Empty schools

Quantitative research on hidden vacancy among primary schools in the Netherlands

D.M. Vos MSc.
1322289

January 2015

AR3R030 Real Estate Management
Delft University of Technology
Faculty of Architecture
Real Estate & Housing

Empty schools

Hidden vacancy among primary schools in the Netherlands

Course: AR3R030 Real Estate Management
Name: Daniël Vos
Stu.Num.: 1322389

Colofon

Daniël Matthijs Vos MSc.

Student number:	1322389
Address:	Jan de Oudeweg 11 2628 XL Delft
Phone number:	06-309 77 422
Email:	danielmvos@gmail.com

Delft University of Technology

Faculty:	Architecture
Department:	Real Estate & Housing
Laboratory:	Real Estate Management
Address:	Julianalaan 134 2628 BL Delft Postal box: 5043, 2600 GA, Delft
Phone:	+31 15 2789111
Website:	www.re-h.nl
First mentor:	Mvr. ir. M. H. Arkesteijn
Email:	m.h.arkesteijn@tudelft.nl
Second mentor:	Mvr. dr. C. J. van Oel
Email:	c.j.vaneel@tudelft.nl
Representative:	Mvr. dr. M.E.A.Haffner
Email:	m.e.a.haffner@tudelft.nl

Grontmij Nederland B.V.

Address:	De Molen 48 3994 DB Houten Postbus 119 3990 DC Houten
Phone number:	+31 88 811 66 00
Website:	info@grontmij.nl
Division:	Bouw & Vastgoed
Department:	Bouwprojectmanagement
Mentor:	Dhr. Ir. R. J. Klein
Email	Robert.klein@grontmij.nl

Preface

This report is the result of a long educational journey. Prior to the master real estate and housing, I have completed the master public administration at the university of Leiden. In my graduation project at the TU Delft, I wished to combine both science fields and focus on public real estate.

The subject of this thesis brings me back to the start of my educational life: the primary school. The sheer amount of primary schools in the Netherlands and the fact that every citizen has attended one, makes this subject a very interesting and relevant one.

Currently, many news articles note vacancy among public buildings, especially school buildings. Furthermore, there is strong need for budget cuts in public spending. Moreover, literature showed a serious lack of in-depth information regarding municipal real estate.

This thesis focuses on vacancy among primary schools and provides information regarding the scale of this problem and predictive factors. These insights are obtained through database research, surveys among principals and parents and the assessment of building characteristics.

The conclusions of this research reveal recommendations for schools, policy makers and academics.

Daniël Vos

Delft, 16 January 2015

Acknowledgements

Writing a thesis is a humbling experience: one finds out how much one does not know and needs others' expertise. During my thesis project many people offered crucial help.

First of all, my thanks go to the people who always helped me during the process: Monique Arkesteijn for her thorough reading and critical questions that stimulated to continuously sharpen of my work. Clarine van Oel, for her guidance in the field of statistics and the discussions which challenged my view on my work.

I am also grateful for the advice and tips from my colleagues at Grontmij. I do not want to leave unmentioned Robert Klein, my tutor and Corry Hofstee, my coach, who have both helped me a lot.

I am also greatly indebted to the people who enabled my field research, the contacts with the school foundations and municipalities: Mr. Molenaar, Van der Giessen, Jenneskens, Cock and Rom and Mrs. Hubelmeijer.

I am also very grateful to the principals and parents who have taken the trouble to let me into their schools and filled in the surveys. That was an indispensable part of the thesis!

And lastly, I am grateful for the love and support of my girlfriend and the continued support of my parents in past academic years, for allowing me my detour to Leiden and their encouragements to finish what I had started.

Soli Deo Gloria

Samenvatting

Introductie

In de media verschijnen regelmatig berichten over een groeiende verborgen leegstand onder Nederlandse basisscholen. Als mogelijke oorzaken worden de vergrijzing en daling van de bevolking genoemd. Verborgen leegstand is gedefinieerd als: de situatie waarin een school meer vloeroppervlak ter beschikking heeft dan waarop de school recht heeft op basis van de overheidsregulering.

Helaas geeft de literatuur weinig inzicht in de daadwerkelijke omvang van dit probleem. En ook over de oorzaken en mogelijke voorspellers van leegstand onder basisscholen is weinig tot niets bekend. Daarnaast is de relatie tussen de keuze van ouders voor een school en het schoolgebouw onduidelijk. Schattingen van de oppervlaktes van de huidige voorraad basisscholen lopen sterk uiteen en zijn niet beschikbaar op schoolniveau (alleen op landelijk niveau). Hierdoor is het onmogelijk om een gedegen uitspraak te kunnen doen over de omvang van het huidige probleem, laat staan de mogelijke oorzaken te benaderen. Het onderzoek beperkt zich tot de reguliere basisscholen.

Dit is belangrijk om te weten, aangezien onnodig leegstaande schoolgebouwen publiek geld kosten. Geld, wat beter besteed had kunnen worden aan de kernactiviteiten van de school.

Daarom zijn de onderzoeksvragen van dit onderzoek:

- Wat is de huidige vraag en het huidige aanbod in vloeroppervlak van basisscholen?
- Wat veroorzaakt de huidige leegstand onder basisscholen?
- Wat is de toekomstige vraag aan vloeroppervlak onder basisscholen; en wat kan er gezegd worden over een toekomstige mismatch?

Methodologie

Voor dit onderzoek is het DAS-framework as conceptueel model gebruikt om het probleem van leegstand te benaderen. Aangezien leegstand is gedefinieerd als het verschil tussen vraag en aanbod, is het noodzakelijk om de huidige vraag en het huidige aanbod in kaart te brengen om hier uitspraken over te kunnen doen. Het eerste gedeelte van deze scriptie zal hier op ingaan. Daarnaast zullen de financiële implicaties van deze leegstand worden ingeschat en de toekomstige leegstand worden benaderd. Het is momenteel niet mogelijk om uitspraken te doen over de toekomstige ontwikkelingen van het aanbod. Daarom ligt de nadruk van dit onderzoek op de huidige mismatch (zie Fig. 1).

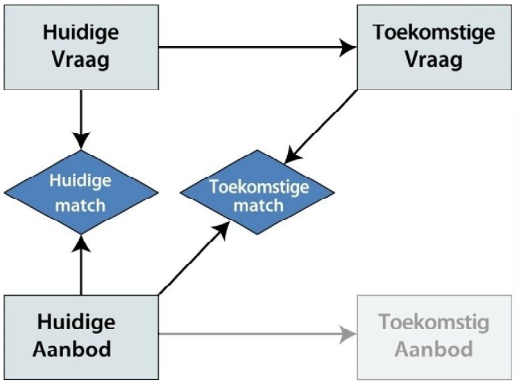


Fig. 1; Conceptueel model.

De huidige vraag is berekend op basis van overheidsreguleringen en publiek beschikbare data over leerlingenaantallen per school. Om het huidige aanbod te benaderen is een koppeling gelegd tussen een extract van Kadastrale gegevens uit het BAG met schooladressen. Deze database is verrijkt met informatie uit 18% van de Nederlandse gemeentes.

De voorspellende mechanismen van leegstand onderbasisscholen is onderzocht aan de hand van een gelaagde willekeurige selectie van een drietal gemeentes: Brielle, Horst aan de Maas en Purmerend. In deze gemeentes hebben 31 scholen deelgenomen aan het onderzoek, door een enquête te zenden naar 193 ouders van groep een en de 31 directeuren hebben tevens een enquête ingevuld. Daarnaast zijn al deze gebouwen op gebouw karakteristieken beoordeeld. Deze informatie is vergeleken met de huidige leegstand van deze scholen.

Resultaten

De gevonden totale leegstand in Nederland is 7,87%. Echter, het onderzoek onder de 31 geselecteerde scholen heeft laten zien dat 30% van de als leegstand gekwalificeerde ruimte verhuurd wordt aan derden. Dit zou kunnen betekenen dat het leegstandspeil mogelijk wat lager ligt (ca. 5,51%) (zie Fig. 2). Daarnaast ontbreken in de gegevens van het BAG mogelijk tijdelijke gebouwen, hetgeen de voorraad zou vergroten.

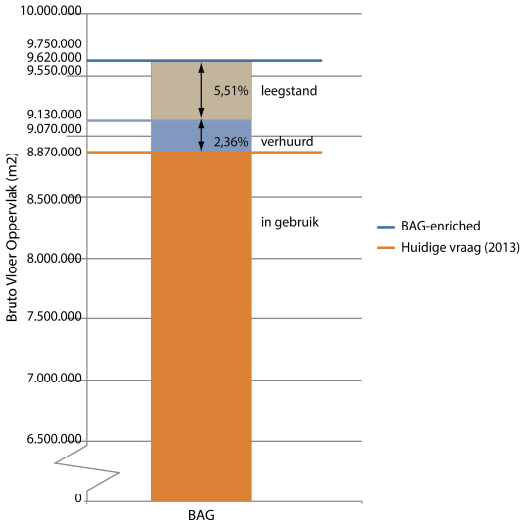


Fig. 2; Huidige leegstand onder basisscholen in Nederland.

Wanneer echter een frictieleegstand van 4% in rekening wordt gebracht, kan in ieder geval gesteld worden dat de huidige leegstand niet zo dramatisch hoog is als sommige mediaberichten doen vermoeden.

Wel is geconcludeerd dat de kosten van onnodige leegstand liggen tussen de 6,7 en 17,5 miljoen euro per jaar. Overduidelijk ligt hier besparingspotentieel.

