How Dutch Primary Schools beat the odds: Retaining Teachers during a Teacher Shortage

Sanne Reuvers

Utrecht University

6629520

Larike Bronkhorst

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Abstract

The teacher shortage problem is an increasing problem in the Netherlands and puts the quality of education under huge pressure. Current studies provide insight into school-level factors influencing the recruitment and retention of teachers. Nevertheless, a more coherent research, examining the factors in context and in relationship to each other, is missing. This study aims to learn from schools beating the odds: schools located in a high-shortage region that have no structural teacher shortage. An across-case analysis of four schools combining interviews with different stakeholders and document analysis, is conducted to answer the research question: *What characterizes primary schools located in one of the high-shortage G5-regions that have limited or no structural teacher shortages and what (combination of) school-level factors do they have in common?* Results show seven school-level factors divided into conditions, implications and a reflection in daily practice. Findings provide insight in key characteristics of schools with no teacher shortages, making it possible to optimally design interventions and evaluations of initiatives since they are lacking. The results of this study therefor allow schools and policy makers to make informed decisions regarding these school-related factors.

Keywords: Teacher shortage, primary school, school-level factor, across-case study

How Dutch Primary Schools beat the odds: Retaining Teachers during a Teacher Shortage

Teacher shortage is becoming so acute in the Netherlands that it is difficult if not impossible for schools to find personnel (Inspectorate of Education, 2019; 2020). Long-term predictions indicate a continuous increase in teacher shortages, which will eventually affect the whole of the country (OCW, 2019a.). Especially the five largest regions surrounding Amsterdam, Rotterdam, Den Haag, Utrecht and Almere, also referred to as the G5, have a large increase in teacher shortages and will be faced with even greater shortages in the future (Adriaens et al., 2018; Inspectorate of Education, 2019; 2020; OCW, 2019a.; 2019b.; Primary Education Council, 2020). Research has shown that teachers are the most important factor when it comes to ensuring high-quality education (King Rice et al., 2008). As a result, when there are no teachers, pupils do not get the education they deserve (Emergency plan teacher shortage in Amsterdam, 2020), plausibly having a negative effect on the quality of the education and pupil performance (Inspectorate of Education, 2020).

In recent research, the teacher shortage problem has been explored on various levels: the individual- and national-level, but also more frequently at the level of the school. A school perspective holds that teacher shortage cannot be fully understood without closely examining the characteristics of the school. Since these school characteristics have been examined extensively across countries, isolated factors that may influence the attraction and retention of teachers, like pupil population or salary, are known (Borman & Dowling, 2008; Nguyen et al., 2019; See et al., 2020). Nevertheless, there is still a great demand for a more in-depth study since many school-level factors are identified based on teacher perceptions queried trough surveys (Boyd et al., 2009).

The need for further examining the teacher shortage problem at the school-level is also evident from the difference in the magnitude of the problem within regions. Surprisingly,

even in the high shortage G5-regions, there are schools that have limited to no structural

teacher shortages, even though neighboring schools do. This indicates that multiple school-

level factors play a role in schools' recruitment and retainment of teachers. Hence, a more

coherent research examining the factors in context is applied in this study.

Therefore, this study employs a school-level perspective, exploring in-depth the

school-level factors previously identified in literature among other characteristics. This study

focusses on primary schools located in a region with high shortages, that have no structural

teacher shortage. Findings will give insight in the relation between school-related factors that

might explain these differences in teacher shortages within the region. This research thus

increases the insight into preventing or minimizing teacher shortages. With these insights,

interventions at the workplace that are currently missing (Borman & Dowling, 2008; Boyd et

al., 2009; Nguyen et al., 2019; Perryman & Calvert, 2020; See et al., 2020) can be well-

designed and evaluated. Findings will allow schools and policy makers to make informed

decisions regarding these school-related factors.

Teacher Shortage Problem

When there are not enough qualified teachers available to fulfill the number of

required teaching positions in the school, and the demand outstrips the supply, we speak of a

teacher shortage (OCW, 2020b.; Podolsky et al., 2016; See et al., 2020). Teacher shortage can

be structural or incidental in nature. Structural shortages require long-term replacement and

are increasingly common (van den Langenberg et al., 2020). Causes can be maternity leave,

burn-out, long-term illness or teachers moving between schools or leaving the teaching

profession. Incidental shortages often request for immediate replacement due to illness.

In recent years, the Dutch Ministry of Education, Culture and Science has structurally

commissioned the mapping of the labor market in primary education. It is difficult to include

nuances in the measurements, such as teachers moving between jobs during the school year or

internal vacancies, and therefore the actual shortages in the schools are hard to grasp. Nevertheless, various studies and reports (Inspectorate of Education, 2019; 2020; 2021; van den Langenberg et al., 2020; OCW, 2019a.; 2019b.; 2019c.; 2020a.; 2020b.; Primary Education Council, 2020) indicate that the teacher shortage will continue to increase. Some predictions indicate teacher shortage will increase up to 1970 full time equivalent in 2024 on top of the current shortages if conditions remain the same (OCW, 2019c.). Because the quality of the teacher is the most important factor influencing student learning (OECD, 2005), due to the increasing teacher shortage the quality of education is under enormous pressure. Also, for teachers, the shortages result in an even further increase in workload and a decrease in job satisfaction. In a system that relies heavily on individual teachers, a shortage is felt directly in daily practice. This is worrying, given that the perceived workload in education is already higher than in others sectors and high workload threatens to further increase the teacher shortage (Inspectorate of Education, 2020).

School-Level Perspective

The teacher shortage problem can be viewed from different levels. First, it can be viewed from a perspective on the national-level. Teacher shortage at national-level is determined by national trends concerning the influx and outflow of teachers. Viewed from contemporary educational theory, these shortages primarily due to increases in teacher retirements and decreases in student enrollment in teacher education programs (Ingersoll, 2001). Other examples of factors leading to shortages at the national-level are growth in pupil population, the greying of the workforce, and the low prestige of the profession (Donitsa-Schmidt & Zuzovsky, 2016).

Secondly, teacher shortage can be viewed from a perspective on the individual-level. On this level, teacher shortages are solely explained as a function of the characteristics of individual teacher (Ingersoll, 2001). For example, it is known that teacher turnover is higher

among less experienced, young and old teachers compared to experienced or middle-aged ones (Boyd et al., 2009).

Recently, more attention has been paid to the level in between: the school-level (Borman & Dowling, 2008; Boyd et al., 2009; Donitsa-Schmidt & Zuzovsky, 2016; Ingersoll, 2001; Ingersoll & May, 2011; King Rice et al., 2008; Nguyen et al., 2019; Perryman & Calvert, 2020; See et al., 2020). From this perspective the characteristics of the school are closely studied in relation to teacher shortage. Examples of school-level factors are school leader support, teacher autonomy and teachers' opportunities for professional development.

The actual reflection of the lack of teachers is more evident at school-level than the national-level (Donitsa-Schmidt & Zuzovsky, 2016) since the lack of teachers causes direct problems in the daily practice and leads to extra workload for other employees at the school. Therefore, school-related factors are the biggest cause for imbalance in the school and these factors are considered to be the most significant ones compared to individual- or national-level factors (Donitsa-Schmidt & Zuzovsky, 2016; Ingersoll & Smith, 2003) In addition, factors at the national- and individual-level cannot explain the differences within the high-shortage regions, whereas the factors at the school-level can. In order to get insight into the ways in which teacher shortages can be prevented, it is necessary to closely examine the characteristics of the school. Therefore, this study employs a school-level perspective exploring these school-related factors.

School-Related Factors

Existing research studying the school-related factors influencing teacher recruitment, retention and turnover, as well as factors influencing teachers moving between schools or out of the profession, typically relies on teacher questionnaires (Boyd et al., 2009). Since questionnaires do not provide the opportunity for spontaneous engagement with research participants, for additional explanations, or for the emergence of narratives, underlying

motivations are difficult to find (Secor, 2010). In addition, teacher questionnaires give a one-sided picture because perspectives of other employees in the school, such as the school leader, are not included. Also, these results do not provide insight into other possible causes or relationships between factors.

Elaborating on these school-related factors it can be expected based on different studies scattered in the literature, that schools that manage to minimize teacher shortage have at least some of the following characteristics, divided into four categories.

School's Characteristics

The first category is the school's characteristics. This category includes, for example, the size of the school, school location and pupil population. Some of these factors have already been studied as independent variables in relation to teacher shortages. For example, a challenging pupil population has been proven in many studies to be related to having problems in teacher recruitment and retention and a higher chance in teacher turnover (Allensworth et al., 2009; Ingersoll, 2001; Loeb et al., 2005; Nguyen et al., 2020; Primary Education Council, 2020b.). In addition, Boyd et al. (2009) concluded there is a need to further investigate other school contextual factors like school neighborhood characteristics. The publication by the Dutch Primary Education Council (2020b.) also implicates that besides the school location, school size may influence whether a school has problems finding enough teachers.

School's Organizational Characteristics

The school organizational characteristics are the ways in which the school has organized its education. This includes having a specific educational concept, the perspective on learning and the vision of the school. Hammerness (2008) found that teacher move between schools for pedagogical reasons related to teaching aims and goals. This category also includes how these factors manifests themselves in daily practice. For example, an

educational concept such as Montessori can be designed in different ways. Empowerment to influence decisions that affect these organizational characteristics is also an important aspect related to this category. Teachers being able to influence decisions that affect their school or classroom are more likely to retain at their school (Hirsch & Emerick, 2006).

Work Environment

The next category distinguished is the work environment. This concerns for example, the working atmosphere that prevails at a school, the perceived level of support and the extent to which there is collaboration. Research shows that teachers are more likely to stay at their current school when they perceive positive working conditions and atmosphere (Hirsch & Emerick, 2006; See et al., 2020; Toropova et al., 2020). Despite, See et al. (2020) also conclude the lack of rigorous studies that evaluated interventions related to an area such as working conditions.

Another important factor when it comes to retaining teachers is school leadership (Mancuso et al., 2010). In the research of Hirsch and Emerick (2006) leadership has the strongest correlation with teachers planning to stay at their school. Related is the level of support the teachers perceive by the school leader, but also by colleagues and administrative support. Boyd (2009), Nguyen et al. (2020), and See et al. (2020) indicate support is an area to explore further and more research is needed.

Also included in this category is collaboration, which is the extent to which colleagues interact and work together. Research shows that more cooperation and interaction between teachers is related to job satisfaction and reduces teachers wanting to change schools or the profession (Kim & Loadman, 1994; Sims, 2017; Toropova et al., 2020).

Teacher Prospects

The last category concerns the prospects a teacher has within the school. This is distinguished in salary, bonusses and professionalization opportunities. Salary is an important

factor when it comes to employment decisions and teacher retention (Hirsch & Emerick, 2006; Imazeki ,2005). Besides salary and bonusses, another prospect for teachers is their ability to grow on professional level. Professional development is a key dimension of teachers' satisfaction with their job (King-Rice et al., 2008), and satisfied employees do not feel the need to change their current work situation or to move to another job (Nauta et al., 2009). Also, giving teachers more autonomy over their professional development goals leads to an increased job satisfaction and higher change of retention (Worth & van den Brande, 2020). Still, other studies suggest autonomy and professionalization need more attention in follow-up studies when it comes to retaining teachers (Boyd et al., 2009; Nguyen et al., 2019).

Coherence of School-Level Factors

When reading existing research, it appears that school-related factors are independent elements influencing the recruitment or retention of teachers. However, when we dive into the spread of the problem, we find there are differences in the extent of the teacher shortage problem within the regions. It is known that the teacher shortage problem is unevenly distributed across the country and across different groups of pupils (Inspectorate of Education, 2019; 2020). For example, very weak schools with a challenging pupil population and schools of which a large part of the population consists of non-western pupils have great difficulty in finding good teachers, which contributes to an increased change of inequity in education. Also, the G5-regions surrounding Amsterdam, Rotterdam, Den Haag, Utrecht and Almere, face the highest shortages in comparison to other regions. This is due to a higher outflow than influx of teachers because teachers prefer teaching in more rural areas, have high housing costs in the G5-regions and have limited accessibility (OCW, 2019c.). In addition, the Primary Education Council (2020b.) also concluded, especially schools within the G5-regions with a high school weight, struggle in finding enough teachers. A high-school weight indicates a large pupil population with parents with a low educational background. However,

it is striking that there are also major differences in teacher shortages between these schools that face the challenging location and school weight. While one school in a high-shortage region is faced with enormous shortages, another school is less affected. This indicates that not a single factor like location or school weight causes the teacher shortage problem. Therefor the coherence of the school-level factors that already have been proven to influence the recruitment or retention of teachers are studied.

