

Chapter 1

Introduction

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Size of school organizations is a recurrent theme in Dutch education policy and has shown fluctuations in the past 20 years. From the mid-1980s until the mid-1990s the government policy has been strongly focused on stimulated scaling-up in all sectors of education, see e.g., the report “Scale and quality in primary education” (Ministerie van Onderwijs and Wetenschappen 1990). The expectation was that scaling-up would be both cost-effective and beneficial to the quality of education and the educational career opportunities for pupils (due to e.g., more choice within larger institutions, easier transfer opportunities to other programs, and more opportunities for professionalization and specialization of staff). From the perspective of school boards, school leaders, and government finally, scaling-up was seen as an important precondition for more decentralization and increased autonomy of schools and institutions. One of the assumptions was that by increasing the autonomy of schools and school boards a more differentiated curriculum would emerge (Onderwijsraad 2005; Ministerie van Onderwijs et al. 2008; NWO 2011; Van de Venne 2006).

Between 1990 and 2006, in all education sectors the number of schools and institutions decreased, while the number of pupils or students within a school or institution increased (Onderwijsraad 2005, 2008). In primary education the average school size in 1990 was 171 pupils, while in and after 2000 an average school had around 220 pupils. In secondary education the mean school size increased from 461 pupils in 1990 to around 1400 in 2006 (Onderwijsraad 2005, 2008; Blank and Haelermans 2008; Ministerie van Onderwijs et al. 2011). It should be noted that in Dutch secondary education schools often comprise several locations. The average number of students per location is approximately 750. Since the turn of the millennium more and more attention is demanded for the side effects and risks of scaling-up. In 2005, the Education Council alerts to the potential risks of ongoing increases in scale, i.e., if these lead to larger educational institutions than is strictly necessary for an effective and efficient performance of their duties. These undesirable effects are related to the freedom of choice of participants and parents, to

the management of educational organizations and to the social cohesion within the institutions (Onderwijsraad 2005). Around 2008, a turning point was reached and concern was felt about “the human dimension” in education, as seen from the perspective of pupils, parents, and students (Tweede Kamer 2008). The Ministry of Education, Culture and Sciences in 2008 prepared a memorandum on the human scale in which the human dimension is defined as “an institution being well-organized, so that all those concerned and the stakeholders have a voice and freedom of choice, they all together feel responsible for the school and the lines of decision-making are short” (Tweede Kamer 2008, p. 9). Thereby, scale is seen as an important factor in realizing the human dimension (Ministerie van Onderwijs et al. 2008; Onderwijsraad 2008; Tweede Kamer 2008).

In other countries the same debates with regard to scale are visible (NWO 2011). At the same time, it should be noted there is lack of scientific evidence that underlies the concerns and reforms that are based on it (for the latter, see e.g., the reforms that take place in the US where traditional large high schools are converted into smaller more personal schools, mainly supported by institutions such as the Bill and Melinda Gates Foundation (Kahne et al. 2008; NWO 2011).

In the research on school size effects two main perspectives can be distinguished. On the one hand, there is the basic question of the impact of school size on achievement, which we consider as the effectiveness perspective. On the other hand, research is focused on the cost effectiveness of school size, which is considered the efficiency perspective. A third perspective, which can be seen as a further elaboration of the effectiveness perspective, is the embedding of school size in multilevel school effectiveness models.

1.1 The Effectiveness Perspective: Direct Effects of School Size

What we know from recent review studies and meta-analyses is that both “very small” and “very large” school sizes are less conducive to the quality of education (Cotton 1996; Andrews et al. 2002; Newman et al. 2006; Hendriks et al. 2008; Leithwood and Jantzi 2009). Across studies a different optimum school size is found, which partly seems to be determined by study characteristics such as the country in which the study was conducted and the level of schooling (e.g., primary or secondary education) the study focused on, and the student population characteristics. Another important factor is the type of outcome variable(s) used in the study. In many studies the effect of school size on cognitive outcomes is examined, while other studies focus on social affective outcome measures such as school well-being (see e.g., Stoel 1980), ownership, social cohesion, safety, participation, truancy, drop-out, attitudes toward school or self (see e.g., Andrews et al. 2002; Newman et al. 2006; van de Venne 2006; Feenstra and Gemmeke 2008; Hendriks et al. 2008).

1.2 The Efficiency Perspective

Empirical evidence about the association between school size and costs is limited (van de Venne 2006; Stiefel et al. 2009). Three review studies that pay attention to the economies of school size are available (Andrews et al. 2002; Newman et al. 2006; Leithwood and Jantzi 2009).

1.3 School Size Embedded into Multilevel School Effectiveness Models: Indirect Effects of School Size

In conceptual multilevel school effectiveness models (see e.g. Scheerens 1992; Scheerens and Bosker 1997) school size usually is included as context variable at school level. This implies that school size is more or less perceived as a given condition and not immediately seen as one of the malleable variables that might have a positive impact on achievement. Gaining a better insight into the other preconditions and intermediate school and instruction characteristics that facilitate or impede the effects of school size on outcomes (such as school safety, social cohesion, or participation) is the third perspective of the review study and an important aim of the contractor.

Based on the perspectives three leading questions have been formulated for this review study. The fourth question focuses on school size from the Dutch perspective. The research questions are:

- (1) What is the impact of school size on cognitive learning outcomes, noncognitive outcomes and the social distribution of learning outcomes?
- (2) What is the “state of the art” of the empirical research on economies of size?
- (3) What is the direct and indirect impact of school size, conditioned by other school context variables on student performance? (where indirect effects are perceived as influencing through intermediate school and instruction characteristics)
- (4) What is the specific position of the Netherlands in international perspective?

To answer these questions in [Chap. 2](#) an overview is given of the state of affairs of the school size research by focussing on recent review studies on school size effects and Dutch studies that investigated the association between school and different outcome variables. Based on this inventory a tentative conceptual model of school size effects is presented, including different types of preconditions, intermediate variables, and different outcome variables. Next to this, in this chapter the effects of school size on achievement in internationally comparative studies are addressed as well and the results of the scarce Dutch studies that investigated the association between school size and different outcomes.

In [Chap. 3](#) the results of a research synthesis based on the so-called vote count technique are presented combined with a narrative review providing more in-depth

information about school size effects included in the review, thereby focusing explicitly on the correlations with other preconditions and intermediate variables included in the study. The review focuses on a broad set of outcome variables and includes studies that investigated the effects of school size at primary or secondary level of schooling.

Chapter 4 summarizes the effect of school size on student achievement and noncognitive outcomes in a quantitative manner. The approach applied in this chapter yields an overall estimate of expected outcomes at a given school size. Per school size the average standardized outcome across a number of studies are included. The studies included form a subset of the studies covered in the **Chap. 2**. Separate findings are presented for primary and secondary education.

In the fifth, concluding, chapter the results are summarized and discussed with respect to their relevance for educational policy in general and for the Netherlands in particular. Suggestions for future research on school size are presented.

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