Daarnaast is duidelijk dat de huidige vraag zal blijven dalen in het komende decennium. Wanneer de voorraad daar niet adequaat op wordt aangepast, zal dit leiden tot hogere leegstandsniveaus.

Tevens is duidelijk dat de problematiek het grootst is bij de provincies Limburg, Noord-Brabant, Friesland en Groningen (zie Fig. 3). Echter, krimpregio en omvang van de gemeente zijn niet significant gecorreleerd, hetgeen betekent dat dit probleem een nationaal probleem is wat zich voordoet in

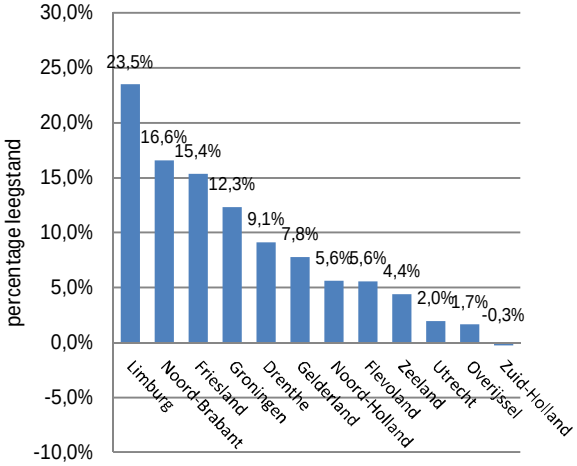


Fig. 3; Leegstandspercentages per provincie.

Uit de analyses van de databases is duidelijk geworden dat de *denominatie* van de school*, Cito-scores*, het *aantal kinderen in het postcodegebied*, *vergroening van de gemeente* en het *bouwjaar* van de school significant gecorreleerd zijn met leegstand.

Aanvullend zijn ook enkele gebouw-eigenschappen, zoals gevonden bij het onderzoek bij de 31 geselecteerde scholen significant gecorreleerd zijn met leegstand.

Het betreft de aanwezigheid van *ruime* en *lichte lokalen*, *uitlijning in hoogte* en *rooilijn* van de school, *verwarming*, *onderhoud*, *netheid*, *omvang van het schoolplein*, de aanwezigheid van een *directiekamer* en *andere functies*, het *gebouwtype* en de aanwezigheid van *speciale architectuur*.

Figuur 3 geeft een overzicht van alle gevonden factoren per categorie in relatie tot leegstand, inclusief een zekerheidsindicatie (* laag - *** hoog).

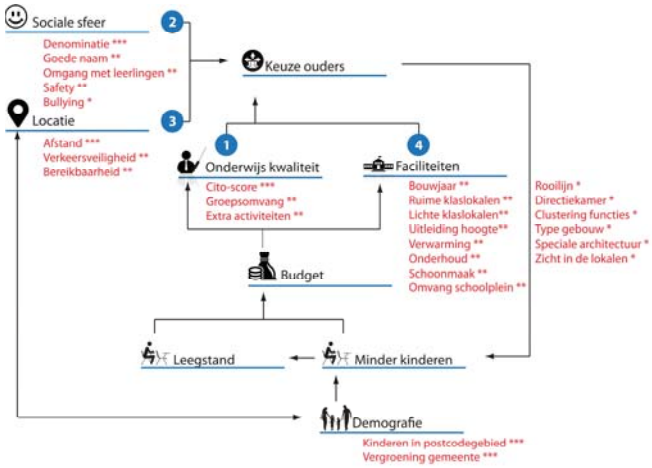


Fig. 4; Predictive factors for vacancy.

Aanbevelingen

Dit onderzoek heeft allereerst een accurate schatting van de omvang van het vloeroppervlak van het Nederlands basisonderwijs opgeleverd. Daarnaast is dit het tweede onderzoek in Nederland naar de effecten van het schoolgebouw en de bijbehorende faciliteiten op de schoolkeuze van ouders. Dit heeft waardevolle inzichten opgeleverd voor beleidsmakers en scholen.

Aanbevelingen voor beleidsmakers:

- Leegstand zal het komende decennium een groeiend probleem vormen. Om de betrokken actoren in staat te stellen dit probleem op te lossen, dienen gemeentes een proactieve regierol in te nemen.
- Dit onderzoek heeft laten zien dat de gemeentelijke aanpak uitmaakt. Niet iedere gemeente in een krimpregio heeft een probleem. Daarom moet er een uitwisseling van *best practices* tot stand komen tussen gemeentes.
- Om leegstand goed te bestrijden is de juiste informatie van cruciaal belang. Daarom is het belangrijk dat gemeentes die ter beschikking stellen (o.a. via het BAG.)
- Tot slot is het voor alle partijen van groot belang dat de informatie in het BAG juist is. Gemeentes zijn verantwoordelijk voor het aanleveren van de juiste informatie. Ze dienen deze taak serieus te nemen.

Aanbevelingen voor scholen

- Gebouweigenschappen doen er toe, maar de onderwijskwaliteit en sociale sfeer of de school zijn belangrijker. Scholen dienen dan ook allereerst hun inzet te concentreren op verbetering hiervan.
- Met de overdracht van de verantwoordelijkheid voor het buitenonderhoud naar de scholen per 1 januari 2015, ontstaat de verleiding om onderhoud uit te stellen. Schoolbesturen wordt aangeraden dit niet te doen. Slecht onderhoud blijkt gecorreleerd met leegstand en kan dus leiden tot een vicieuze cirkel: slecht onderhoud trekt minder leerlingen, wat leidt tot minder budget.
- Scholen die moeite hebben om leerlingen te trekken of worstelen met leegstand wordt het volgende aangeraden:
    - Onderhoud van het speelplein. Het vormt het visitekaartje van de school, wat ouders als eerste zien. Beter een klein, maar mooi speelplein, dan een groot verloederd plein. Verwijder beschadigd straatmeubilair.
    - Zorg dat het gebouw schoon en net is.
    - Zorg dat het gebouw geen zichtbaar achterstallig onderhoud heeft.
    - Zorg dat er zicht is in de klaslokalen vanuit de gangen. Verwijder aangeplakt papier van ramen.
    - Zorg voor (liefst natuurlijk) licht in de lokalen en gangen.
    - Zorg voor goede ventilatie, koeling en verwarming. Dit heeft ook positief effect op de leerprestaties.
    - Voeg speciale architectonische kenmerken aan de school toe, bijvoorbeeld bij de ingang.

Summary

Introduction

Newspapers often mention a rising vacancy among primary schools in the Netherlands, caused by an aging population and rejuvenation. This vacancy is defined as: *the situation in which a school uses the entire school building, while not needing all available floor space based on government regulations*.

Literature study however, reveals little knowledge regarding the scale and causes of this phenomenon. Estimates of the current supply vary widely, making it nearly impossible to estimate the current vacancy among primary schools. Furthermore without information of the current supply per school, it is impossible to research the causal mechanisms of vacancy. And it is unknown how important the school building is to the parents during their school choice.

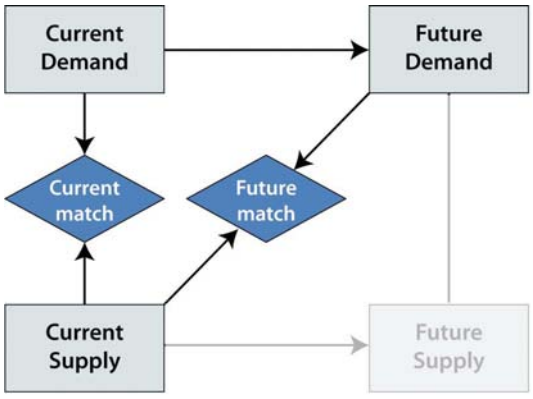
It is important to know the scale and causes of this problem, since it costs public resources which could otherwise be used on the school's core business.

Therefore the research questions of this research are:

- What is the current demand and supply (GFA) among primary schools?
- What causes contemporary vacancy among primary schools?
- What is the future demand of floor space among primary schools; and what can be said regarding a future mismatch?

Methodology

This thesis uses the DAS-framework as a conceptual model to approach the problem of vacancy. Since vacancy is the defined as the mismatch between demand and supply, in order to calculate the current mismatch, the current demand and supply must be known. The first part of this thesis involves this issue. Furthermore, the financial implications and the future demand are. However, the future supply was left out of the scope of this thesis, which makes it impossible of estimate a future mismatch.



The current demand is calculated, based on available government regulations and amounts of students per school. In order to estimate the current supply an extract from the Cadastre (BAG) is matched with school addresses. This database was enriched with information of 18% of the Dutch municipalities.

The causal mechanisms of vacancy were researched in a sample of three municipalities, selected with stratified random selection. In these municipalities, Brielle, Horst aan de Maas and Purmerend, 31 schools cooperated by sending surveys to the parents of group one and by filling in a survey by the principal of the school. Furthermore, the building characteristics were assessed. This information was matched to the vacancy rates of the schools.

Findings

It was found that the total current vacancy in the Netherlands is approximately 7,87%. However, research on the sample revealed that circa 30% of the vacant floor space was rented. This would reduce the actual vacancy rate to 5,51% (see Fig. 5).

When a friction vacancy of 4% is taken into account, these vacancy rates are not as high as suggested in literature.

Additionally, it was concluded that the current vacancy costs between 6,7 and 17,5 million euro annually.