Current study: From Factors to Daily Practice

This study therefore examines the known school-level factors, but also examines the relationship between the factors and the way in which they manifest themselves in daily practice. Employing a comparative case study, allows this study to understand how the context of the school influences the prevention of teacher shortages (Goodrick, 2014). Although the previous mentioned categories may give the impression that the factors are seen as separate elements, the method allows to search for the context, interpretation and overlap of the factors. Also, the research offers scope to make additions to the factors as mentioned in this theoretical framework, both from the literature and from the findings.

When the school-level factors and the relations between them are clearer, interventions and strategies preventing teachers leaving the school or profession can be altered. Unfortunately, little research has been done so far into the design of these interventions and strategies. Although there have been initiatives (Podolsky et al., 2016), more rigorous evaluations are needed (Borman & Dowling, 2008, Nguyen et al, 2019). Insight into how these school-level factors are related and manifest themselves in daily practice can contribute to this. This leads to the following research question: *What characterizes primary schools located in one of the high-shortage G5-regions that have limited or no structural teacher shortages and what (combination of) school-level factors do they have in common?*

Methods

Design

A comparative-case study is performed, combining within-case and across-case analysis (Goodrick, 2014), using document analysis and semi-structured interviews with stakeholders.

Participants

First, schools were selected by purposive sampling (Boeije, 2010) leading towards a diverse case study. Case studies are recommended to examine three to five cases (Crowe et al., 2011). In this study a number of four cases were selected. This is a result of time restrictions and the willingness to participate from the few schools meeting the criteria.

The schools were selected based on the research question and meeting the criteria of being a primary school, located within one of the G5-regions that has limited or no structural teacher shortages. In addition, based on the research by the Primary Education Council (2020b.), schools preferable had a high school weight, which is 35 or higher (Primary Education Council, 2020). The first criteria; being a primary school was checked by the registration of the school on scholenopdekaart.nl. For the second criteria; located in a G5-region, the location of the school had to be within the borders of the labor market regions (RegioAtlas, 2012) of a G5-region. The last criteria; limited or no teacher shortages, is defined by the number of vacancies open. Preferably the school does not have teacher shortages and thus no vacancies open. For the criteria of limited teacher shortages, only schools have been selected that have incidental teacher shortages. In order to check whether the schools actually experience no structural shortages, a question regarding the perception of shortages was also included in the interviews. Schools meeting the criteria have been searched by using a personal network, social media and exploring schools' websites. The schools were approached by an invitation to participate via email (Appendix A).

Four schools were selected and a case description was created (Table 1). All four schools are located in one of the G5-regions, two of the four schools are located in the same G5-region. Two of the four schools have the same schoolboard. A total of 12 participants were interviewed within the selected schools. For each case, the school leader(s) and at least one teacher were interviewed. In order to give well informed answers in the semi-structured interviews, at least one of the interviewed employees was selected based on a minimum of two years working experience within the school. Preferably participants had previous working experience at a different school in order to make informed comparisons.

Instruments

First, a document analysis was conducted using a document analysis format (Appendix B) in order to map a part of the school-related factors and, because of that, reduce time in the interviews. Open data was gathered using public school data websites, for example Dienst Uitvoering Onderwijs (n.d.). In addition, the following documents were voluntary requested from the school if not published online: year plan school, HR documents, quality assurance plan, financial year plan and inspection report. The relevant documents collected provided another view and further helped in gaining insight into the study. If documents were not available, had low quality or did not provide answers, the data missing was gathered in the interviews.

After finishing the document analysis, semi-structured interviews were held. In order to structure the interviews, a topic list with questions was drafted for teachers (Appendix C) and school leaders (Appendix D) based on literature research. Based on the information of the document analysis and the participant, the questions of the semi-structured interview were aligned for the specific stakeholder.

Table 1

Case description

Characteristics	School 1	School 2	School 3	School 4
School size*	Large	Large	Medium	Small
Location	Suburban	Urban	Urban	Urban
Size schoolboard**	Medium	Very large	Very large	Medium
School weight***	Low	High	High	High
NOAT code2****	10	56	16	13
Denomination	Roman Catholic	Roman Catholic	Roman Catholic	Hindu
Participants	Teacher (side entrant)	Teacher (side entrant)	Deputy director (former teacher)	Teacher (experienced)
	Teacher (starter)	Teacher (experienced)		Teacher (experienced)
	Teacher (experienced)	School leader	School leader and teacher	School leader
	School leader			
Number of documents	10	15	10	8
Teacher shortage problem*****	No	No	Limited	Limited

Note. * Based on pupil numbers of schoolyear 2020-2021. Small school size = <145 pupils, Medium school size = 145-300 pupils, Large school size = >300 pupils (Primary Education Council, 2020).

** Small size schoolboard = <5 schools, medium size schoolboard = 5-10 schools, large size schoolboard = 11-20 schools, very large size schoolboard = >20 schools (Dienst Uitvoering Onderwijs, 2019/2020).

*** School weight is the three-years average based on 2017-2018, 2018-2019 and 2019-2020. Low school weight is <25, medium school weight = 25-35, high school weight = >35 (Primary Education Council, 2020).

**** Percentage of all pupils with a NOAT code 2, which indicates the pupil has a non-Dutch cultural background (Dienst Uitvoering Onderwijs, 2020).

**** No = no vacancies and no problems if there would be vacancies in the near future. Limited = currently a vacancy but probably no problems in fulfillment, or; no vacancy but when there is it would be a problem,

or; fulfillment of a vacancy has been a problem in the recent past.

Each interview started with a general introduction and ended with room for input of the participant. For example, the participants' view on why the school does not have shortages was asked to unravel potential additional factors. Also, if there were any ambiguities during the interview, follow-up questions were asked.

To obtain reliable and valid data from each instrument, several strategies were employed. The interview questions were pilot tested by a primary school teacher unrelated to the study, which contributed to the reliability of the instrument (Bloomberg & Volpe, 2018; Creswell & Poth, 2016). Unclear concepts were clarified and follow-up questions completed. Furthermore, the validity of the instruments was also increased by an audit trail and peer-debriefing. In the audit trail a second researcher systematically reflected the data gathering and thus the instruments used in this study (Appendix E). The peer-debriefing consisted of advance preparation and orienting to the research question and instruments. This contributed to the improvement of the credibility of research (Akkerman et al., 2008; Barber & Walczak, 2009).

Procedure

After the case selection, the schools received the information letter via email (Appendix F). Next, a document analysis was performed. For this, public data and school data was collected and analyzed. After the document analysis was finished, two to four semi-structured interviews per case were held. Participants signed the consent form before starting the interview (Appendix G).

Analysis

Within-case analysis. First, the documents were analyzed using the document analysis format (Appendix B). Second, the interviews were accurately transcribed and anonymized. The transcripts of the interviews were checked for accuracy against the original recording. Each case is primarily based on participant's verbal transcriptions along with the

related documents. Then, all transcriptions and the document analysis were coded for each case using Nvivo. A combination of a deductive and inductive strategy was applied to conceptualize and label all data through open coding. This resulted in 25 deductively obtained codes, which were complemented with 136 inductively obtained codes. When theoretical saturation was reached, meaning no new codes, themes or relationships emerged during the open coding (Moghaddam, 2006), the data was axial coded. In this stage the number of codes were reduced by finding relationships and combining codes to overlapping themes. For example, different ways of working in the classroom were covered by the theme: didactics. In the final stage, the selective coding, themes were integrated into major categories which have explanatory power within the context of the research (Moghaddam, 2006). For example, didactics was along with other themes integrated into: perspective on learning, which became a part of the major category: vision on education. This resulted in the codebook (Appendix H).

Subsequently, to filter important and relevant themes in relation to the research questions, the between-method triangulation was applied (Hussein, 2009). This method combines and utilizes both qualitative and quantitative methods in analyzing the themes. The thematic analysis started with a quantitative approach, by plotting all data sources per case against all themes and codes. The results of this provided insight into which themes were widely supported, i.e. were named by many data sources, and which themes were often named per data source. An initial selection of important themes was made on the basis of broad support (appointed by at least 60% of all data sources) and often mentioned (at least 10% of all references). Also, striking outliners were selected.

As a part of the between-method triangulation, important themes were not only identified by quantifying the data, also themes were selected based on the content of the references. This can also be described as a thematic analysis on a latent level, meaning

underlying ideas, assumptions, and conceptualizations were identified and examined (Braun & Clarke, 2006). For example, all schools have some form of learning teams but synonyms are used. By only using quantitative approaches, not all features of learning teams would be included due to the use of different related terms.

Based on the selection of the themes, an in depth-case description is created for each school by synthesizing each theme per data source and also across all data sources of one school. Finally, the important themes, filtered by the thematic analysis, were checked for overlap within-case to indicate possible relationships.

Across-case analysis. For the across-case analysis, results of the within-case analyses were merged, enabling comparison between all four schools. First, the results of the thematic analysis based on the quantitative approach were compared (Table 2). Broadly carried and often mentioned themes were checked across-case. Secondly, the in-depth case descriptions per theme across each school were combined and compared in a meta-matrix. A synthesis across all schools per theme was added. Enucleated references were added within the syntheses (Appendix I). Final, the overlap of themes within each case was also checked across all cases (Appendix J).

All data was ethically obtained and stored using YoDa. Triangulation of methods occurred by using the insight of documents next to the interviews. Integrating the different data sources, from different stakeholders as well as from documents, contributed to a higher level of quality insurance by data triangulation (Hussein, 2009). Using an audit trail, the methodological steps of data gathering and data analysis were accounted by another researcher and explicated in the audit-trail assessment scheme (Appendix E). This audit procedure does not only assess the quality of this study, but also contributes to the improvement of quality (Akkerman et al., 2008). Also, peer debriefing (Boeije, 2009) contributed to enhancing the quality of this research by orienting tot the data and research

question, advance preparation, online meetings and reviewing a part of the data with two

peers (Barber & Walczak, 2009).

Results

Seven important school-related factors emerged from the across-case analyses divided

into three levels: macro-level conditions; meso-level implications; and micro-level reflections

in daily practice (Figure 1). School-level factors described at the macro-level are conditional

in nature and less explicit observable. The school-related factors at macro-level are

organization of the school; vision on education; and leadership. At the meso-level, school-

level factors are classified with a close or direct relation to the function and task of the teacher

which is described as an implication. The school-related factors on meso-level are:

collaboration; professionalization; and climate. Final, at the micro-level the school-related

factor learning teams is classified as it is a reflection in the daily practice. Results are based

on a quantitative (Table 2) and qualitative (Appendix I) thematic analysis. In Appendix J, the

overlap between the seven school-related factors is presented.

