, in order to eliminate the primary teacher shortage in the Netherlands of 7000 FTE by 2025 (Adriaens et al., 2017) through increased student numbers, the amount of students entering primary education teacher training has to more than double.

Alternatively, if all students that sorted into primary teacher education would end up as full-time teachers, the teacher shortage would be solved within three average sized entry cohorts. The focus of policy makers on increasing entry into teacher education therefore seems inefficient. Rather than convincing prospective students to go into teacher education, additional efforts should be made to reduce student dropout from teacher training programs. By initially signing up for teacher education, these students have already expressed a preference for teaching. This makes interventions aimed at this particular group more likely to be effective in increasing the supply of teachers. However, while chapter 2 shows that low dropout rates at the program level are observationally unrelated to the propensity to work in the education sector, it is important that interventions targeting dropout rates do not come at the expense of graduation quality standards.

Secondly, a promising avenue to increase the supply of teachers is to stimulate full-time employment among teachers. Even if attrition from teacher training cannot be reduced, if all teacher primary education teachers would start working full-time, the amount of FTE supplied would increase by around 30%. This is more than enough to solve the prospective teacher shortage. A potential path to stimulating full-time employment could be to increase teachers' salaries for additional hours worked above a certain part-time threshold, as has been suggested by Kalshoven (2017). This might stimulate teachers to start working additional hours, while being relatively cheaper than raising teacher salaries across the board. Chapter 2

further shows that teachers' labour market opportunities are worse outside of teaching. Therefore, a salary increase across the board is unlikely to result in additional teacher supply from incumbent teachers beyond the increase that could be expected from more highly rewarding additional hours worked above the part-time threshold.

Chapter 3

While interventions to increase teacher supply are needed, one can argue that policies influencing the sorting patterns of teachers are not necessary based on the results from chapter 3. While teachers are unequally distributed across primary schools regarding their level of education and migration background, this does not negatively affect student performance. However, other research has shown that schools that serve a high percentage of students with a non-western migration background have more trouble filling their teaching vacancies (Inspectorate of Education, 2019). Therefore, while the sorting patterns of teachers may not be problematic in itself, the unequal distribution of the teacher shortage warrants further attention. In that vein, it is interesting to note that a larger share of teachers with a non-western migration background appears to be related to increased performance of non-western migrant students. Furthermore, teachers from a non-western migration background tend to work at schools with a larger proportion of non-western migrant students.

In order to reduce the inequality of the distribution of the teacher shortage and increase the performance of non-western migrant students, policy makers should spend more effort in enthusing non-western migrant students for the primary school teaching profession. Note that the assumption underlying this recommendation is that the mechanism through which migrant students benefit from a larger share of non-western migrant teachers is related to attributes of non-western migrant teachers that are unique to them. Examples of such mechanisms include role model effects or a shared cultural belief system. If instead non-western migrant teachers benefit migrant students through a certain imitable teaching approach, this method could in principle be applied by teachers regardless of migration background. Therefore, further research into the mechanism through which a match on migration background positively influences test scores is needed.

If policy makers do want to increase the amount of non-western migrant students entering the primary school teaching profession, current policy measures appear to be counterproductive. After the introduction of the entry tests as a requirement to start primary teacher education in 2015, the amount of students with a non-western migration background entering primary teacher education halved (de Wolf, Vermeulen, & Breuer, 2018), although

this finding is not necessarily causal. While the entry tests have been designed to raise the quality of the students sorting into primary teacher education, an unintended consequence appears to have been a reduced number of non-western migrant students entering the primary school teaching profession.

Chapter 4

In terms of improving the quality of the incumbent teaching force through on-the-job training and professional development activities, chapter 4 suggests that the nature of the teaching profession renders effective targeting of training difficult. Because unobservable performance introduces signalling concerns, low ability teachers are likely to avoid signing up for training that is geared towards teachers with their prior ability level. It also suggests that training that is aimed at high quality teachers is likely to be oversubscribed. This might explain why professional development is widely used, but rarely evaluated as being effective. Even if a course is useful in raising the quality of a certain subset of teachers, the sign-up of teachers for whom the course is of no added value attenuates the estimates of the course's effectiveness.