Furthermore it is concluded, in line with literature, that the provinces of Limburg, Noord-Brabant and Groningen have the highest vacancy rates (see Fig. 6). However, decline regions or the population size of a municipality are not correlated with vacancy. So it must be stated that vacancy among primary schools is not an issue of the rural areas, but a nationwide phenomenon.

Moreover, it is concluded that the demand will be declining in the future. When the supply is not adapted to this future decline, the vacancy rates will raise.

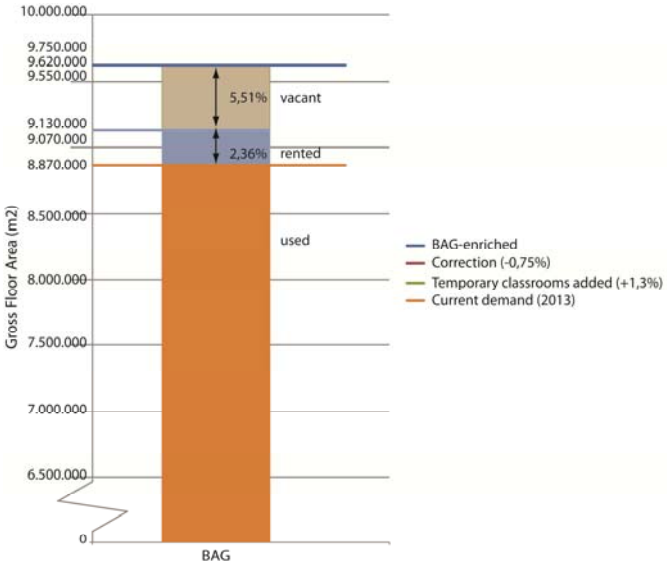


Fig. 5; Current vacancy in primary schools the Netherlands.

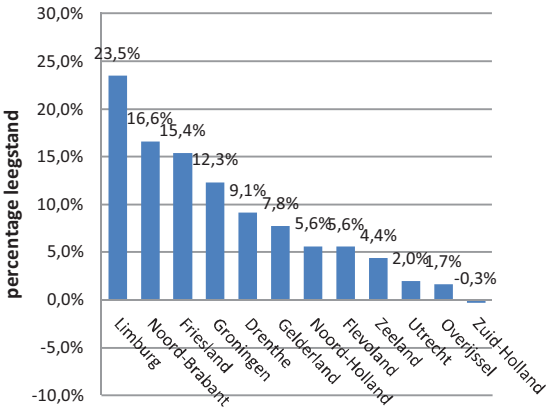


Fig. 6; Vacancy rates per province.

Furthermore, based on the available databases it was concluded that the *denomination*, *Cito-scores*, *number of children in the postal code area, building year of the school* and *rejuvenation of the municipality* are significantly correlated with vacancy.

Additionally, the selection of schools in the three municipalities showed that various building factors are significantly correlated to vacancy:

The *type, alignment in height and surrounding buildings, heating*, *maintenance*, *tidiness and hygiene* of the building, *size of the playing ground, view to the classrooms from the corridor*, *a principal's office*, *clustering of functions* and presence of special architecture are all found to be related to vacancy.

However, the certainty of their effect differs and in indicated with * (low) to *** (high).

Fig. 7 gives an overview of the significant correlating factors per category and their assumed relationship to vacancy.

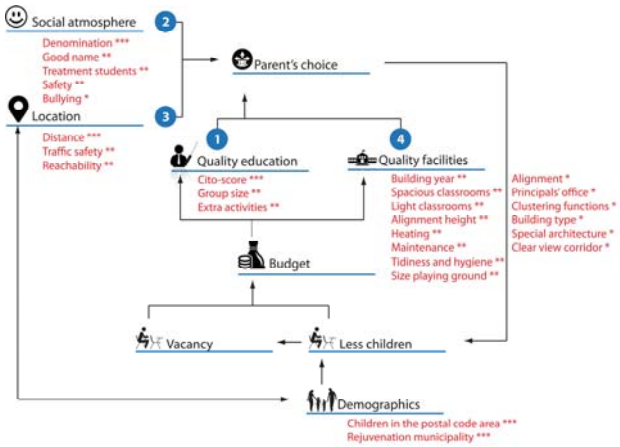


Fig. 7; Predictive factors for vacancy.

Recommendations

This research is the first to deliver an accurate estimation of the size of the primarily school floor space in the Netherlands, differentiated per school. Furthermore, it is the second research on the effect of the school building and its facilities on the parents' school choice in the Netherlands. This delivered valuable insights and recommendations for policymakers and schools.

Recommendations for policy makers:

- Vacancy will become a bigger problem in the coming decade. In order to allow actors to anticipate this trend: municipalities should take a coordinating role.
- This research shows that municipal approaches matter. There should be an exchange of best practices among municipalities.
- To do so, ensure the availability of accurate information regarding primary school floor space.
- Make sure the BAG contains the right information.

Recommendations for schools:

- Building characteristics are important, but the educational quality and social atmosphere are more important. Focus of resources should therefore be on educational quality and social atmosphere.
- Do not fall for the temptation to postpone maintenance. It might lead to a vicious circle of student number decline.
- Schools struggling with declining number of students or considering renovation of their building should focus on:
    - Maintenance of the playing ground, Remove deteriorated playing sets;
    - Hygiene and tidiness of the building;
    - Maintenance of the building;
    - Ensure clear view between corridor and classrooms;
    - Make sure there is light in classrooms and corridors;
    - Make sure there is adequate ventilation, cooling and heating;
    - Add distinctive architectural elements. For example improve the entrance.

Abbreviations

AIC	-	Akaike's Information Criterion
B&W	-	Mayor and Alderman. In Dutch: Burgemeester en wethouders.
BvS	-	Building stones for Social, a platform for public real estate. In Dutch: Bouwstenen voor Sociaal.
Cito	-	Central Institute for Test development. In Dutch: Centraal Instituut voor toetsontwikkeling.
CSS	-	Civil Service Systems
DUO	-	Executive Agency for Education. In Dutch: Dienst Uitvoering Onderwijs
FED	-	Federal Reserve System: Central Bank of the United States of America
GAA	-	General Accounting Agency
GFA	-	Gross Floor Area
NPM	-	New Public Management
ROZ	-	Council for Real Estate Matters. In Dutch: Raad voor Onroerende Zaken.
SIOZ	-	Stichting Islamitisch Onderwijs Zaanstad
VNG	-	Association of Dutch Municipalities. In Dutch: Vereniging van Nederlandse Gemeenten.
WPO	-	Law on Primary Education. In Dutch: Wet op het primair onderwijs.

Contents

1. Introduction

This chapter contains a brief introduction to the problem of vacancy among primary schools in the Netherlands. It's social consequences are explained, as well as the gap in existing knowledge. This problem raises questions regarding scale and causes of the problem of vacancy, which will lead to the research questions of this thesis.

1.1 Problem statement

The macro-economic developments of the past decade have had a strong negative impact on the Dutch real estate sector. Clearly, economic decline negatively affects the office space demand. Additionally, as a result of a real estate bubble, there turned out to be a huge overcapacity on the office space market. Also, the housing sector went in a deadlock. And to make matters worse, peripheral areas of the Netherlands are facing a population decline. As a result of these developments, there is much vacancy in the Dutch real estate sector.

Since the country is part of the European Union, it is bound to European standards regarding government deficits and state debts. As a result, the Dutch government is forced to cut its expenses in order to remain within the boundaries of the European regulations. Because budget cuts in most

cases affect individuals using public services, there is much debate concerning the sectors and services that should be subject to budget cuts.

The public sector is confronted with obsolete real estate as well, which seems to be an easy target for budget cuts. Public revenues, currently spent on vacant buildings could be used for other services, without compromising the current service level (leerlingdaling.nl, 2014a).

The exact amount of public real estate in the Netherlands is unknown. Estimates vary from 83 million m^2 Gross Floor Area (GFA) (Van der Wal, 2011) to 98 million m^2 GFA (Jager & Naus, 2012). Research indicates that large shares are used for healthcare and education provision. Approximately, one-third of the educational real estate is used for primary schools (Van der Wal, 2011).

Gemeenten hebben te weinig aandacht voor de snel oplopende leegstand van maatschappelijk vastgoed. Die is straks zeker zo groot als de leegstand van kantoren en winkels bij elkaar. Tot 2030 komt naar verwachting zo'n 20 miljoen vierkante meter vastgoed vrij dat geen maatschappelijke functie meer heeft.

Vastgoed niet meer nodig

Dit blijkt uit de 'Reisgids maatschappelijke voorzieningen' die is uitgebracht door Bouwstenen voor Sociaal in samenwerking met het Interbestuurlijk Programma Bevolkingsdaling (Ministerie BZK). Maatschappelijk vastgoed is vastgoed dat direct of indirect door de belastingbetaler wordt gefinancierd. Door veranderingen in het gedrag van mensen en door nieuwe wet- en regelgeving is een groot deel van dit vastgoed in de toekomst niet meer nodig.

Gevolg van bevolkingsdaling

De dreiging van leegstand is het grootst in het onderwijs en de zorg. Zo zijn er bijvoorbeeld minder scholen en sportvelden nodig als gevolg van de bevolkingsdaling, constateert Bouwstenen voor Sociaal. Een groot deel van de zorg

Fig. 8; Vacancy in public real estate? (Buitelaar, 2013).