Organization of the school
Vision on education
Leadership

Macro-level: *conditions*

Collaboration
Professionalization
Climate

Meso-level: *implications*

Learning teams

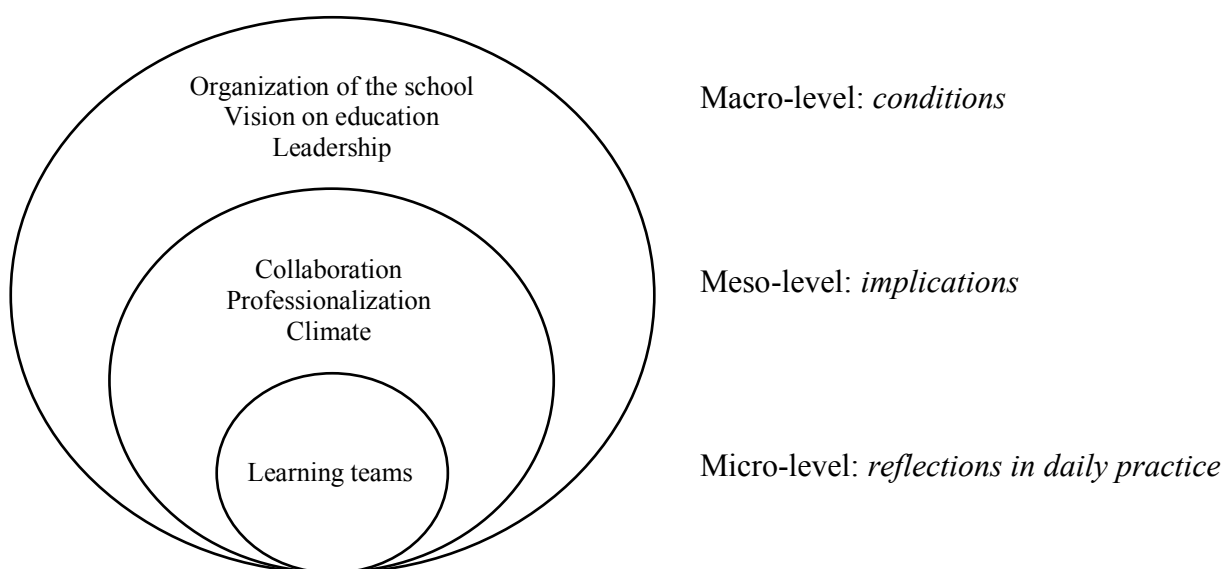Micro-level: *reflections in daily practice*

Figure 1. Representation of the school-related factors divided into conditions, implications

and reflections in daily practice.

Table 2

Thematic analysis across-case, the quantitative approach

Theme	School 1		School 2		School 3		School 4		Average across schools	
	Datasources*	Coverage**	Datasources*	Coverage**	Datasources*	Coverage**174	Datasources*	Coverage**	Datasources*	Coverage**
Organization of the school	100	44,1	100	31,3	100	28,2	100	20,2	100	31,0
Vision on education	100	23,0	100	28,5	100	27,0	100	32,8	100	27,8
Leadership	100	21,1	75	20,6	66	16,7	100	11,1	85	17,4
Collaboration	100	15,7	100	20,1	100	12,1	100	17,7	100	16,4
Professionalization	100	15,3	100	13,6	100	11,5	100	10,6	100	12,8
Climate	100	10,3	100	9,8	100	12,6	100	15,2	100	12,0
Learning teams***	80	14,2	100	12,6	100	6,9	75	6,6	89	10,1

Note. * Mentioned by [x]% of all datasources , ** [x]% of all references within-case cover this theme , *** synonyms are included.

Macro-Level: Conditions

The macro-level conditions consist of three school-level factors which are often not directly mentioned in relation to the reasons why teachers want to stay at their current school. Nevertheless, these three factors have the highest coverage in references (Table 2) and are related to the three meso-level factors (Appendix J) which indicates the macro-level factors are more conditional in nature. Also, the macro-level factors have a strong mutual coherence (Figure 2) and therefore they can be seen as foundational characteristics of the school.
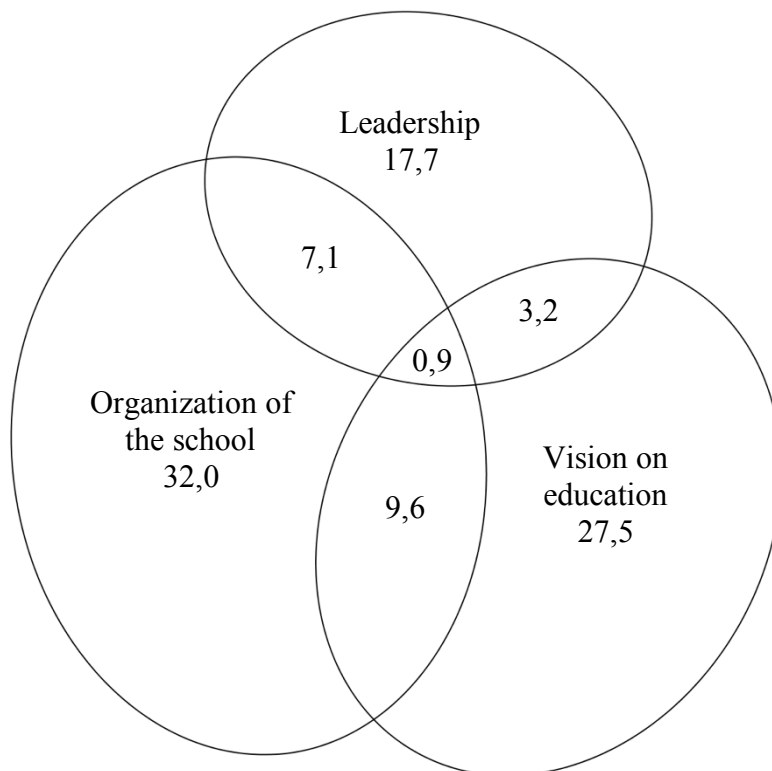

Figure 2. Proportional Venn-diagram representing the percentage overlap in references of the macro-level conditions.

Organization of the school. A structured and clear organization appears in all schools. For example, in school 1, an unambiguous method of working is applied. This is related to the vision on education since one of the pillars in the school vision concerns the

organization of education. In school 2, the meetings are structurally embedded within a "solid organizational structure" in which "the division of tasks is clear and clear procedures have been agreed". The corresponding answers from the stakeholders also show these structures are clearly embedded. School 3 adverts to a lesser extent about the way in which the school is organized or the way in which the teachers work together in the same way. In school 4 the structure of the organization is clear, but an unambiguous way of working by the teachers is in development as evidenced by the ambition the school leader pronounced in creating a more continuous line in the actions of all teachers.

All schools have their own approach in how the tasks are divided in order to let the operating core; teachers, focus on their foremost task; the primary process of teaching. The teacher plays a central role in the schools and there is an optimal use of their qualities. For example, the usage of school trainers and subject teachers allow teachers to have more time to focus on teaching and the preparation of lessons. In school 1, the teacher is deliberately supported by an activity coordinator which allows the teachers to have more time to focus on their teaching tasks. As the school leader from school 1 states:

> I really think that we have infantilized the profession in recent years. It's really a very silly thing, because the moment you're going to say to an HBO-trained someone, or even worse, to someone with an academic teacher training background, they have to deal with the organization of an Easter breakfast. Then you are really out of your mind.

Vision on education. All schools have a clear vision on education although they strongly differ from each other. There are differences in what is perceived as a school vison, educational concept or perspective on learning. These concepts overlap and are often mentioned in relation to each other by stakeholders. For example, in one of the schools, the vision on education is closely related to the way the education is organized, whereas in

another school a well-known educational concept is applied. Nevertheless, all schools have a strong vision on education as is shown by the consistency in answers.

All schools are also consciously working on the profiling of the school or have been in the past to distinguish themselves from other neighboring primary schools. Especially the smaller schools are consciously engaged in attracting more pupils by the profiling of the school. The profiling also contributes to clarifying the vision on education within the schools. This is especially evident in school 3, where the school has recently been choosing and establishing a distinctive profile, which is now reflected in the daily practice.

Leadership. The third major theme that emerged is leadership. In all schools the school leader plays a significant role in the organization of the school and the vision on education. It is remarkable that most school leaders are quite deviant from what is expected from a school leader. One school leader was described as a "happy egg", another one as "king of grants" and a third as "mother of the schoolboard". This illustrates the differences in leadership styles and characteristics. For example, the school leader of school 2 is actively focused in finding new teachers and formation whereas the school leader of school 4 is often mentioned in relation to trust.

Nevertheless, the school leaders also showed some core features; they are involved, people managers and stimulant. Involvement is most often mentioned in total and also across the four schools. This characteristic manifests in various ways, like for example in having frequent informal conversations, reducing the workload of teachers if necessary, giving employees the opportunity to talk about professional and personal challenges or the participation of the school leader in a learning team. School leaders are also people managers by consciously working on the management of their employees. They make sure the interaction and communication between the employees runs smoothly. The school leader of school 4 illustrates: "you work on the basis of a relationship. Yes, and if the relationship is not

good, then you will not enjoy going to work". The school leaders of school 1 and 3 especially stand out when it comes to stimulating. In school 1 this results in giving teachers confidence in their abilities, retain the focus on the unambiguous way of working in the school and making people enthusiastic. In school 3 stimulating is more explicit present due to teachers with a lack of ambition to develop and improve and thus a more passive attitude.

Meso-Level: Implications

The macro-level factors are most often mentioned followed by the meso-level factors. The meso-level factors are directly mentioned by teachers in the questions regarding their motives to work or stay at the school, indicating these factors are implications which are more tangible in daily practice. There is also a clear mutual coherence between the meso-level implications (Figure 3).
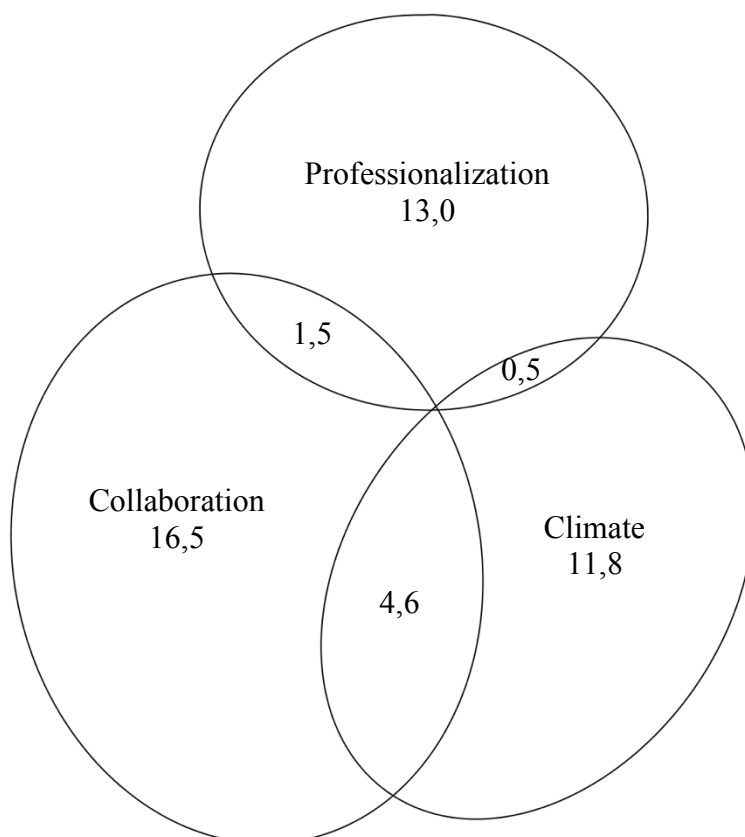

Figure 3. Proportional Venn-diagram representing the percentage overlap in references of the meso-level implications.

Collaboration. Collaboration is related to the organization of the school. This implication is in all schools intertwined in different ways of meetings and the daily practice. For example, all schools have, beside the learning teams, meetings with their teams, parallel groups and/or units. Due to different ways of organizing meetings, teachers work together in different compositions resulting in almost all colleagues working together at a certain time.

Also, teachers indicate they collaborate in daily practice by, for example, walking into each other's classrooms and having short consultation moments. The ways in which collaboration occurs contributes to teachers wanting to stay working at the school: "I think the collaboration with each other is also a point for many colleagues why they stay at this school".

Professionalization. All schools underline the fact that teachers have to develop themselves in order to be qualified and professional employees. As the school leader from school 4 states: "If you want to develop children, you also have to develop yourself". In school 3, the ambitions of the teachers to develop themselves is the least present: "I noticed that some people don't have very high ambitions. And that is sometimes a pity.".

In some schools, professionalization is embedded within the organizational structure. This is explicit within school 1 where professionalization is one of the pillars of school vision and there are multiple structured ways in which all teachers develop themselves continuously. For example, within the learning teams informal and collective learning occurs.

Also, school 1 and 2 have embedded required trainings to obtain a basic level of expertise of teachers. For example, in school 2 every teacher has to follow a 1-year training about the educational concept the school employs. And in school 1, if you want to become an expert, in for example, math or language, you have to follow a set of obligated courses.

All schools also indicate there is room for individual professionalization, provided it is related to the school vision or educational concept. In some schools this is also extra

stimulated. For instance, by budget for literature, possibilities to visit conferences and also trainings by an academy organized by the schoolboard.