In order to increase the efficiency of training participation, the model predicts that introducing more courses targeted at different levels of initial teacher ability can reduce the signalling value of signing up for any particular course. This would increase the take up rate of courses aimed at low ability teachers. If policy makers are concerned with increasing the quality of the lowest ability teachers, they could alternatively make certain professional development programs targeting basic skills mandatory for all teachers. This would eliminate the negative signal of basic training participation. However, this option is not ideal as the basic training is wasted on those teachers that already master these skills.

It should be kept in mind that these recommendations are based on results from a theoretical model, the validity of which needs to be tested in an empirical setting. However, the point that selection into on-the-job training needs to be taken into account when designing, offering, and evaluating professional development programs stands, regardless of whether signalling is the main mechanism explaining the nature of selection.

Chapter 5

Taking stock of the literacy and numeracy skills of Dutch teachers relative to the rest of the population and compared to other countries, chapter 5 shows that Dutch teachers are relatively highly skilled at the bottom of the skills distribution. This means that the 10 percent lowest skilled teachers perform better than the same group in other countries relative to the

rest of the population. The 10 percent highest skilled teachers perform lower than the top teachers in other countries, again relative to the rest of the population. What this implies in terms of policies aimed at increasing the skills of the Dutch teacher corps is that interventions aimed at raising the floor of teachers' cognitive skills might not be most effective. Relatively low skilled teachers already outperform other low cognitively skilled college graduates. Therefore, becoming more restrictive by raising skills barriers to entry into the profession is likely to result in marginal gains in the average quality at the expense of reducing the quantity of teachers. Considering that the most highly skilled Dutch teachers are outperformed by high skilled other college graduates, interventions that aim to raise the ceiling of the skills of the Dutch teacher corps seem more promising. Attracting highly skilled students to enter teaching could not only increase the average quality of the Dutch teacher corps directly, but also help in increasing the status of the profession in the long term (Cörvers et al., 2017).

In aiming to recruit teachers from the high end of the ability distribution, it should be kept in mind that while cognitive skills are somewhat predictive of teacher quality (Coenen et al., 2018; Hanushek et al, 2018; Metzler & Woessmann, 2012), the relationship is unlikely to be linear. It makes sense that a teacher who is uncomfortable performing long division is unlikely to competently teach long division. However, it is unclear whether much can be gained from employing a Nobel Prize winning mathematician instead of a regular teacher holding a math's major. It is still an open question how desirable it is for teachers to be drawn from the absolute top of the skills distribution, and whether this is the most efficient allocation of skills from a societal point of view. Therefore, further research should address the shape of the relationship between teacher subject knowledge and student performance.

In conclusion, this thesis has aimed to provide a better understanding of the development of Dutch teacher careers and skills. This new information suggests that several avenues for policies that are currently being pursued may be suboptimal. Focussing on increasing the number of students in teacher education is inefficient if student attrition is not addressed simultaneously. Furthermore, the policies aimed to raise the floor of the cognitive skills of the primary teacher corps are likely to result in larger quantitative shortages with small gains in average teacher quality. Additionally, an unintended consequence of these policies seems to be a reduced amount of non-western migrant students entering the teaching profession. Instead, policies aimed at increasing the amount of highly skilled teachers seem more promising in the Dutch context. Secondly, it has shown that policies that are designed to target incumbent low quality teachers through professional development programs should

take the potential signalling value of professional development programs into account when offering courses. Finally, the results of this thesis have suggested focal points for policy interventions in reducing student attrition from teacher training, increased efforts to enthruse non-western migrants for the teaching profession, and stimulating full-time employment of incumbent teachers.