Various articles claim that primary schools are subject to (hidden) vacancy (see Fig. 8) (BvS, 2011; deStentor, 2012; De Cock, 2014; DoZ, 2014; De Architect, 2014, Van den Bogaerdt, 2012). Heijnders (2014) mentions 9.000 school buildings, 7.500 schools and an overall size of the stock of circa 20 million m^2 GFA. However, there is no differentiation between primary schools and secondary schools, the data used is old (2009) and it does not contain information per school, nor does it mention vacancy. The other authors rarely[1] mention the current vacancy[2]. Therefore the scale of this problem remains unknown (see Table 1 for an overview of the statements made).

However, hidden vacancy costs money since these parts of the building often require maintenance and use electricity and gas[3] (De Architect, 2014). Due to the budget cuts in government spending, the schools are confronted with decreased budgets as well. As a consequence, the core business of the school, the quality of education and pedagogic resources[4] are compromised (Klis, 2011; Koning & Vos, 2011). Effective use of such obsolete space can reduce housing costs, which makes room for the allocation of these resources on the school's core business.

[1] Van den Bogaerdt (2012) gives a rough estimation of the vacant floor space in Amsterdam. However, the total stock is not mentioned.

[2] Molmans mentions an increase of vacancy of 640.00m^2 up to 2022, but does not state the status quo.

[3] De architect (2014) mentions 19 million euro.

[4] Research by CPS indicates that 86% of the schools cut budget on the teaching staff (Koning & Vos, 2011).

Table 1; Literature on vacancy in primary schools.

Author	Main quote	Location	Vacancy
BvS, 2011	"There is much hidden vacancy in schools."	Nationwide	no amount mentioned
De Stentor, 2012	"(…) increasingly, elementary classrooms are vacant (…)"	Veluwe	no amount mentioned
De Cock, 2014	"(…)in almost three hundred Dutch villages is still both a Christian and a public elementary school (..) all threatened by population decline."	Dutch villages	no amount mentioned
DoZ, 2014	"Research shows that several schools in Delft struggle with vacancy."	Delft	no amount mentioned
Van den Bogaerdt, 2012	"Many school foundations for primary education in Amsterdam suffer from costly vacancy."	Amsterdam	50.000 m^2
KIMV, 2014	"In particular, the shrinking regions will be hit hard."	Nationwide	624.000 m^2
De Architect, 2014	"We are heading to a nationwide financial setback caused by the vacancy of primary schools."	Nationwide	no amount mentioned

Vacancy is defined as *the mismatch between demand and supply, resulting in a surplus of floor space*. Hidden vacancy is the situation in which an user rents or owns space, while not needing all of it (Lokhorst, Remøy & Koppels, 2013). In the situation of primary schools the ownership construction might differ from place to place. For this research hidden vacancy is defined as *the situation in which a school uses the entire school building, while not needing all available floor space based on government regulations*.

How much (hidden) vacancy there is among primary schools in the Netherlands remains unknown on a national level. Furthermore, the causal dynamics behind vacancy among primary schools are largely unexplored as well. This will be the starting point of this research.

1.2 Relevance

1.2.1 Scientific relevance

According to Veuger (2009), there is a tendency of ongoing professionalization of real estate. Forced by commercial benchmarks and a need to reduce government spending, municipalities are expected to improve the results of their real estate. Consequently, scientific research on public real estate regarding the nationwide supply, demand and the lessons that can be learnt from commercial real estate is needed. This would improve transparency, accountability and value development in the realm of public real estate.

Furthermore, literature study indicates that there is a lack of in depth data regarding public real estate in general and specifically on primary schools. It is highly uncertain how big the supply of schools is in terms of gross floor space.

These figures are necessary calculate the current vacancy among primary schools, which indicates how big this problem currently is, and will be in the future. This is relevant all the more, since this must be known in order to apply the right strategy to deal with vacant school buildings.

This research will take the works of Van der Wal (2011), Jager and Naus (2012) and Teuben, Waldmann and Hordijk (2007) and Van Elp and Zuidema (2013) as a starting point for exploring the before mentioned data.

1.2.2 Societal relevance

Furthermore, transparency regarding the assets in use by the government and financed with public resources is crucial for democratic accountability and control. Clearly this touches the very core of the principles of good governance (Karsten et al., 2001: 1; Bovens et al., 2007: 25-34).

The Cadastre states that many municipalities are compartmentalized, leaving each organization only in control over their own assets. As a result, the sport department knows every detail about local sports facilities, while there is no correlation with other assets (E-overheid, 2013). In case of vacancy, this lack of overview can cost large amounts of public resources, since vacant building needlessly cost resources (KIMV, 2014; PropertyNL, 2013; Vastgoedmarkt, 2013b; De Architect, 2014; Molmans, 2014).

When a mismatch between the current supply and demand is demonstrated, reduction of the operating costs without reducing the service level provided becomes possible, leaving room for spending on other issues. Clearly such an efficiency improvement is very interesting for society.

Concluding can be stated that there is a strong need for more insight in the current demand and supply of public real estate. This is not only important because of financial reasons, but also for the sake of democratic accountability.

1.3 Research aim

As discussed above, there is a considerable lack of knowledge regarding municipal real estate in the Netherlands. This research aims to provide both local administrators and school boards as well as the scholars with insights regarding the supply and demand of primary schools.

Furthermore, this research also aims at the exploration of the causal mechanisms related to vacancy in primary schools. Insights in this matter can contribute to an effective approach towards this issue.

1.4 Research questions

Therefore the main research question of this thesis is formulated as follows:

What are the most important predictors of hidden vacancy among primary schools?

The following sub questions will be addressed in order to answer the main question.

1. What is the current demand and supply of floor space among primary schools?
2. What are the most important predictors of contemporary vacancy among primary schools?
3. What is the future demand of floor space among primary schools; and what can be said regarding a future mismatch?

2. Literature

In this chapter the most important aspects related to primary schools and vacancy among them, are explored in a literature study. First the concept of public real estate and the problem of measuring it are addressed. Second, the existing knowledge on educational real estate in general is discussed. Third, the history of primary schools, with a focus on the buildings is mentioned and contemporary housing and financial arrangements are discussed. This chapter results in a conceptual model regarding the predictive factors of vacancy.

2.1 What is public?

When public real estate is researched, it is important to define what is meant with it. Clearly, there is a distinction between public and private matters in society. This dichotomy is very important in many disciplines. However, the line between public and private is not easily drawn[5] (Rutgers, 2004: 131-134; 161-167).

[5] Hegel was one of the first to articulate the difference between society and the state. He regards civil society as an association of people, based on a legal system, to allow gratification of private and public interests. In Hegel's opinion, the state is above all parties, to protect the weak. It's fundamental task is to intervene in the market in order to provide a basic level of living (Rutgers, 2004: 164-165).

Often, in attempt to define what public is, the scope of the public sector regarding time, sustainability, measurement of effectiveness, public finance and the role of the media are mentioned (Allison, 1992). Most authors point at judicial or economic characteristics. From an economic perspective, private organizations are usually 'for profit', while public organizations are 'non-profit' (Rutgers, 2004: 136). This distinction refers to the dichotomy of state and market.

Although the size and impact of the state differs from nation to nation, all have government steering up to a certain point. Because the transactions between and life among individuals require some basic conditions with respect to security, predictability and order. Furthermore, well functioning of market transactions requires (almost) perfect market conditions. This can only be realized by an authority enforcing such conditions (Bovens et al., 2007: 81-98), for "*markets on their own evidently fail*"[6] (Stiglitz, 2010: 12). As a result, the government is necessary to provide good market conditions and guard the public interests (Bovens et al., 2007: 81-98).

As clear as the necessity of public organizations may seem, it is hard to make a clear distinction between public and private organizations. Government-run organizations might deliver private goods, while private organizations might provide public services[7]. Since the past century's nineties, the wake of neo-liberalism[8] has blurred the lines even more. Many government agencies were privatized, making private organizations responsible for the delivery of public goods (Raadschelders et al., 2007: 36-39).

Such blurred lines make investigating the public realm difficult. Should one look at the ownership of an organization, or at the way in which its operations are financed, or at the services it delivers? Confronted with this problem while researching the size of the public sector[9] Raadschelders et al. (2007) pointed at the concept of Civil Service Systems (CSS) to get a grip on the matter. CSS focuses on whether the resources are used for the public service delivery. This leaves ownership and finance out of the equation. A practical solution to this definition problem.

2.1.1 What is public real estate?

However, lack of a clear definition has practical implications. As discussed above, Raadschelders et al. struggled to research and compare the size of the state. Likewise, several authors have tried to map the sheer amount of public real estate in the Netherlands. While the concept of real estate does not pose many practical issues, again the public aspect of it does.

For example, the way in which an organization is financed might also be an indication for its publicness. The Dutch real estate newspaper Vastgoedmarkt (2013a) chose this approach, defining public real estate as: *"real estate directly or indirectly financed by the taxpayer".*

The Dutch Cadastre suggested an inventory based on ownership status (E-overheid, 2013). Results

[6] Stiglitz and many others have shown that the market requires enforcement of market conditions. Without it, monopolies and cartels would arise, lowering wealth and making prices higher. Furthermore, information imbalance or lack of choice hinders completion. Moreover, externalities disturb markets since not always the user pays for all the effects of the operations, shifting costs or benefits to actors not part of the exchange (Stiglitz, 2010: 15).

[7] F.e.: the purchase of a drivers license is a purely private transaction between an individual and the government. On the other hand energy or water companies deliver public goods but are themselves often private organizations.

[8] The effects of Neo-Liberalism in the public sector are referred to as New Public Management (NPM). Comprehensive discussion of the matter can be found by several authors (Raadschelders, Toonen, & Van der Meer, 2007; Bovens, 't Hart & Van Twist, 2007: 258-264).