Climate. Climate involves the working conditions and atmosphere in the school. All schools indicate they, and others, perceive a positive atmosphere inside the school. Some schools relate this to the pupil population or building, but in most schools, it is about the atmosphere in the relation to each other. As school 1 illustrates: "an incredibly nice, cordial and pleasant atmosphere. And that is something that is elusive. Apparently, it's just really nice to be here together".

Climate is, in relation to collaboration the most given answer to the question why teachers want to stay at the school. Moreover, climate has a clear relation to collaboration. This is illustrated by school 4: "the team has known each other for quite some time. There has been little turnover. So yes, love and sorrow is also shared".

In school 3 and 4, which are smaller schools, climate is more explicit present, and especially a positive atmosphere. Teachers have a close, and often personal, relationship with colleagues resulting in a more family culture in school 3 and 4. In school 1 and 2 the climate relates more to a professional organization and the relationship between colleagues is on a more professional level.

Micro-Level: Reflection in Daily Practice

Looking across the schools, it is striking that learning teams, a school-level factor that aroused from the data collection, is present in all schools. Learning teams is therefore a characteristic of the schools. In addition, learning teams offers a way in which the macro- and meso-level factors can be brought together and applied in daily practice. Therefore, learning teams is also a reflection in daily practice of the characteristics of the schools.

Learning teams. Taking a closer look into the schools, learning teams can be characterized as a structured gathering of teachers, with the goal to work on ambitions or

goals from the school in collaboration. The schools vary in frequency, expectations of teachers and the goals that are central. School 1 and 2 meet every week for 1,5 to 2 hours on a set day and time, in school 3 teachers are free to determine when and how often they meet. This is on average five to six times in one schoolyear. In school 4 the learning teams meet one every 3 weeks on a set day and time. Bringing people together and organize interplay is particularly apparent in the organization of the learning teams. When looking at the expectations, schools 1 and 2 have high expectations of the professional quality of the teachers and they work on set goals and ambitions that are part of the school vision and educational concept. In school 3 the learning teams are more a formal work group but they have the ambition to become more of a learning community:

> And yes, it would be nice if we really become a bit more of a learning school, in which the working groups that exist now, that they become more learning communities that learn with and from each other and that it is important.

The learning teams in school 3 are organized based on more short-term school goals related to the schools' year plan. In school 4 learning teams have short-term school goals often stemmed from learning results.

Discussion

The research question examined in this study is: *What characterizes primary schools located in one of the high-shortage G5-regions that have limited or no structural teacher shortages and what (combination of) school-level factors do they have in common?* The results showed characterizing school-level factors that schools have in common, divided into the macro-, meso- and micro-level providing conditions, implications and reflections in daily practice.

Evidenced, unevidenced and new findings are discussed. First, a part of the school-level factors characterizing the schools with no shortages: leadership, collaboration,

professionalization and climate, were expected to be found in relation to retention motives of teachers based on literature research and have been evidenced in this study. In addition, collaboration, professionalization and climate were most often mentioned and thus an implication of a characterizing school-level factor, whereas leadership appeared to be indirectly of influence and is therefore more conditional in nature.

Secondly, other school-level factors described in the theoretical framework that were expected to be found in schools with no teacher shortages, were to a lesser extent evidenced by this study. For example, salary was not often mentioned in relation to why the schools perceive little or no shortages. This could be explained by the Dutch payment system of primary schools, registered in the collective labor agreement (Primary Education Council, 2020a.), which leaves little room for schools to determine a salary. The consulted research regarding salary in relation to teacher retention used in this study stems from the United states of America and thus other regulations into setting salaries apply (Hirsch & Emerick, 2006; Imazeki, 2005). Set salaries are nevertheless perceived by the teachers in this study as too low in comparison to teacher in secondary school and in relation to the tasks and responsibilities expected of the teacher. However, this does not appear to be a reason to leave a school, probably due to no better financial prospects in different schools.

Another school-related factor that was expected to be related to teacher shortages based on the theoretical framework, but was not explicitly found in this study is pupil population. But since in this study, schools with no shortages but with a high school weight and thus challenging student population were deliberately chosen, it makes sense that this association was not found. Besides, pupil population has often been linked to teacher turnover and not to teacher retention motives (Allensworth et al., 2009; Loeb et al., 2005; Nguyen et al., 2020; Primary Education Council, 2020b.).

The reason why some school-level factors were more explicitly found than others, may also ensue from the differences between the methods of research. While many of the known school-level factors have been studied using questionnaires (Boyd et al., 2009), this study has an explorative qualitative character and characteristics of the school are in-depth explored. This is done by the usage of interviews, providing respondents opportunities for additional explanations and the emerging of narratives (Secor, 2010) leading towards more in-depth answers and thus the possibility for different school-level factors to arise.

Third, new school-related factors characterizing schools with no shortages have been determined by this study: organization of the school; vision on education; and learning teams. Further literature search on these school-level factors did find some studies relating them to teacher shortages. For example, Ingersoll and Smith (2003) mention in their study that management and organization of schools play a significant role in the genesis of school staffing problems, although they relate this to the working conditions of the teacher. Also, Fuller et al. (2018) state that one of the most important behaviors of an effective school leader is to implement routines and procedures to create a predictable and stable environment. Furthermore, an effective school leader should create a strong school mission and vision in order to reduce teacher turnover and shortages. This underlines the importance of the school-related factors: organization of the school and vision on education. Finally, learning teams was unexpectedly found as a school-level factor characterizing schools with no shortages. Further examination did find some studies relating learning teams with teacher retention (Fowler, 2009; Olivier, 2001). This study adds more specific key features into the reflection in daily practice in addition to the few existing studies.

Finally, this study exposes the coherence between the school-level factors characterizing schools with high shortages, explained in conditions, implications and reflection in daily practice. Existing research regarding relations between school-level factors

and teacher retention motives are present but are often correlational studies between a few factors, and these studies also do not include the school context. The results of this study add more focus into the strategy's schools can apply based on factors related to retention motives of teachers, but moreover the strategies can be designed bearing in mind the relationship between the school-level factors found in this study.

Limitations

The reader should bear in mind that the results of the study are based on a rich description of the schools, but in the light of the quality of the data collection, an even richer dataset would be desirable. This would mean interviewing more stakeholders to gather more perceptions and including observations as an extra instrument. Due to time restrictions and the consequences of the covid-19 measures, this was not possible. Nevertheless, the current set of data provides enough perspectives to obtain a broad and inclusive representation of the school, which is in line with the explorative character of this study. It is recommended future explorative studies include observations and have a longer duration contributing to a richer data set.

Also, this research study is unable to encompass all detailed descriptions of school-related factors because the anonymity of the schools must be guaranteed. More general descriptions and terms were therefore used. As a result, a piece of data was lost which could have contributed to an even more concrete interpretation of the factors in the daily practice. Nevertheless, this is a well-known issue in qualitative research which is inevitable and many implications can still be given.

Implications

The practical implications of this study are very relevant since the teacher shortage problem has only increased in the Netherlands, even so during this research (OCW, 2021). The recent financial boost the Dutch government has provided to schools only seems to

increase the lack of teachers. Teachers switch more often between schools or start to work as a freelancer (Remie & Veldhuis, 2021). The results of this study can contribute into binding teachers to a school. Due to the focus on school-level factors in this study, results can be easily applied by schools. Results are also easy to generalize due to the diversity of the participating schools in school size, school weight, pupil background, size of the school board and denomination.

As mentioned by Borman & Dowling (2008) and Nguyen et al (2019) little research has been done into the design of interventions and strategies related to the retainment and recruitment of teachers. The results of this study provide schools with insights into the conditions, implications and reflections in daily practice in order to optimize the school as an organization a teacher wants to stay working. Key features of these school-level factors are identified and can be used in designing initiatives and evaluations of initiatives.

Besides practical implications, this study also offers theoretical implications. This study contributed to an exploration of the characteristics of schools without teacher shortages, and thus retention motives of teachers on the school-level. In addition, this study also explored the relationship and coherence between these school-level factors.

Future Research

Since this is an explorative study, much implications for further research can be given. First, the overlap of school-level factors can be investigated even further in correlational research with larger samples within different settings. Comparisons can be made between school with and schools without teacher shortages. Also, it would be interesting to further explore the relationships within and across the conditions, implications and reflection in daily practice.

Besides the further exploration on the overlap and relation between key features and characteristics, also the practical implication can be further studied. In order to optimal design

interventions and strategies related to the retainment and recruitment of teachers a further systematic examination of the conditions, implications and reflection in daily practice in different settings is recommended, also to increase the generalizability of the results found in this study.

Furthermore, this study did not include whether a school has a high teacher turnover although they perceive no shortages or whether a school has a stability within maintaining the same team. The costs of recruiting, hiring, and training a replacement teacher are substantial (Barnes et al., 2007) and therefor minimizing teacher turnover is desirable. It is therefore recommended to further explore how the school-level factors relate to whether or not there is a turnover within a school. Especially conditions and implications are interesting school-level factors to explore further.

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Appendix A

Invitation to participate

UITNODIGING TOT DEELNAME

Universiteit Utrecht
[datum]

Beste [mogelijke deelnemer]:

Deze brief is een uitnodiging om deel te nemen aan een onderzoek, welke ik als onderdeel van mijn masteropleiding aan de afdeling Onderwijskunde van de Universiteit Utrecht onder supervisie van professor L. H. Bronkhorst zal gaan uitvoeren. Graag geef ik u meer informatie over deze studie en wat uw betrokkenheid zou zijn als u besluit deel te nemen. De titel van het onderzoek is: *A school-level approach exploring the absence of teacher shortages at primary schools in high shortage regions.*

Voor dit onderzoek ben ik op zoek naar basisscholen in Amsterdam, Rotterdam, Utrecht, Den Haag en/of Almere welke geen tot een beperkt lerarentekort ervaren. Met geen tekorten doel ik op het afwezig zijn van openstaande vacatures betreffende leraren. Met beperkte tekorten doel ik op het enkel aanwezig zijn incidentele tekorten. Voldoet u aan deze criteria? Dan kom ik graag in contact met u!

In dit onderzoek wordt de volgende onderzoeksvraag onderzocht: *Wat kenmerkt basisscholen gesitueerd in een G5-regio, waar grote lerarentekorten heersen, maar welke zelf geen of een beperkt tekort aan leraren ervaren?*
In deze vergelijkende casestudie worden vier basisscholen onderzocht. Op uw basisschool zal ik door middel van een document analyse en interviews met de schoolleider(s) en twee tot drie leraren een beeld proberen te krijgen van de schoolkenmerken. De schoolkenmerken welke ik onderzoek zijn de algemene schoolkenmerken (zoals leerling populatie), schoolorganisatiekenmerken (zoals onderwijsconcept), werkomgeving (zoals ondersteuning) en lerarenperspectieven (zoals professionalisering). Daarnaast is er ruimte om te verkennen naar andere gerelateerde schoolkenmerken. Met dit onderzoek verwacht ik overeenkomsten en/of patronen te ontdekken welke het hebben van geen tot beperkte tekorten op een basisschool in een regio met hoge tekorten kunnen verklaren.

Bent u geïnteresseerd om deel te nemen? U kunt met mij contact opnemen via 0641121097 of per e-mail via s.m.a.c.peerdeman@students.uu.nl. Ik zal u dan een volledige informatiebrief toesturen betreffende het onderzoek. Heeft u vragen dan kunt u uiteraard ook contact met mij opnemen.

Met vriendelijke groet,

Sanne Reuvers

Appendix B

Document Analysis Format

Table D1

Document analysis format

Document Analysis Format				
School Characteristics				
Operationalization	Indicator	Type of document	Date of document	Result
School size	Number of teachers			
	Number of pupils			
School location	Address of the school			
	Urban or rural location			
	Impuls area			
School board	Part of a school board or not			
	Size of school board			
	Organization of school board			
Pupil population	Background pupils			
	Number of vulnerable pupils (school weight)			
Quality of education	Last judgement available of school and school board on quality of education, ambition and financial management by inspection of education			
School Organizational Characteristics				
Educational concept	Specific educational concept			
Perspective on learning	Specific perspective on learning			
School vision	Focus points, goals and ambitions of the school			
Teacher Prospects				
Professionalization	Professionalization availabilities			
	Usage of personal professionalization budget			
	Number of study days (team)			
	Content of study days (team)			
Salary	Distribution and allocation of salary scales in the school			
Bonus	Entitlement to national or regional financial bonusses			

	Financial bonusses provided by the school or school board			
	Other secondary employment conditions within school or school board			
Other	Other notable factors can be included			

Appendix C

Interview instrument teacher

Algemene introductie

- Nogmaals bedankt voor uw deelname aan dit interview.

- Het interview zal naar verwachting maximaal 45 minuten duren.

- Zoals aangegeven op het toestemmingsformulier zal ik dit interview opnemen, zodat ik een transcriptie kan maken. De transcripties worden geanonimiseerd en deze gegevens worden op een beveiligde database opgeslagen.

- De geanonimiseerde gegevens worden onder de deelnemende scholen in dit onderzoek uitgewisseld, zodat 'best practices' kunnen worden uitgewisseld.

- Heeft u nog vragen voordat we beginnen?

Voor het interview start:

- Informed consent tekenen

- Opname starten\

[De follow-up vragen worden *schuingedrukt* weergegeven onder de hoofdvraag]

Topic List interview met leraar		
Algemene informatie		
Zou jij jezelf willen voorstellen? *Wat is je leeftijd?* *Wat is je huidige functie?* *Hoe lang werk je in deze functie?* *Hoe lang werk je op deze school?* *Hoe is je aanstellingsprocedure verlopen?* *Wat is jouw voorgaande werkervaring?*		
Wat is de reisafstand en reistijd naar werk?		
Ervaart de school een (structureel) lerarentekort?		
Hoe zou jij de school omschrijven?		
School karakteristieken		
Operationalisering	Indicator	Vraag
Leerling populatie	Achtergrond leerlingen	Hoe zou je de leerling populatie omschrijven?

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Onderwijskwaliteit		Wat is jouw perspectief op de onderwijskwaliteit op school?
School organisatorische karakteristieken		
Onderwijsconcept	Specifiek onderwijsconcept	Hoe ziet [specifiek onderwijsconcept] eruit in de dagelijkse praktijk?
Perspectief op leren	Specifieke visie op leren	Hoe ziet [specifieke visie op leren] eruit in de dagelijkse praktijk?
Schoolvisie	De visie, (ontwikkel) doelen en ambitie van de school	Wat zijn de doelstellingen en ambities van de school? Is er een gedeelde schoolvisie in de school? *Hoe uit zich dit in de dagelijkse praktijk?* Op welke wijze heb je inbreng gehad in de totstandkoming van de schoolvisie?
Werkomgeving		
Klimaat	Werkcondities	Hoe zou je de werkcondities omschrijven in de school? *Wat is jouw rol in de totstandkoming van deze werkcondities? Wat is de rol van de schoolleider in de totstandkoming van deze werkcondities? Wat is de rol van je collega's in de totstandkoming van deze werkcondities?*
	Leiderschap	Hoe zou jij jouw schoolleider omschrijven? Op welke wijze draagt de schoolleider bij aan het creëren van een positief werkklimaat?
Ondersteuning		Op welke manier voel jij je aangemoedigd door de schoolleider? Op welke manier voel jij je aangemoedigd door jouw collega's?
Samenwerking		Kan je mij meenemen in de wijze waarop er wordt samengewerkt in de school? *Tussen wie wordt er (veel) samengewerkt? Hoe vindt de samenwerking plaats? Is de manier waarop er wordt samengewerkt onderdeel van de schoolvisie? Hoe ervaar jij de samenwerking?*
Vooruitzichten leraren		
Professionalisering	Mogelijkheden om te professionaliseren Inzet persoonlijk professionaliseringsbudget Aantal studiedagen of teamdagen Invulling van de studiedagen	Hoe is de professionalisering georganiseerd in de school? *Is er een academie beschikbaar, en zo ja hoe ziet dit eruit? Welke professionaliseringsmogelijkheden worden er nog meer geboden? Op welke wijze wordt het persoonlijk professionaliseringsbudget ingezet? Heb jij zeggenschap over de wijze waarop je jouw professionele ontwikkeling vormgeeft? Hoe ervaar jij de studiedagen?*
Salaris	Verdeling en toewijzing salarisschalen in de school	In welke salarisschaal en trede ben jij ingedeeld? Ben je tevreden met deze indeling? *Waarom wel of niet?*
Bonussen	Recht hebben op nationale of regionale bonussen	Worden er financiële bonussen gegeven bovenop de verplichte slarissen en toelagen?

	Financiële bonussen gegeven door de school of schoolbestuur	*Zo ja, wat zijn dit voor bonussen?* Heb jij recht op bonussen?
	Secundaire arbeidsvoorwaarden in de school en/of het schoolbestuur	Welke secundaire arbeidsvoorwaarde waardeer jij het meest?
Afsluiting		
Heb jij bewust ervoor gekozen om op deze school te werken? *Waarom?* Zou je op deze school willen blijven werken? *Waarom?* Welke aspecten van jouw school zouden in jouw ogen kunnen bijdragen aan het feit dat leraren hier graag willen werken? Heb je nog andere aanvullingen?		

Algemene afsluiting (stop opname):

- Heeft u nog vragen?

- Hartelijk dank voor uw tijd, ik zal u op de hoogte houden over de voortgang van
  het onderzoek en zal de resultaten na afloop met u delen.

Appendix D

Interview instrument school leader

Algemene introductie

- Nogmaals bedankt voor uw deelname aan dit interview.

- Het interview zal naar verwachting maximaal 45 minuten duren.

- Zoals aangegeven op het toestemmingsformulier zal ik dit interview opnemen, zodat ik een transcriptie kan maken. De transcripties worden geanonimiseerd en deze gegevens worden op een beveiligde database opgeslagen.

- De geanonimiseerde gegevens worden onder de deelnemende scholen in dit onderzoek uitgewisseld, zodat 'best practices' kunnen worden uitgewisseld.

- Heeft u nog vragen voordat we beginnen?

Voor het interview start:

- Informed consent tekenen

- Opname starten\

[De follow-up vragen worden *schuingedrukt* weergegeven onder de hoofdvraag]

Topic List interview met schoolleider		
Algemene informatie		
Zou jij jezelf willen voorstellen? *Wat is je leeftijd?* *Wat is je huidige functie?* *Hoe lang werk je in deze functie?* *Hoe lang werk je op deze school?* *Hoe is je aanstellingsprocedure verlopen?* *Wat is jouw voorgaande werkervaring?*		
Wat is de reisafstand en reistijd naar werk?		
Ervaart de school een (structureel) lerarentekort?		
Hoe zou jij de school omschrijven?		
School karakteristieken		
Operationalisering	Indicator	Vraag
Leerling populatie	Achtergrond leerlingen	Hoe zou je de leerling populatie omschrijven?

TITLE: EXPLORING THE ABSENCE OF TEACHER SHORTAGES

Onderwijskwaliteit		Wat is jouw perspectief op de onderwijskwaliteit op school?
Schoolbestuur	Wijze van organiseren van het bestuur	Op welke manier heft het schoolbestuur invloed op de wijze waarop de school functioneert? *Welke mate van autonomie wordt er aan jou als schoolleider gegeven door het schoolbestuur?*
School organisatorische karakteristieken		
Onderwijsconcept	Specifiek onderwijsconcept	Hoe ziet [specifiek onderwijsconcept] eruit in de dagelijkse praktijk?
Perspectief op leren	Specifieke visie op leren	Hoe ziet [specifieke visie op leren] eruit in de dagelijkse praktijk?
Schoolvisie	De visie, (ontwikkel) doelen en ambitie van de school	Wat zijn de doelstellingen en ambities van de school? Is er een gedeelde schoolvisie in de school? *Hoe uit zich dit in de dagelijkse praktijk?* Op welke wijze hebben de leraren inbreng gehad in de totstandkoming van de schoolvisie?
Werkomgeving		
Klimaat	Werkcondities	Hoe zou je de werkcondities omschrijven in de school? Wat is jouw rol in de totstandkoming van deze werkcondities?
	Leiderschap	Hoe zou jij jezelf omschrijven als schoolleider? Op welke wijze draag jij als schoolleider bij aan het creëren van een positief werkklimaat?
Ondersteuning		*Op welke wijze ondersteun jij de leraren?*
Samenwerking		*Op welke wijze stimuleer jij samenwerking?* *In hoeverre hebben leraren zeggenschap over de manier waarop de school is georganiseerd?*
Vooruitzichten leraren		
Professionalisering	Mogelijkheden om te professionaliseren	Hoe is de professionalisering georganiseerd in de school?
	Inzet persoonlijk professionaliseringsbudget	*Is er een academie beschikbaar, en zo ja hoe ziet dit eruit?*
	Aantal studiedagen of teamdagen	*Op welke wijze wordt het persoonlijk professionaliseringsbudget ingezet?* *Welke professionaliseringsmogelijkheden worden er nog meer geboden?*
	Invulling van de studiedagen	Hoeveel studiedagen zijn er in een schooljaar? *Wat is de inhoud van deze studiedagen?* Stimuleer jij professionalisering onder je leraren? *Op welke manier doe je dit?*
Salaris	Verdeling en toewijzing salarisschalen in de school	In welke salarisschaal en trede ben jij ingedeeld? Ben je tevreden met deze indeling? *Waarom wel of niet?*
Bonussen	Recht hebben op nationale of regionale bonussen	Worden er financiële bonussen gegeven bovenop de verplichte slarissen en toelagen?
	Financiële bonussen gegeven door de school of schoolbestuur	*Zo ja, wat zijn dit voor bonussen?* Heb jij recht op bonussen?
	Secundaire arbeidsvoorwaarden in de	Welke secundaire arbeidsvoorwaarden zijn er? *Welke secundaire arbeidsvoorwaarden zullen leraren in jou ogen het meest waarderen?*

	school en/of het schoolbestuur	
Afsluiting		
Heb jij bewust ervoor gekozen om op deze school te werken? *Waarom?* Zou je op deze school willen blijven werken? *Waarom?* Welke aspecten van jouw school zouden in jouw ogen kunnen bijdragen aan het feit dat leraren hier graag willen werken? Heb je nog andere aanvullingen?		

Algemene afsluiting (stop opname):

- Heeft u nog vragen?

- Hartelijk dank voor uw tijd, ik zal u op de hoogte houden over de voortgang van

  het onderzoek en zal de resultaten na afloop met u delen.

Appendix E

Audit-Trail Assessment Scheme

Table E1

Audit-Trail Assessment Scheme

Audit-trail components		Quality		
		Visibility *Are decisions explicated and communicated?*	**Comprehensibility** *Are these decisions substantiated?*	**Acceptability** *Are these substantiated decisions acceptable according to the standards, norms, values in the research domain?*
Data gathering	Planned	5 case studies with document-analysis and semi-structured interviews.	The frameworks for interviews and data analysis are both based on literature and checked by peer-debriefing. Also, a pilot is conducted	Triangulation of data by using multiple sources and based on theory; peer-debriefing; pilot. All cases are purposefully selected and checked on criteria as described in text.
	Realized	4 cases were purposefully selected based on few schools meeting the criteria. The cases selected do meet the criteria completely and are diverse, contributing to the validity and generalizability of the study.	The theoretical concepts were visible in the topics of the interviews and data analysis. Could have written a description on the explicit changes made in the instruments after the peer-debriefing and pilot.	Interview and document analysis are based on theory and checked by peer-debriefing and a pilot. The quality of the instruments is acceptable. The case-selection is appropriate for the research design and therefore acceptable.
Data analysis	Planned	Open, axial and selective coding followed by a within and across case analysis.	The concepts from the theoretical framework are analyzed by deductive coding in the open code phase and new codes are explored by inductive coding during the open, axial and selective coding phase.	Clear description of the qualitative data analysis.
	Realized	Text explains a clear description of the phases of coding and within and across analysis. Also, the codebook is included in appendix. Did not include the results after the open or axial coding phase.	Examples of references are included in the coding schemes and are therefore traceable to the theoretical concepts. Did only include indirectly insight in difference between the new explored concepts and theoretical concepts.	The analysis and audit trail (e.g. transcripts, coding schemes, analysis steps) gave transparency about research process.