[9] One of the many fields of interest within the discipline of public administration is the size of the public sector. The research of Raadschelders et al. (2007) focused on the amount of people working in the public sector (i.e. civil servants). NPM has led to a indistinct employee status of many public service providers. F.e.: employees of the energy service might be on government payroll in one country while on a private payroll in the other. Nevertheless, they both deliver a public good: energy. This makes cross-country comparison very hard.

of such an approach (Jager & Naus, 2012) indicate that there is approximately 98 million m^2 Gross Floor Area (GFA) public real estate in the Netherlands (see Fig. 8). However, the many ownership constructions muddle this estimation. For example, many public service providers rent buildings for their operations. Furthermore, the government owns assets without a clear public purpose, like dwellings and offices. This is defined as 'public rest' and left out of the overviews to come.

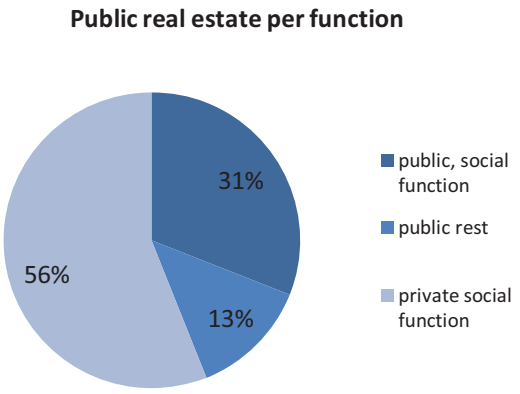


Fig. 9; Size (millions) and proportion (%) of public real estate per function (Jager & Naus, 2012: 22).

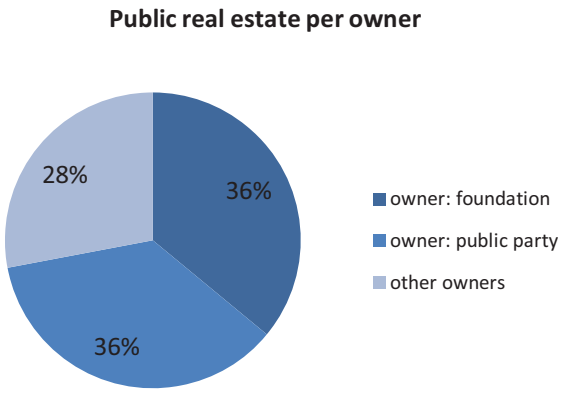


Fig. 10; Size (millions) and proportion (%) of public real estate per owner (Jager & Naus, 2012: 22).

Another approach could be, based on the services provided. Bouwstenen voor Sociaal (BsV) (Van der Wal, 2011) took this heading and made the following calculations: A percentage of the resources spent on public services is needed for real estate operating. This percentage can be obtained through government documents or expert knowledge. The resources spent on public services are known and available through the Central Bureau for Statistics Research (CBS) (2009a). When the total amount spent on operating is known, this can be divided by a benchmark related to the service. As a result the total amount of public real estate based on the public service delivery in the Netherlands can be estimated. For the calculations see Appendix A. The results of the approach indicated approximately 83 million m^2 GFA of public real estate.

However, clearly, this approach requires some fundamental assumptions. First the benchmark used is the result of the expertise of advisors of a private company[10]. Without further information, it is hard to check their correctness.

Furthermore, the percentages spent on operating used can be doubted. Van der Wal (2011: 2) states that 11,1% and 14,6% is spent on the operating of various education related services. This is based on data from the CBS (2009a). However, in publications by the CBS (2009a: 24, 45, 63), significantly lower (6% - 8%) percentages are found. Clearly this approach raises questions.

[10] Bouwstenen voor Sociaal (Van der Wal, 2011) executed this research in close collaboration with BBN Adviseurs. All benchmarks are based on their expert knowledge. Nothing is revealed about the way in which they came up with these benchmarks. This is not the transparency required for a scientific approach.

Table 2 gives an overview of the two researches discussed. Concluding can be stated that is seems quite hard to deliver accurate numbers regarding the total amount of public real estate in the Netherlands. While the total numbers add up quite good, there are big differences between the categories. Furthermore it can be concluded that only a few authors have successfully tried to deliver estimates regarding the size of public real estate in the Netherlands. Clearly there is a gap of scientific knowledge regarding the specific interpretation of the size of each category of the public real estate sector in the Netherlands.

Table 2; Comparison Van der Wal (2011) and Jager & Naus (2012) (millions).

	Public Real Estate		Public Real Estate	
	Van der Wal		Jager & Naus	
	millions	percentage	millions	percentage
Education	30	36%	37.6	44%
Welfare	2.6	3%	0.64	1%
Sport and recreation	5.7	7%	14.4	7%
Buildings for own use	N.A.	N.A.	2.5	3%
Culture	2.7	3%	2.4	3%
Other	8.6	10%	6.8	8 %
Health	29.9	36%	19.9	23%
Child care	3.9	5%	3	2%
Total	83.4	100%	85.5	100%

Furthermore, the definition of public real estate seems quite hard. Various authors took different approaches. For this research, the part of the definition used by Raadschelders et al. (2007: 5) is sufficient. Public real estate can be defined as *real estate used for the delivery of the services of the state.*

2.2 Municipal real estate

The previous paragraphs discussed the size and function of public real estate. It was concluded that there is a lack of knowledge regarding public real estate. Part of the service delivery of the state is delegated to lower bodies of government. This research will concentrate on primary schools as part of municipal real estate. Therefore, the responsibilities and structure of municipalities in the Netherlands are explained. Furthermore, research on municipal real estate is discussed in order to discover the proportion of primary schools within the municipality's portfolio.

2.2.1 Municipalities

In 1848 Thorbecke drafted a revision of the Dutch constitution, altering the powers of the king, state, province and municipalities[11]. This laid the foundations of the Dutch polity. The subsidiary principle, stating that higher government bodies only should be involved if lower bodies cannot handle the issue on their own, became leading in this division of powers. As a result, the municipalities in the Netherlands are relatively powerful (BPR, 2014).

[11] This is called *The house of Thorbecke*. In the aftermath of the French Revolution, revolutions spread through Europe, forcing various royal houses to withdraw. Faced with this approaching danger, king William II ordered a revision of the constitution, in order to avert nearing rebellion in the Netherlands. The liberal leader Thorbecke was ordered to draft a revised constitution, introduction direct elections of parliament and ministerial responsibility to parliament (Andeweg & Galen, 2005: 14).

There are huge differences between the various municipalities (Breeman et al., 2008: 90; 100-101). Data from 2013 (see Fig. 11) shows that the smallest municipality is Schiermonnikoog, with a population of 946. The largest municipality is Amsterdam, with 794.694 inhabitants. The average population size of the municipalities is 40.373. On 1 January 2014 several municipalities merged for efficiency reasons, consequently the number of municipalities was reduced from 415 in 2013 to 403 in 2014. This is in accordance with a long trend of merges of smaller municipalities (Breeman et al., 2008: 105).

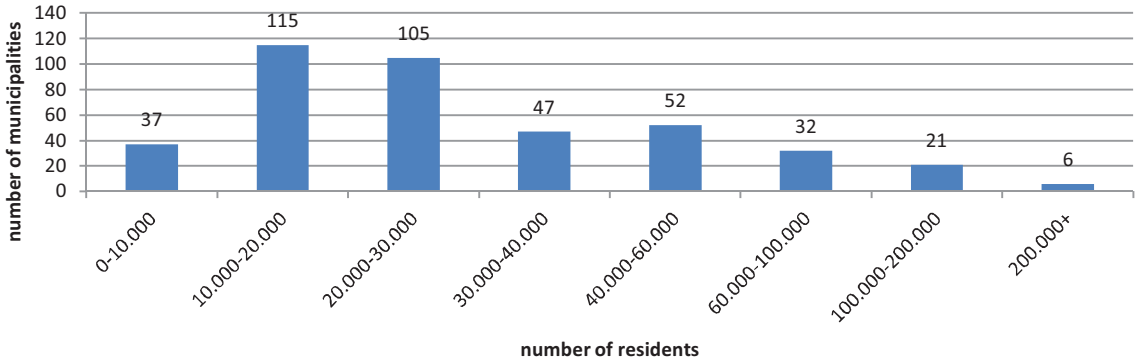


Fig. 11; Population of municipalities CBS Statline (2013c).

The municipalities are responsible for many local issues. Policy is implemented by an appointed mayor and directly elected alderman (B&W). Their work is controlled by the city council, to whom they are accountable[12] (Breeman et al., 2008: 97; Rademaker, 2007: 21-22).

Municipalities carry out both national policies and their own policies. And most important for this research, they are responsible for the housing of schools (Rijksoverheid, 2014a).

2.2.2 Real estate for the delivery of municipal services

When looking specifically at municipal real estate, clearly the same problems arise as when looking at public real estate as a whole. Many authors indicate that there is a serious lack of knowledge regarding the size, condition and value of municipal real estate (Buitelaar, 2013; E-overheid, 2013: 2; Teuben et al., 2007).

Research by Teuben, Waldmann & Hordijk (2007) made efforts to map the value of municipal real estate. Their approach was threefold. First they used a literature review of the annual reports of municipalities. Second, a survey was send to several municipalities. And last, benchmarks of the Council for Real Estate Matters[13] (ROZ) were used. Since none of these methods delivered a complete overview of the situation, the authors extrapolated the results to the whole of the Dutch market (Teuben et al., 2007: 1). Furthermore, all three methods delivered different estimates (Ibid. p. 11). The methods and results will be discussed below.