Appendix F

Information letter

INFORMATIEBRIEF

Universiteit Utrecht
[datum]

Beste [deelnemer]:

In deze brief licht ik het onderzoek, welke ik als onderdeel van mijn masteropleiding aan de afdeling Onderwijskunde van de Universiteit Utrecht onder supervisie van professor L. H. Bronkhorst zal gaan uitvoeren, verder toe. Graag geef ik u meer informatie over deze studie en wat uw betrokkenheid zal zijn. De titel van het onderzoek is: *How Dutch primary schools beat the odds: Retaining teachers during a teacher shortage.* In dit onderzoek wordt de volgende onderzoeksvraag onderzocht: *Wat kenmerkt basisscholen gesitueerd in (een van de) G5-regio's waar grote lerarentekorten heersen, maar welke zelf geen of een beperkt tekort aan leraren ervaren?*

Het lerarentekort in Nederland is zo acuut dat het voor scholen vaak moeilijk, zo niet onmogelijk is om personeel te vinden. Vooruitzichten voor de toekomst voorspellen een nog grotere druk op de arbeidsmarkt in het onderwijs. Vooral de vijf grootste regio's rondom Amsterdam, Rotterdam, Den Haag, Utrecht en Almere, ook wel de G5 genoemd, kennen een grote toename van het lerarentekort en zullen in de toekomst met nog grotere tekorten te maken krijgen. Als gevolg van het lerarentekort krijgen leerlingen niet het onderwijs dat ze verdienen en het is aannemelijk dat dit een negatief effect zal hebben op de kwaliteit van het onderwijs en de leerprestaties.

De oorzaken en oplossingen van het lerarentekort zijn vooral gericht op nationaal of individueel niveau, maar niet op het niveau van de school en haar context. Het doel van deze studie is om de schoolfactoren te onderzoeken van basisscholen zonder een lerarentekort of met een beperkt tekort, waar gezien de locatie van de school wel (grote) tekorten te verwachten zijn. De schoolkenmerken welke ik onderzoek zijn de algemene schoolkenmerken (zoals leerling populatie), schoolorganisatiekenmerken (zoals onderwijsconcept), werkomgeving (zoals ondersteuning) en lerarenperspectieven (zoals professionalisering). Daarnaast is er ruimte om te verkennen naar andere gerelateerde schoolkenmerken. Met dit onderzoek verwacht ik overeenkomsten en/of patronen te ontdekken welke het hebben van geen tot beperkte tekorten op een basisschool in een regio met hoge tekorten kunnen verklaren.

Om deze redenen zou ik uw school graag als een van de vier organisaties willen betrekken bij mijn studie. Deelname aan dit onderzoek is vrijwillig. Het betreft een analyse van documenten en het uitvoeren van drie tot vier interviews.

TITLE: EXPLORING THE ABSENCE OF TEACHER SHORTAGES

De documenten welke benodigd zijn (indien niet openbaar) betreft het jaarplan en schoolplan van de school, HR-documenten betreffende personeelsbeleid, kwaliteitsborging documenten, financieel jaarplan en indien aanwezig het laatste inspectierapport. Deze documenten zullen vrijwillig opgevraagd worden. Naar aanleiding van deze en openbare gegevens betreffende de school zal er een document analyse worden uitgevoerd.

Na de document analyse zullen er interviews ingepland worden met de schoolleider(s) en twee tot drie leerkrachten. Het gaat om een interviews van ongeveer 45 minuten welke online zullen plaatsvinden. De interviewvragen kunnen desgewenst door de deelnemers geweigerd worden te beantwoorden. Verder kunt u, of elke deelnemer van de interviews, op elk moment besluiten om u uit dit onderzoek terug te trekken zonder negatieve gevolgen door de onderzoeker te informeren. Met toestemming van de deelnemers worden de interviews met audio opgenomen om het verzamelen van informatie te vergemakkelijken, en later te kunnen transcriberen voor analyse.

Alle informatie die u verstrekt, wordt als volledig vertrouwelijk beschouwd. Namen zullen in geen enkel proefschrift of rapport naar aanleiding van dit onderzoek verschijnen, maar met toestemming mogen anonieme citaten worden gebruikt.

Gegevens die tijdens dit onderzoek worden verzameld, worden gedurende 6 maanden bewaard in een beveiligde online gegevensopslag. Alleen onderzoekers die aan dit project zijn gekoppeld, hebben toegang. Er zijn verder geen bekende of verwachte risico's voor u als deelnemer aan dit onderzoek.

Deze studie is beoordeeld en heeft een ethische goedkeuring gekregen van de Facultaire Ethische Toetsingscommissie. Voor vragen aan de commissie kun je contact opnemen met het faculteitsbestuur, via het contactformulier https://uu-ser.sites.uu.nl/contactinformatie/. Officiële klachten over uw deelname kunt u richten aan klachtenfunctionaris-fetcsocwet@uu.nl. Voor vragen over gegevensbescherming kunt u contact opnemen met de Functionaris van de UU ("Functionaris Gegevensbescherming") via: https://www.uu.nl/en/organisation/data-protection-officer.

Voor alle overige vragen of indien u aanvullende informatie wenst om u te helpen bij het nemen van een beslissing over deelname, kunt u contact met mij opnemen via 0641121097 of per e-mail via s.m.a.c.peerdeman@students.uu.nl. U kunt ook contact opnemen met mijn begeleider, prof. Dr. L.H. Bronkhorst per e-mail op l.h.bronkhorst@uu.nl.
Ik hoop dat de resultaten van mijn onderzoek van nut zullen zijn voor de organisaties die direct bij het onderzoek betrokken zijn, andere organisaties die niet direct bij het onderzoek betrokken zijn, en voor de bredere onderzoeksgemeenschap. Ik kijk er erg naar uit om met u samen te mogen werken en dank u bij voorbaat voor uw hulp

Met vriendelijke groet,

Sanne Reuvers

Appendix G

Informed Consent Form Interviews

TOESTEMMINGSFORMULIER INTERVIEW

Door dit toestemmingsformulier te ondertekenen, doet u geen afstand van uw wettelijke rechten en ontslaat u de onderzoeker (s) of betrokken instelling (en) niet van hun wettelijke en professionele verantwoordelijkheden.

_____

Ik heb de informatie in de informatiebrief gelezen over een onderzoek dat wordt uitgevoerd door Sanne Reuvers onder begeleiding van L.H. Bronkhorst van de afdeling Onderwijs van de Universiteit Utrecht. Ik heb de gelegenheid gehad om vragen te stellen met betrekking tot deze studie, om antwoorden op mijn vragen en alle aanvullende details die ik wilde weten te krijgen.

Ik ben me ervan bewust dat ik de mogelijkheid heb om mijn interview met audio op te nemen om een nauwkeurige opname van mijn antwoorden te garanderen.

Ik ben me er ook van bewust dat fragmenten uit het interview kunnen worden opgenomen in het proefschrift en/ of publicaties die voortkomen uit dit onderzoek, wetende dat de citaten anoniem zullen zijn.

Ik ben geïnformeerd over de mogelijkheid om mijn toestemming te allen tijde zonder boete in te trekken door de onderzoeker te informeren.

Deze studie is beoordeeld en heeft een ethische goedkeuring gekregen van de Facultaire Ethische Toetsingscommissie. Voor vragen aan de commissie kunt u contact opnemen met het faculteitsbestuur via het contactformulier op https://uu-ser.sites.uu.nl/contactinformatie/. Officiële klachten over uw deelname kunt u richten aan klachtenfunctionaris-fetcsocwet@uu.nl. Voor vragen over gegevensbescherming kunt u contact opnemen met de Functionaris van de UU ("Functionaris Gegevensbescherming") via: https://www.uu.nl/en/organisatie/databeschermingsofficier.

Voor alle overige vragen kun je contact opnemen met Sanne Reuvers via 0641121097 of per e-mail via s.m.a.c.peerdeman@students.uu.nl. U kunt ook contact opnemen met de begeleider, prof. Dr. L.H. Bronkhorst per e-mail op l.h.bronkhorst@uu.nl.

Met volledige kennis van al het voorgaande, stem ik ermee in, uit eigen vrije wil, deel te nemen aan deze studie.

☐YES ☐NO

Ik ga ermee akkoord dat de audio van mijn interview wordt opgenomen.

TITLE: EXPLORING THE ABSENCE OF TEACHER SHORTAGES

☐YES ☐NO

Ik ga akkoord met het gebruik van anonieme citaten in elke scriptie of publicatie die uit dit onderzoek voortkomen.

☐YES ☐NO

Naam deelnemer: _____

Handtekening deelnemer: _____

Datum: _____

Appendix H

Codebook

Table H1

Codebook

Code	Description	Files	References
General Information	General information about the respondent	0	0
Size of appointment	How many FTE or days the respondent works	7	11
Appointment procedure	How did the appointment to the current position take place?	2	3
Duration working at the school	How long does the respondent work at the school	12	52
Conscious choice working at this school	Did the respondent consciously choose to work at this school: why or why not	10	33
Current function	What is the current function	12	30
Duration working at current function	How long does the respondent work in the current position, so also outside the current school	11	16
Grade/class	Which group(s) are being taught	5	5
Age	What is the age of the respondent	7	7
Education	Which training(s) did the respondent receive	7	27
Travel distance	What is the travel distance (in time or kilometers) from the home address to work/school	10	18
Schoollocation	Schoollocation	12	29
Adress	The adress of the school	3	3
Impulsarea	Is the school located in an impulse area: The impulse areas are postcode areas with a lot of low incomes and/or many alimonies.	2	2
Location of the school	Is the school located in an urban or more rural environment?	11	18
Schoolsize	Size of the school	14	52

TITLE: EXPLORING THE ABSENCE OF TEACHER SHORTAGES

Code	Description	Files	References
Number pupils	How many pupils are there in the school?	8	16
Number teachers	How many teachers work at the school	11	21
Starter	The teacher has been working as a teacher for less than two years	8	18
Previous work experience	What previous work experience did the respondent gain	11	26
Other factors	Factors that do not fall under any of the other main themes are grouped below.	0	0
School financial resources	Everything related to finances within the school is described in this code.	6	30
subsidy	If the school makes use of subsidies: it applies for, has been awarded or deliberately does not make use of this. NPO is excluded.	4	11
Pupil satisfaction	1. Are the pupils satisfied, happy and happy at the school? Do they feel at home and safe at school? Are all pupils welcome 2. Via satisfaction survey	7	14
Teacher central	The importance of the quality of the teacher is indicated. Appreciation is expressed for the role of the teacher in education. The role and importance of the teacher is recognized and acknowledged.	13	87
quality teacher	The quality of the teacher is an important part (of the quality) of education. Quality is seen and developed in various ways	13	68
Employee satisfaction	1. Are the employees satisfied with the education and the school and everything that goes with it 2. From the MTO	16	59
Job satisfaction	How job satisfaction is experienced within work and school	13	40
National plan education - NPO	The NPO offers schools extra financial scope to map out the disadvantages of pupils in terms of cognitive or social-emotional well-being, to deploy interventions and thus to make up for it. Interventions must be chosen from a menu with scientifically proven interventions.	5	11
parental contribution	The amount of the annual voluntary parental contribution	3	3
Parent Satisfaction	1. In what (informal) way did parents express themselves about the school and are they satisfied with the school? 2. Via satisfaction survey	8	11
Parent Involvement	In what ways does the school or staff involve parents in the development of the child or other school-related aspects.	15	35
Suitable education	All pupils must be given a place in a school that matches their qualities and their possibilities. Appropriate education must ensure that every child gets the best out of himself.	6	12