First, since municipalities are obliged to publish the book values[14] of their assets in their annual reports, literature delivered valuable insights (Teuben et al., 2007: 4).

[12] Up to 2002 the alderman were chosen from the largest parties in the city council and held their seat in the council during their office. However, in 2002 this monistic system was replaced by a dualistic system in which the alderman give up their seat in the council (Breeman et al., 2008: 97; Rademaker, 2007: 21-22).

[13] Dutch: Raad voor Onroerende Zaken.

[14] The book value is the historical costs, plus capital improvements and minus cumulative depreciation (Teuben et al., 2007: 4).

This method resulted in an estimate of 47 million m^2 municipal real estate in the Netherlands (2007: 11). Furthermore they found a direct relationship between the population size of municipalities and the book value of their total real estate stock. Especially between educational real estate and population size, this holds true. They estimate the total size 2.7 m^2 per capita (2007: 7) (see Table 3). However, the relationship between book value and market value becomes weaker over time[15]. Therefore, this approach is less useful in case of older real estate.

The survey delivered information regarding the size and value of the municipalities responding[16]. The authors extrapolated the squared meters per capita to the whole of the population. The results are displayed in Table 3.

Table 3; Overview of the estimates of real estate per capital (Teuben et al., 2007: 8).

Policy area	m2/capita	total stock (mln m2)	
Education	1,32	21,6	49%
Welfare	0,21	3,4	8%
Sport and recreation	0,25	4,1	9%
Buildings for own use	0,26	4,3	10%
Culture	0,18	3	7%
Other	0,5	8,2	19%
Total	2,72	44,3	100%

The survey delivered information regarding market value. Based on the property tax value determined by the local government, Teuben (et al., 2007: 8) also estimated covered floor space (m^2) (see Table 3). Furthermore, the total book value is estimated to be 16 billion m^2. Using the survey, an average book value per square meter is calculated. Based on this method, Teuben et al. (2007: 11) conclude[17] that the total municipal floor space is approximately 44,3 million square meter.

Clearly, the estimated market values are very low (see Table 4). If the Gross Initial Yield is approximately 10%, the annual rent will be €58 - €110 (Geltner et al., 2007: 222). For example, the market value of educational real estate is estimated by Teuben et al. at €58/m^2. However, many authors (Bos, 2012; BvS, 2013; Leenders & Rensema, 2013; Venray, 2011) mention higher cost covering rents (€100/m^2 - €115/m^2).

Table 4; Overview of the book and market value per m2 (Teuben et al., 2007: 8).

		Book value		Market value	
Policy area	**weight**	**€/m2**	**m2**	**€/m2**	**m2**
Education	49%	€ 321	2.352.131	€ 582	1.522.039
Welfare	8%	€ 264	434.082	€ 705	434.082
Sport and recreation	9%	€ 302	334.565	€ 687	357.800
Buildings for own use	10%	€ 305	515.537	€ 624	526.726
Culture	7%	€ 765	531.489	€ 1.103	532.489
Other	18%	€ 281	434.329	€ 715	500.513
Total	100%	€ 343		€ 679	

Third, Teuben et al. used the ROZ real estate benchmark to relate the obtained results to. These benchmarks are considered more accurate since data on property level is used. However, the

[15] When an asset has been in the hands of the owner for a long time, and it is not significantly improved, the book value will become zero, because cumulative depreciation is subtracted from the initial value (Teuben, Waldmann, & Hordijk, 2007: 4-5).

[16] Teuben et al. state the survey covers approximately a population of 3 million people, which is 20% of the total population. Municipalities not responding were primarily in transition towards a central real estate department. The lack of such an organization at the moment, resulted in a lack of data (2007: 6).

[17] €16.000.000.000,- / €343,- per m^2 = 46.647.230 m^2

coverage is considerably lower[18] (ibid. 2007: 9). The benchmarks are considerably higher, than the obtained market values of the survey[19]. This method resulted in an estimate of approximately 40-47 million square meter (Teuben et al., 2007: 11).

As a final conclusion, Teuben et al. (2007: 11) state that the total amount of municipal real estate in the Netherlands must be approximately 40-47 million square meter.

Clearly this research holds some serious limitations, since only a small percentage of the municipalities responded to the questionnaire. However, the results do give an insight in the division of real estate among the various policy fields. Nevertheless Teuben et al. have gone a long way to obtain an estimate of the value of municipal real estate in the Netherlands. Furthermore, the percentages give an indication of the importance of the various policy areas for public real estate. Clearly both education and health care hold large parts of the public and municipal real estate.

Obviously the authors mentioned above struggle to estimate the amount of public and municipal real estate in the Netherlands. Their efforts are extensive, but remain rough estimates. Therefore, it seems safe to conclude that there is a strong lack of data considering public- and especially municipal real estate.

2.3 Educational real estate

In the previous chapters, research on public real estate and municipal real estate is discussed in order to map the size of this sector and specifically educational real estate. The estimates based on literature (see Table 5) agree on the importance of the education sector, holding large shares of public real estate.

Table 5; Overview of various researches on public real estate (millions).

	Public Real Estate		Public Real Estate		Municipal Real Estate	
	Van der Wal		Jager & Naus		Teuben et al.	
	millions	percentage	millions	percentage	millions	percentage
Education	30.0	36%	37.6	44%	21.6	49%
Welfare	2.6	3%	0.64	1%	3.4	8%
Sport and recreation	5.7	7%	14.4	7%	4.1	9%
Buildings for own use	N.A.	N.A.	2.5	3%	4.3	10%
Culture	2.7	3%	2.4	3%	3.0	7%
Other	8.6	10%	6.8	8 %	8.2	18%
Health	29.9	36%	19.9	23%	N.A.	N.A.
Child care	3.9	5%	3.0	2%	N.A.	N.A.
Total	83.4	100%	85.5	100%	44.6	100%

Notwithstanding the efforts of these authors, the variations within the categories of public real estate, leave room for further research. Thus this lack of knowledge regarding real estate of municipalities, makes it a grateful subject of research (Moerkamp, 2012).

Furthermore, a large part of the public real estate has an educational or healthcare related function (Table 5) (Van der Wal, 2011[20]; Jager & Naus, 2013). Almost 35% of the educational related

[18] Eight municipalities contributed to this benchmark. They delivered information regarding 1.300 assets with a total floor space of 2,2 million m^2 and an estimated market value of € 1,8 million (Teuben et al. 2007: 9).

[19] Teuben et al. relate this to different city compositions or the quality of the data (Teuben et al. 2007: 9). Its seems most plausible to consider the benchmark to be accurate. Not only are these values obtained on property level, also the obtained market values are quite low as discussed above.

[20] The results of the calculations of Van der Wal are quoted (Molmans, 2014).

assets are primary schools, owned by the municipality. It is estimated that these primary schools thus fill approximately 10% of the total amount of public real estate in the Netherlands (Van der Wal, 2011).

Researches of Van der Wal (2011)[21] and Van Elp and Zuidema (2013), as displayed in Table 6 give insight in the division of the various educational types among the total amount of educational real estate.

Table 6; Various estimations of the amount of educational real estate in the Netherlands.

Educational Real Estate	van der Wal, 2011		Van Elp & Zuidema, 2013	
	millions	percentage	millions	percentage
primary education (incl. special education)	10,1	34%	15,8	44%
secondary education (incl. special education)	6,4	21%	12,6	35%
secondary vocational education	5,4	18%	3,0	8%
higher vocational education	3,1	10%	4,4	12%
universities	5,0	17%	N.A.	N.A.
total	30,0	100%	35,7	100%

Clearly, the calculations differ per author. It is not clear what the causes are of these differences. Notwithstanding the fact that the numbers differ per calculation, it is safe to conclude that primary schools are an important part of the total amount of educational real estate.

However, as mentioned in the problem statement, various articles state that primary schools are subject to vacancy. Especially schools in peripheral regions are confronted with declining numbers of students and consequently facing vacancy (De Cock, 2014). However, also in the urban areas, schools are confronted with vacancy (ASV, 2012; DoZ, 2014; deStentor, 201; De Architect, 2014).

2.4 Primary schools: policy context

In order to understand the concept of vacancy, it is necessary to get a hold on the way in which the Dutch primary school system works. This chapter will give a brief overview of the relevant developments in this sector.

The Dutch school system played a pivotal role in the two mayor constitutional changes in the Netherlands. No wonder the school system expresses the complex relations within the Dutch society[22]. In this chapter the history of the Dutch school system is briefly discussed. Furthermore, the current situation and developments will be addressed in order to draw a concise picture of the way in which primary education is arranged in the Netherlands.

2.4.1 1806-1848 School struggle

The Netherlands have always been a country of minorities. Since the end of the Eighty Years War of Independence many small religious groups dominated social life. As a result Dutch society was deeply fragmented along religious borders (Andeweg & Galen, 2005).

Education is often related to religion, since it is so connected with the lasting of values for future generations. No wonder, the education system was subject of a lot of debate over the years.

[21] See for an overview of the calculations of Van der Wal Appendix A.

[22] Andeweg and Galen (2005: 1-41) elaborately discuss the fragmentations within the Dutch society and the astonishing fact that the country functions so well as a unified nation.

The invasion and rule of the French during 1795-1813 left the Netherlands with the Education Law of 1806. The schools were primarily financed by the parents. There was no compulsory education in the Netherlands. Education was focused on general social and Christian values. Specific religious education was not permitted within the school system, nor was it allowed to start individual initiatives. Consequently, religious education was perceived as too liberal by both Catholics and Protestants (Ter Avest, Bakker, Bertram-Troost & Miedema, 2006: 241; BBC-concultancy, 2014).

Over the years, resistance grew against this system. The revision of the constitution of 1848, generated momentum for change. Thorbecke added the liberty of education to the renewed constitution. As a result, public and private schools were distinguished. The public schools were financed and controlled by public means. On the other hand, everybody obtained the freedom to start a school. These private schools were privately financed and not controlled by the government (Koning & Van der Wiel, 2010b: 13).

2.4.2 1848-1917 Pacification

However, this situation created financial inequality among private and public schools. As a result the school struggle continued. The debate focused on the equal financing of the schools and the question whether public schools should offer religious education (Hordijk, 2001: 79).

This conflict posed a prominent dividing line in the Dutch politics for many years. This so called 'antithesis'[23] separated the confessional Christians (Roman Catholics and Protestants) from the liberals (Andeweg & Galen, 2005; Hordijk, 2001 p. 79).

At the same time, the social democrats' wanted universal suffrage[24]. This social democratic wish was obstructed by the liberals who's grassroots primarily consisted of the upper class. Such a change would fundamentally change the balance of power, leaving the liberals with less seats in parliament (Andeweg & Galen, 2005: 28-30).

Clearly, all parties in the Dutch political system disagreed on fundamental aspects of their ideology, but none of these parties obtained the majority in parliament. Furthermore, these proposals required a revision of the constitution, which requires a two-third majority in parliament. Consequently, these contradictions held the Dutch politics in a deadlock (Andeweg & Galen, 2005: 29-30).

The issue was only solved in 1917[25]. One big trade-off was performed giving all parties what they wanted. A revision of the constitution paved the way for universal suffrage. Also from then on, all schools, private and public, were financed by public means (Hordijk, 2001: 79; 118-120).

[23] The antithesis was coined by Abraham Kuyper. This reformed theologian-statesman, reacted on Marx' thesis. Marx stated that the conflict between the working class and the capitalists the primary political issue was. In contrast, Kuyper stressed the dividing line between confessional Christians and the atheistic liberals and social democrats, in an effort to shift attention from the class struggle.

[24] Hitherto, census suffrage was common in the Netherlands. Whether one could vote was determined by their financial resources. Consequently, many of the working class could not meet this standard and were not allowed to vote.

[25] Notwithstanding an earlier pacification attempt by means of the Mackay School Law of 1889, which allowed a partial subsidy of private education (Hordijk, 2001: 79; 118-120).

2.4.3 1917 – 1970 Pillarization

Concluding can be stated that education in general, and primary education in particular, is a sensitive subject in Dutch society. Primary division was between Christians and non-Christians. On the other hand the Christians themselves were divided between Protestants and Roman Catholics. And even the protestants are heavily divided among themselves. It is important to note that this situation has leaded to many different schools, connected to various denominations and philosophical views.

These divisions in the Dutch society were deep and created social segmentation. The minorities were not only separated on political level, but in nearly every aspect of social life. This situation is called *pillarization*[26] (Andeweg & Galen, 2005: 23-30; Ter Avest et al., 2006: 241).

After World War II, slowly these pillars became less important[27]. During the 1967 elections 15 of the 150 seats in the second chamber of parliament changed political hands. This was a clear sign of the ongoing change[28] (Andeweg & Galen, 2005: 36; Ter Avest, et al., 2006: 241).

Nevertheless it is very important for this research to understand that recent history was heavily divided along social differences. Education was an important aspect of this division. As a result almost every town in the Netherlands has several primary schools, all related to this history. Since many still remember these days, people might have very deep feelings of connection with such schools.

2.4.4 1970- 2014

In the late sixties, the need for standardized testing methods rose, in order to measure and compare the performance of the students. As a result in 1968 the Central Institute for Test development (Cito) was established. Although the use of the tests of Cito are not compulsory, the majority of the schools use this method (Cito, 2014).

In the 1986 the nursery school[29] and the grammar school[30] were united into the contemporary primary school. The first two years of the primary school are equal to the old nursery school. The result of this combination process was the establishment of approximately 8000 primary schools in the Netherlands (Van Gelder, 1995).

At the end of the decennium, more and more attention was spent on the presence of non-western immigrant children on schools. Debate arose in society regarding the negative side effects of immigration. Partially, explanations of the problems among immigrants were sought in education.

---

[26] From birth to death, one would remain in the own social group and use its particular services. Thus, there were catholic hospitals, soccer clubs, shops, social clubs, trade unions, tv and radio stations, news papers and schools. As a result one could live as if in a separate society: a pillar. As a matter of fact, only on political level the various social groups cooperated (Andeweg & Galen, 2005: 23-30).

[27] The German occupation had brought former foes together in the resistance movement and the ongoing hardship. Visions had risen to create a more harmonious and less segmented society when the war was over. Notwithstanding these changed attitudes, religious leaders were quick to restore most of the pre-war pillarization. Nevertheless the process was unstoppable and in the sixties, the pillars crumbled (Andeweg & Galen, 2005: 36).

[28] With reference to Lijphart, Andeweg and Galen (2005: 37-38) point at five possible causes for the depillarization. First secularization, the diminishing role of religion and ideology. This is closely related to the rise of post-modernism[28] (Lyotard, 1984). Second, the number of non-pillarized organizations rose. Third, the cohesiveness of the pillars diminished. Formal relations between the various organizations active in a pillar were untied. Fourth, social cohesiveness increased. Organizations more and more collaborated. For example the socialist and catholic trade union federations were combined in the FNV. Last Andeweg and Galen mention the declining support for pillarization among the elite. Concluding can be stated that the pillars have lost most of their meaning in contemporary Dutch society.

[29] In Dutch: kleuterschool.

[30] In Dutch: lagere school.

2.5 School buildings

In the past paragraphs, the historic developments regarding primary school buildings have been discussed. The following paragraphs address will recent developments and current regulations.

In 2009 a research by Arkesteijn, Steijns and De Vries was published, indicating that the norm-compensations granted by the central government for the construction of new primary school buildings were not enough for contemporary standards regarding safety, energy consumption, interior climate and sustainability. Furthermore, they concluded that these compensations, were very low, compared with office buildings. This problem is deepened due to a split incentive: the municipality pays for the building costs while the school board pays the operation costs. Operational cost reducing measures or measures that improve the quality of the school often require a higher initial investment.

This research was followed by a publication of the Dutch Rijksbouwmeester regarding the climate in the schools. Not surprisingly, it was concluded that in 80% of the primary schools the internal climate is not sufficient. This refers to temperature, light, sound and air. Furthermore, the Rijksbouwmeester notes that the age of the buildings is not a good indicator for a bad internal climate. Instead, use not according to the plans of the building or capacity problems often cause bad internal climates (Rijksbouwmeester, 2009: 18).

The Rijksbouwmeester concludes that these problems are worsened by recent developments in primary education. First, the nature of the use of the buildings has changed. Computers and other electrical devices have entered the educational realm. This creates a demand for space in which the children can work at computers. Furthermore, the introduction of much digital devices also creates a demand for extra cooling. And the replacement of the old blackboards by smart-boards or white-boards also needs other light requirements in the classrooms. Second, the intensity of the use of space has changed as well. Classroom teaching is often alternated by working in small groups requiring smaller working spots. Third the length of use is increased as well. Since 2007 schools are required to offer school care and *'remaining'*[31] (Arkesteijn, Steijns, & De Vries, 2009: 8). As a result children spent more time in the school building. Fourth, the Rijksbouwmeester concludes that contemporary children have more allergies and overweight. And last, the ongoing integration of special education for handicapped children and the normal education system, requires adaption's to allow accessibility (Rijksbouwmeester, 2009: 31-32).

In this context it is good to mention 'appropriate education'. A new law requires schools to offer an appropriate place to handicapped children (Rijksoverheid, 2014e). The current division between heavy and less heavy care will disappear in August 2014, making it possible for handicapped children to enlist on any school they want. This school is obliged to offer an appropriate spot, either on the same school, or on a school with better facilities (OCW, 2014). It is excepted that this new law will increase the demand for additional rooms in order to assist children with additional needs or serve smaller groups (Rekenkamer, 2013b: 9).

2.5.1 Current situation

As a consequence of the long and eventful history of Dutch education system, there is much variance and many different responsibilities regarding the housing of schools. The responsibilities of

[31] In Dutch: overblijven. Children who cannot go home during the lunch break remain at school. Schools ought to provide sufficient means and staff to supervise the children.

the many stakeholders involved in the provision of primary education in the Netherlands are discussed, as well as the various denominations.

2.5.1.1 Denominations

There are many different schools in the Netherlands, which often differ due to a religious background. According to the ministerial Executive Agency for Education (DUO) in 2013 there were in total 7.116 primary schools in the Netherlands. They serve more than 1.5 million students (DUO, 2013). Most primary schools are private. Of whom, the Roman Catholic and Protestant schools are the most. Table 7 gives an overview of the number of schools per denomination.

There are a small number of Islamic, Jewish and Hindu schools. While a Jewish community has been present in the Netherlands since the middle ages, large number of non-western immigrants came to the Netherlands since the fifties. This resulted not only in these schools, but also in the influx of large numbers of non-western students in the regular schools, contributing to the transformation of a monocultural, homogeneous and pillarized system, to a multicultural and multireligious system and society (Ter Avest, et al., 2006: 24).