TITLE: EXPLORING THE ABSENCE OF TEACHER SHORTAGES

Code	Description	Files	References
	Schools therefore offer extra help to pupils who need it, such as children with learning or behavioral problems: How is this applied/designed within the school?		
Personal motivation as a teacher	Why did the teacher choose the profession? Why does the teacher want to continue working within this profession?	10	26
Personal motivation school leadership	Why did the school leader choose the profession?	4	10
Profiling	The way in which the image of the school and the working method are communicated to the outside world by the employees (teachers and school leaders).	7	22
Appreciation	How does the employee feel valued within his profession?	10	27
Appreciation by colleagues	How does an employee feel valued by his/her colleagues?	0	0
Appreciation by government	How does an employee feel valued by the government?	3	4
Appreciation by school board	How does an employee feel valued by the school board?	4	6
Appreciation by school leader	How does an employee feel valued by the school leader?	4	5
School characteristics	General characteristics of the school	3	3
Pupil population	Perspective on the pupil population	16	96
Background pupils	What cultural background does the pupil have?	15	35
Vulnerable pupils	Pupils at higher risk of deprivation e.g. parents with low income, pupils who did not pass a grade, high-weight pupils, school is in deprived neighbourhood, language level is low	8	14
School Weight	School's most recent or three-year average weight	9	11
Education quality	What is the perspective on the quality of education	15	127
Conversation cylcle	The way in which cyclical conversations between teachers and teachers and school leader/supporter are conducted	7	19
Inspection judgment	The most recent inspection judgment of the school/school board	3	3
Learning Outcomes	What are the recent learning outcomes at the school	12	36
School advice	What are the recent school recommendations	6	9
Assessment	What is the vision on assessment, how is it used?	8	10
school board	Does the school belong to a school board	14	53

TITLE: EXPLORING THE ABSENCE OF TEACHER SHORTAGES

Code	Description	Files	References
Grootte van het schoolbestuur	School board size	6	8
Working method – organization of the school board	How does the school board work and how is the board organised?	14	37
School organizational characteristics	The content and organization of education	1	1
Teacher shortage	1. Perspective on the teacher shortage at national and/or school level 2. Is there a (structural) teacher shortage experienced at school?	13	63
Substituting	How is the substitute of colleagues or external parties applied to tackle/prevent the teacher shortage within the school?	5	10
Organization of the school	How is the school and daily practice organised	16	412
Decisions and actions	How are decisions made or actions carried out	4	4
Logistics	Location, staff, functions etc.	14	87
Additional or different functions	What extra or different functions are there within the school?	14	73
Activity coordinator - event manager	Organizes the activities and events within the school	3	4
Dalton coordinator	Point of contact for all questions and developments regarding Dalton. Is an expert	1	1
Retired colleague	Retired colleague still substitutes, if necessary	1	1
Innovators - School Coach	Leaders of the learning teams	2	8
Quality Coordinator	Coordinates the quality cycle of the school and is responsible for the quality of education.	3	6
Management Assistant	Supports management	2	4
Teaching Assistant	1. Other deployment/tasks of teaching assistants 2. The conscious extra deployment of teaching assistants	4	7
Appropriate Education coordinator	Provides additional support to pupils and coordinates this additional support.	3	7
Project leader Family school	Project leader Family school	3	5
School trainers	Guiding and supporting starters and lateral entrants	5	10
Subject teacher(s)	(External) specialist teachers such as gym, visual arts, drama or dance	3	12

TITLE: EXPLORING THE ABSENCE OF TEACHER SHORTAGES

Code	Description	Files	References
Location(s)	Does the school have one or more locations and how is the work organised between the locations?	3	6
Change	How does the school intend to implement changes?	9	14
Method	Structure of working methods such as meetings etc.	16	191
Ambition and quality cards	From the enigma approach: Ambition cards state what you want to achieve as a school, what steps you are taking to get there and what you need to achieve that. The quality cards generally describe simple, everyday situations and indicate how you as a school team can shape them.	3	5
Commitment conversation	First interview before appointment to gauge whether the vision of the school is in line with the employee	1	1
Meetings - consultations	How do the teams (in different compositions) come together to consult, meet, develop or collaborate.	15	139
Day opening	A short meeting of colleagues organized by the school principal prior to the working day with the aim of informing each other and expressing appreciation.	2	5
Expert group	Meeting of experts to reflect and do research within the expertise	4	12
LT	All synonyms concerning learning teams: Learning teams PLC LeerKRACHT meetings	14	89
LeerKRACHT	A working method of the LeerKRACHT foundation: A structured way in which teams come together. Related to scrum methodology.	4	22
learning team	A learning team is a Professional Learning Community. Teams work on developing competencies and skills. This way of working and learning ensures the growth in knowledge and skills that are required in one's own practice.	8	54
PLC - Professional Learning Community	a community of professionals that continuously research their own practice in order to improve education for pupils	3	13
Parallel group	The collaboration between the different groups from one year layer.	7	20
Team meeting	Meeting with the entire team	3	7
side entrants	Side entrants are used	3	28
Vision on education	school vision, educational concept and/or the perspective on learning	16	492
Education concept	What is the educational concept within the school	16	176

TITLE: EXPLORING THE ABSENCE OF TEACHER SHORTAGES

Code	Description	Files	References
Culture profile school	The school has an ambition to become a cultural profile school	3	24
Dalton	Dalton education is a type of education in which the emphasis is on freedom of choice for the pupil, cooperation with other pupils and the development of independence.	5	36
family school	The Amsterdam Family School is a place where children learn broadly, where parents are intensively involved and where there is an offer to provide extra support for families who need it. An important principle here is that all children should be given the same opportunities to develop into the best version of themselves.	4	8
High Performing School	The concept of high performing schools is an educational translation of 'High Performing Organizations': an organization that achieves significantly better results than comparable organizations, over a period of at least five years, by focusing in a disciplined way on what is really important for the organisation.	5	18
Hindu	The school has a Hindu religion	4	25
Classical school	Classes are traditionally divided	4	6
Roman Catholic	The school has a Roman Catholic religion	2	3
Slim Fit – unit education	Education is given in units, which allows for more differentiation and more collaboration among teachers	4	19
Perspective on learning	What is the vision on learning? Is there a specific concept or working method attached to it?	15	232
Didactics	The way in which teaching material is transferred to the pupils	12	97
Differentiation	Education is adapted to the differences between pupils.	6	13
Digital learning environment	A digital learning environment is used within the lessons	4	6
Ownership of pupils	Pupils are encouraged to take ownership of their own work. This involves working on gaining a sense of responsibility for one's own learning	4	11
Choice work	Pupils have the opportunity to choose their own work within a certain time of the week	2	9
Pupil collaboration	Pupils are encouraged to work together	6	14
Visualize	Learning material is made visible in a visual way	2	2
eraser boards	A board on which pupils can write answers. This allows the teacher to quickly see whether all pupils understand the lesson material.	2	3
Pupil independence	Pupils are encouraged to work independently. Deferred attention is a didactic example of this	9	24

TITLE: EXPLORING THE ABSENCE OF TEACHER SHORTAGES

Code	Description	Files	References
Effective direct Instruction	The Effective direct Instruction model is a scientifically proven way in which an instruction can be given	9	29
Rosenshine	This scientist has described ten important instruction principles for good instruction	3	5
Evidence-informed - Evidence-based	Choices are substantiated by scientific studies	7	27
Healthy(er) school	The school is consciously engaged in promoting various aspects of healthy living, such as healthy eating and exercise.	1	1
Yield-oriented	When it comes to learning, the results are the starting point.	3	16
Thematic working - National knowledge curriculum	Education is offered in themes	5	8
peaceful school	an approach for social-emotional development and civic education	2	8
School vision	The vision and mission that a school stands for and what determines the course of the school.	16	84
ambitions of the school	Where does the school want to go in the future? What objectives have been drawn up.	9	22
Goals of the school	The goals that the school sets for itself as, for example, stated in a school or annual plan	1	2
Supported school vision	The employees know (broadly speaking) the school vision, support it and propagate it	11	25
Teachers' prospects	What prospects are offered to teachers in relation to their work at the school: in terms of finances, resources and development opportunities.	0	0
Bonusses	What bonuses are given to teachers. This can be in finance or other resources	7	8
School board bonuses	What bonuses does the school board offer	7	7
National - Regional Bonuses	What bonuses is the school or teacher entitled to from the government or the region?	5	7
Secondary employment conditions	What secondary employment conditions, so apart from the collective labor agreement, does the school or school board offer?	12	20
Professionalization	In what ways is professionalization possible within the school?	16	165
Academy	Above school, by the schoolboard or external academy which offers courses, training, education or other learning opportunities for teachers. It is described here whether this is the case, how it is organized and how it is used.	9	11

Code	Description	Files	References
Possibilities for individual professionalization	How are there development opportunities on an individual level? Are wishes and requests honored and why or not?	13	30
book budget	The school finances the purchase of professional literature (books, articles, journals, etc.)	2	3
Study days	Frequency, content and organization of the study days.	13	38
Salary	What is the employee's salary	12	52
Salary scale	In which salary scale is the employee classified (and why)?	6	9
Salary satisfaction	The motivation of satisfaction or dissatisfaction with the salary offered.	10	28
Working environment	Aspects directly related to the work	5	5
Autonomy	How do employees experience autonomy at work?	16	114
Autonomy in the classroom	There is control over the way in which the lessons and the classroom are set up.	10	14
Autonomy in school-wide decisions	There is control over school-wide decisions	13	30
Freedom within boundaries	Clear boundaries are set within which there is autonomy.	12	36
climate	The atmosphere, working conditions and culture of the school shape the climate.	16	119
Atmosphere at school	The atmosphere in the school as experienced by the respondent	15	63
Leadership	The leadership of the school leader (director) is described. In some cases, the leadership of the entire school management has been described depending on the respondent's perspective. Then the role of a deputy is also included.	14	366
Actively looking for teachers and formation	There is a conscious search for new teachers, even outside the work situation. Personal network is actively used. Consciously working on solving the formation strategically by shifting staff	6	18
ambitious	The school leader aspires to more than the current situation	5	7
Treat as an equal	The school leader treats the teacher as an equal	1	3
Accessibility	The school principal can be reached if an employee needs to speak, consult with the school principal. There is space and time for it.	10	28
Involvement	The school leader is personally and/or professionally involved with his/her employees. This can be expressed in an informal and formal way	11	41
Controling/checking	Checking informally, talking to teachers, discussing observations. Both in terms of	6	12

Code	Description	Files	References
	agreements and rules and social contacts		
Enthusiasm	The school leader is enthusiastic and knows how to convey this to others	6	14
Equip people	Placing the right people in the right place (based on the qualities and talents of the employee) within the school and the ability to transform people into new/other positions/tasks/groups	6	12
People manager	The school leader is actively involved in stimulating interaction between the employees in a positive way. Examples of behavior are: addressing employees, discussing mutual gossip, having informal conversations	10	32
To set priorities	The school leader clearly indicates which priorities there are, sets priorities and acts on them	7	17
Reflection on own actions	The school leader is able to reflect on his own actions and does this (regularly)	3	10
steadfastness	The school leader stands firmly in his/her shoes, clearly knows what he/she wants and sticks to it.	3	6
Stimulate	The school leader encourages the employees in various areas. This can be to create a more open culture or to stimulate personal development.	12	31
Top-down	Decisions are made by the school principal.	4	10
Transparency	The school leader is transparent in the processes and decisions about the school. There are no secrets in the school	7	21
Trust	The school leader radiates confidence, has confidence in the teacher or the teacher has confidence in the school leader.	8	15
Visibility	The school management is physically visible (as far as possible) in the school	9	13
Support	How is support provided at school? This can be guidance for, for example, starting teachers, informal support by colleagues or support in pedagogical-didactic actions by the IB.	13	80
Collaboration	The ways in which colleagues collaborate with each other or with employees from other functions.	16	140
Workload	The perceived work pressure in relation to the position, work and school	12	85
administrative burdens	Additional tasks outside the primary teaching process. Examples are writing reports, development plans, result analyses, policy documents, etc.	6	15
Mindset	One way to deal with work pressure is the mindset that someone has.	6	12

Appendix I

Thematic analysis across-case, the qualitative approach

Table I1

Thematic analysis across-case, the qualitative approach

School-level factor	School 1	School 2	School 3	School 4	Synthesis
Organization of the school	Conscious choices have been made in the functions within the school so that teachers and the school leader can focus on education. Side tasks such as drafting documents and organizing activities are the responsibility of the management assistants. In addition, the school has school trainers to guide starting teachers. The quality coordinator monitors the quality of the school in various areas, both at the student level and at the level of the teachers.	The school offers support to teachers and students in various ways by assigning various tasks such as an appropriate education coordinator, school trainers, event manager, deployment of freelancers, subject teachers and project leader [support]. In addition, there are school coaches/ innovators that are at the helm of the (content of) the learning teams.

Freelancer quoted by the school leader: *"You should really squeeze your hands together. How it is organized here. you really do have a luxury, a school in [neighbourhood] doesn't have that luxury, does it? With so much staff and so much support, so many resources, so much…"* | The school is a child center where everything can be found under one roof. The structure of the MT has changed in recent years. There is now a deputy again because the school leader deliberately also stands in front of the class for one day. There are specialist teachers in the school in the context of the culture profile, but this also helps to reduce workload of other teachers. In addition, there is always someone who can stand in for illness, so that a class has never been sent home. | The school functions across groups/classes in units. Teachers are jointly responsible and therefore work together a lot. There are team and unit meetings on Mondays and a PLG meeting every three weeks. There is a teaching assistant from the work pressure allowances. | There is a clear structure of organization that is clear to everyone in the school. Part of this is that meetings are scheduled at a fixed time. The task and role of the teacher is looked at in creative ways so that the focus remains on the primary process. |

Vision on education	The school has a clear profile and working method based on scientific research. The aim is to enable pupils to learn as well as possible and to let them excel within their own capabilities. Transferring knowledge through proper instruction is central. Everyone works in the same way and there are clear common goals. In addition, the school has a Roman Catholic identity. There is a clear vision on learning, organizing, professionalizing and changing. By having good conversations and giving the teachers space in the learning teams, there are no issues of autonomy and the teachers support the vision of the school. Teacher: *"constantly innovate, keep improving and keep learning, and not just children, but us too."* School leader: *'Provide views a very good, clear, clear vision'* *'You can also talk to all the teachers here. So they tell more or less the same story about those learning teams and that's incredibly important."*	There is a clear educational concept in the school. Its core values are clear and are supported within the school. The way in which the content of the learning teams is designed plays a major role in this. In addition, the translation of the core values in the classes is clear and there is often one line. A lot of work is being done on the independence of the students and increasing ownership. The school also has [support]. This is organized in an external building with a project leader. This has a positive effect on the school. Students, parents and teachers are involved. Extra activities are organized for students and support is available for parents. The school is also ambitious.	The school profiles itself as a cultural school and offers a wide range of creative subjects in various areas. This sets the school apart from other schools in the area. It is also a regular primary school. The goals of the school plan are diverse: from culture profile school to working independently and from renewing methods to introducing collective ambition conversations. The goals are evaluated and everyone is included. The school continues to work with a differentiation model and active instruction and the aim is to give the students a broad view of society. The many cultural activities are a big part of this. Deputy director: *"Through cultural activities, the creative skills and talents of the children are addressed."*	The school is a Hindu school. The principles, norms and values of this are reflected in the lessons, activities and actions of the teachers. Teachers can participate in the school vision. Central to this is that, from the culture point of view, there are high expectations with regard to the students. In addition, it is stated that learning pleasure and a safe environment are important conditions. In addition, the school works in groups in units where students are offered differentiated teaching material. Students work on independent work and planning. Teachers work closely together and bear joint responsibility. Parents are intensively involved.	All schools have a clear vision on education, which is expressed in a specific educational concept or vision on learning. These visions and concepts are very different from each other. Most schools have high expectations of the students and a lot of work is done on the independence and cooperation between students. In most schools, the vision is also supported within the team.

	"I can tell, but it's really of little value if the teacher doesn't do that."				
Leadership	The school management is involved, steers towards the goals and vision of the school and enthuses, stimulates and motivates teachers. This is done with humor and fun. Teacher: *"If I were to say it very briefly now, I would say: happy egg."* Teacher: *'They really ask how you are doing, if there is something wrong with you, they often stop by for a chat.'* School leader: *"But I'm definitely someone who really believes in giving space and encouraging other people to take the stage."*	The school leader is ambitious, creates a good atmosphere in the school and involves staff and parents. The school leader is very busy with staff, puts a lot of effort into it and also provides financial space. This sometimes feels like running a business. In addition, the school management is also very busy to maintain a good atmosphere in the team by continuing to talk to each other and not about each other. School leader about offering opportunities to starters/lateral entrants: *'Yes, you have to look beyond the long term, and show courage.'* *"You know, I've always had the opportunity to do an internship, too. I also think that we should offer that opportunity to future colleagues."*	The school leader fulfills a stimulating role and is a people manager. The team is encouraged to think along, to professionalize and to enter into dialogue with each other. Addressing each other and entering into a conversation about disagreements is actively encouraged. In addition, the leader is at the service of the primary process and also consciously chooses to partly teach. The school leader is structured and checks agreements and their interpretations in meetings, learning team meetings and class visits. The team takes a step harder for the management. School leader: *"That also makes you want to walk a step harder for that. Because you get something and you give something back. So it is an interaction.'* Deputy director: *'also from the management, because you are so involved and facilitated, people don't cut corners either.'*	The school leader consults a lot and the lines are short. She is visible in the school and starts the conversation. The school leader gives the teachers the space and freedom to shape the lessons as they see fit. She enjoys her work and radiates this to the team. School leader: *"But I do give the freedom, the space, so to speak, to be themselves and therefore be a better teacher."*	The school leaders are very diverse and have different character traits. As a result, there are also differences in the ways in which they lead the school. There are also similarities between the school leaders. The school leaders stimulate the team in their own way. In addition, the school leader is important in creating a good atmosphere in the school. Most school leaders do this, among other things, by having (informal) conversations with all employees, both out of interest and appreciation as well as to prevent gossip about and problems between colleagues.

Collaboration	There is a lot of cooperation in the parallel groups and learning teams. There is good collaboration between colleagues. The 'performance interviews' are also held in the learning teams. People share the personal development plans with each other, coach and give feedback on them. Teacher: *'but also when someone does not succeed, it is really seen by others and we help each other in that'*	Within the learning teams there is active cooperation in various compositions. As a result, teachers work on a continuous line and everyone is closely involved. There is also an improvement culture in which people address each other and know where to find each other when they have questions.	There is room for improvement in collaboration and connection with the schoolboard and the schools within the schoolboard. In the school there is active collaboration in meetings and between duo groups. In practice, this can be expanded more, and especially learning from and with each other. The atmosphere in the team is very good and people have a personal relationship with each other, which sometimes gets in the way of the professional culture.	By working in units, there is a lot of coordination and collaboration between colleagues. All teachers also speak to each other during the meetings. Each other's insights and observations are used to reflect on the learning outcomes. The school leader likes to work together but finds this sometimes challenging.	There is collaboration in the schools at various times, ways and compositions. This makes collaboration part of daily practice. There is a professional culture in most schools that allows for good cooperation on a professional level. There is also collaboration on a personal level.
Professionaliz ation	Professionalization is part of the vision of the school and is expressed in various ways. All teachers are trained to a certain basic knowledge. A lot of professionalization is possible, also as an individual. Teachers are also challenged to continue to learn and develop. This is informal in the learning teams and also in the study days that are experienced as professional. Teacher: *'I feel very autonomous in my own development.'* School leader: *'Together we are a learning institute. That*	There are many ways in which personal professionalization is being worked on. This is done in a team on the study days and within the learning teams, and at an individual level by means of extra guidance, courses through the academy of the school board and a study can also be done at their own request. There is space and possibility for this. In addition, every employee has completed the [education concept] training.	There are sufficient opportunities for development and this is also encouraged by the management in conversations. Yet the learning attitude of the colleagues is missed. For example, there has been no one who wants to specialize for two years now, even though there is a need for it in the school. Deputy director: *"But there are also a number of people who could pick up on that more. Pick up a trade journal that comes in, or indeed sign up. And then I notice that some people don't*	There is room for professionalization in various ways. For example, teachers are supervised by the school leader so that they are well equipped. There are many study days and courses. Individuals can also professionalize, which is reflected in the interview cycle. Professionalization is mainly based on what the team needs. This often results from an analysis of the learning outcomes.	At all schools there is room and attention for professionalization. In some schools the teachers are trained or supervised from the start to a certain standard. Professionalization is an informal part of the learning teams in some schools. All schools do professionalization activities in teams and on an individual level. This takes place on study days or within the possibilities offered by the school and/or the school board. All schools also give room to honor personal requests regarding professionalization, provided this is in line with the course

	means that from the janitor to the principal, every child in school is learning.”		*have very high ambitions. And that's a shame sometimes.'* ‘*The school leader has also been calling for two years I would like a math coordinator or language coordinator, who will pick it up? Well, that won't happen then.”*		of the school. Some schools are more open-minded about this than others.
Climate	People are helpful, professional, open and help each other. Teachers feel a broad sense of responsibility and there is a high work ethic. In addition, there is an atmosphere of clear lines, order and regularity in the school. Teacher: *'all doors are open, everyone can come and see each other, everyone can walk in together.'* School leader: ‘*an incredibly nice, warm and pleasant atmosphere. And that is something that is elusive. Apparently it's just really nice to be here together.'*	The climate and atmosphere are positive and the relationship between colleagues is good. People want to help each other, they talk to each other and things are exchanged. The team stands behind the vision together. The school leader monitors and manages to maintain a good atmosphere. Inspection report about the school: ‘*The culture of self-responsibility and ambition and addressing each other where necessary is supported by the team. Many of the teachers we spoke to are enthusiastic about this co-ownership of the school's development and the ownership and co-responsibility. They mention the open atmosphere and accessibility of the colleagues.'*	People feel welcome at the school and there is a good pedagogical climate. The atmosphere at school is good and there is a strong personal bond between colleagues. This sometimes stands in the way of developing a more professional culture in which people dare to address each other. The school has already made positive progress in this regard. School leader: *"So that's a process where I think, well maybe we're at 50 percent, uh, that professional, giving feedback."* ‘*That is something that would and would still be on my list as a priority that there will be a slightly more professional culture in which people also dare to address each other.*	The children are happy, feel safe and do not want to leave school at the end of the day, so this results in pupils able to perform well. The atmosphere in the school is good and friendly. The bond between the small team is close and people work together a lot and are jointly responsible for education. There is an open atmosphere where people can talk to each other, discuss matters and use each other's qualities.	The climate is described by all schools as very positive and open. There is a good bond in the teams and they help each other professionally and personally. Collaboration is an important part of the climate. Most schools have a professional culture in which people can talk to each other.
Learning teams*	The learning teams form the heart of the school in which	The learning teams meet every week according to the	The learning teams are determined at the beginning	In the PLC's, upper and lower teachers are mixed and	All schools have some form of a learning team. In most

various aspects come together. For example, it is directly linked to a structured organization, professionalization and development of the teacher, the team and the school, collaboration between colleagues and with the school board, autonomy and control of the teacher, supported goals and vision of the school, the teacher is central and as such it is an essential component for the quality of education.

School leader: *'Make sure that you really put those teachers in charge through learning teams and support them beyond what you can.'*

[x] method. In four groups, tey work on goals that are linked to the [education concept] core values and school goals. This way of working promotes collaboration, involvement, alignment and teachers are part of the changes or improvements in the school.

Website school: *'We think it is important to propagate a joint approach as a team, a continuous line within the school. By constantly discussing educational problems and innovations with each other and making joint agreements, we are strong as a team.'*

of the year based on the annual school plan. They are more workgroups. There are varying compositions. The learning teams determine the goals and the meetings themselves. There is a desire to become more of a learning school in which the working groups that exist become more learning communities in which learning from and with each other is central.

these meetings take place once every three weeks. Teachers work together and exchange information. Current issues in relation to the pupils' learning achievements are discussed in particular. There are learning teams for math, language and quality matters.

schools there is a clear organization of the meetings and expectations. In some schools, the goals of the learning teams are also linked to the vision of education within the schools. Teachers thus become co-owners of this vision. It is important that the learning teams have a clear structure and goals, but that there is also room for their own research and insights and that the results are also included by the school leader. In this way, the learning teams contribute to the quality of education.

Appendix J

Overlap between the school-related factors

Table J1

Overlap between the school-related factors

	Organization of the school	Vision on Education	Leadership	Professionalization	Collaboration	Climate
Organization of the school						
Vision on Education	9,5					
Leadership	7,1	3,4				
Professionalization	4,1	3,2	1,5			
Collaboration	8,4	3,2	4,5	1,5		
Climate	2,7	3,8	2,6	0,5	4,6	
Learning teams	10,2	3,9	1,7	1,7	3,9	0,2

Note: Percentage of all references. N=847