Approximately 60% of the schools are Christian, while only 20% of the 9 million believers in the Netherlands weekly attends a religious service (CBS, 2008). Therefore it is safe to assume that although the majority of these schools are Christian, this does not mean that all students are regular attending services or even believing. Therefore it can be assumed that the religious background of the school will only play an important role for approximately 11%[32] of the parents, which is supported by research (Giesling & Tierling, 2010: 36).

Furthermore, a significant percentage (5,67%) of the students attend so called General Special Education[33]. This is private education, which is not based on a confessional denomination. In this category, many different school concepts are offered, which are discussed above.

Table 7; Schools per denomination. (Source: DUO, 2013).

Abbr.	Denomination	Number of students	percentage of students	number of schools
ABZ	General Special Education	85.857	5,67%	373
ASF	Anthroposophic	13.453	0,89%	70
EVA	Evangelic	1.552	0,10%	14
EVB	Evangelical Brotherhood	416	0,03%	2
GEV	Reformed (Liberated)	17.400	1,15%	116
HIN	Hindu	1.669	0,11%	5
IC	Interconfessional	2.215	0,15%	9
ISL	Islamic	10.205	0,67%	45
JOO	Jewish	366	0,02%	2
OPB	Public	458.702	30,28%	2324
PC	Reformed Christian	359.944	23,76%	1797
REF	Reformed	38.981	2,57%	174
RK	Roman Catholic	507.376	33,50%	2122
SCA	Collaboration PC, RK and ABZ	219	0,01%	1
SOP	Collaboration OPB, and PC	332	0,02%	3
SOR	Collaboration PC, RK and ABZ	597	0,04%	3
SPR	Collaboration PC and RK	15.314	1,01%	55
SOC	Collaboration OPB and PC	54	0,00%	1
Totals		1.514.652	100%	7116

[32] 20% of 9 million believers of a population of 16 million is 11% of the total population.

[33] In Dutch: Algemeen Bijzonder Onderwijs.

All these schools have school boards, responsible of the delivery of education. However, the government is also involved. The various responsibilities will be discussed below.

2.5.2 Who is responsible for housing the primary schools?

In the Netherlands, primary education, for children between the age of four and twelve, is arranged in the Law on Primary Education (WPO)[34]. It is a shared responsibility of the school boards and the government. The government provides the financial resources and the school boards are responsible for the educational quality and the operations of the schools (Peeman, Peters, Verhoef, & Bakhuizen, 2013: 7).

The central government remains responsible for the quality of the education in the schools. The educational quality of schools is checked by a government agency, the Education Inspection (Ter Avest, et al., 2006: 24).

In 1997, the responsibility for the newly built, transformation and expansion of the housing of primary and secondary schools is transferred from the national government to the municipalities (Rekenkamer, 2013b: 2; Van Elp & Zuidema, 2013: 24; Goetheer, 2008: 7). This decentralization aimed at improving efficiency and an optimal relation to the local circumstances (Stel & Hofstee, 2007: 4). The municipalities are obliged to provide adequate housing for the primary schools (Peeman, Peters, Verhoef, & Bakhuizen, 2013: 7; Hattem, 2013: 21; Rijksoverheid, 2014c). They receive an allowance for school accommodation from the general fund for municipalities (Kuhry et al., 2010).

Since 2011 the government directly provides financial resources to the schools for housing, instead of giving them to the municipalities, who had to distribute them. As a result, in 2015 the maintenance of the schools will become a direct responsibility of the school boards (Peeman, Peters, Verhoef, & Bakhuizen, 2013: 7; VNG, 2013; 2014a; Rijksoverheid, 2013b; Rekerkamer, 2013b: 2). The municipalities remain responsible for new buildings and extensions of the existing assets (De Koster, 2013; Rijksoverheid, 2013c).

This measure raised several issues. The Association of Dutch Municipalities[35] (VNG) notes that the maintenance costs will have to compete with education costs. Furthermore, small school boards are expected not being able to carry the costs[36] (Rekenkamer, 2013b: 2). Furthermore, the maintenance costs are depending on many factors, including the type and age of the building. Moreover, school boards will no longer profit from the economics of scale of a large municipal real estate agency (VNG, 2012; De Koster, 2013). And last, they are expected to face deferred maintenance[37] (De Koster, 2013; Rekenkamer, 2013b: 4).

To make matters worse, the General Accounting Office (Rekenkamer, 2013b: 11-12) notes that many school boards lack the expertise to deal with maintenance adequately. For this requires both building technical as well as financial expertise. Lack of experience with building works therefore tends to lead to problems.

---

[34] In Dutch: Wet op het Primair Onderwijs (WPO).

[35] In Dutch: Vereniging van Nederlandse Gemeenten.

[36] The General Accounting Office (In Dutch: Algemene Rekenkamer) states that the number of school boards that lacks a financial buffer or even has debts is risen to 196 in 2011. This is 19% of the then school boards. School boards are expected to have trouble shifting resources due to fixed expenditures reserved for personnel, cleaning and energy. School boards lacking financial reserves need several years building up such reserves in order to allow general maintenance. In between, no maintenance will be done (Rekenkamer, 2013b: 4).

[37] The General Accounting Office states that municipalities have neglected general maintenance of the schools (Rekenkamer, 2013b: 4).

And last, since the municipalities are responsible for new buildings while the school boards bear the operational costs, there is a split incentive: municipalities have an incentive to keep the initial investments as low as possible, while school boards have an incentive to reduce operational costs. However, reduction of operational costs often requires a higher initial investment, which creates a conflict of interest (Van Elp & Zuidema, 2013: 24-26). Often this leaves schools with suboptimal buildings (Rijksbouwmeester, 2009).

2.5.2.1 Accommodation policy

As stated above, the responsibility for the accommodation of primary education is decentralized and delegated to the municipalities (Van Els & Zuidema, 2013).

Prior to 1985, schools were financed by both the state and the municipalities. At the start of a school year, the municipalities prepared a budget, expressed in a budget per student. Every school received the same budget per student. When the budget turned out to be insufficient at the end of the year, the schools received extra funds (Verhage, 1985).

At the end of the seventies, the municipalities had large educational budget deficits. Both central and local government argued that the other government layer paid too less for education. As a result, it was decided to fix regulations for the subsidies of schools. This was canonized in the Law on primary education in 1985. The schools received both fixed subsidies and a subsidy per square meter GFA. The prices are dependent on the building year of the school. The older the school, the higher the subsidy for maintenance costs (See Table 8). There were no norms or regulations to determine whether a school had vacant floor space (Verhage, 1985).

Table 8; Subsidies for primary schools 1985 – 1997 (Verhage, 1985).

Y = C + C/V + T x A

Cyclus (years)	Building year: pre-1976			Building year: 1976 - 1986			Building year: post 1987		
	C	C/V	T	C	C/V	T	C	C/V	T
yearly	868,-	177,-	5.468,-	868,-	685,-	4.930,-	868,-	865,-	4.888,-
Five years	868,-	386,-	13.272,-	868,-	1990,-	10.412,-	868,-	2458,-	10.624,-

Y = State subsidy per primary school per year.
C = fixed subsidy per primary school per year for the sandpit.
C/V = semi-fixed per primary school per year, differentiated per period and cycle.
T = subsidy per square meter GFA differentiated per period and cycle.
A = square meter GFA of the school building.

Since the decentralization of the accommodation of education to the municipalities in 1997, the municipalities used an accommodation regulation (Goetheer, 2008) to determine the floor space demand of the school. The number of groups of the school is the basis for the floor space demand. If there are less groups than classrooms, the classrooms are use instead. The schools are free to define how many children are in a classroom. The normative demand of the school was calculated as:

Table 9; Normative calculation of GFA 1997-2008 (source: Goetheer, 2008).

School with more than 30 students	
Number of groups	Minimal GFA (m^2)
2	350
3	465
4	580
5	785
6	900
7	1.015
8	1.130
9	1.245
10	1.360
11	1.475
12	1.590
13	1.705
	For every additional group: +115 m^2
	If the school holds an additional play room, 90 m^2 is added.

Under this regulation, a situation was called vacancy if the calculation showed a surplus of at least one classroom between the actual GFA and the normative demand. In such a case, the municipality was authorized to demand these classrooms for the use of other primary school education activities[38].

Due to changes in the Building Decree of 2005, the municipalities adopted a new model regulation (VNG, 2008a) of the Association of Dutch Municipalities (VNG) in 2008 (Steijns & Koutamanis, 2004: 65; Arkesteijn, Steijns, & De Vries, 2009: 5). Important changes of the building decree in 2005 were the absence of the prior minimal floor space of a classroom of 42m^2. Furthermore, minimal heights of rooms was changed from 2,8 meters to 2,6 meters. Also the minimal size of the play room of 84m^2 was dropped (VNG, 2008b).

The new model regulation holds standards regarding basis floor space requirements. Schools are free to use this floor space at their own discretion. As a consequence, some schools have large classrooms, while others have corridors with working stations. The basic standard of the floor requirement is based on the number of students in the school and a threshold (see Table 10).

Table 10; Basic floor space need (VNG, 2008).

However, the state provides extra subsidies for schools with many disadvantaged students. These resources can be allocated to extra personnel or rooms. Since 2007[39] these resources are distributed by the educational level of the parents. If one or both parents have a very low educational level, the child will be given a weight, which is used for the calculation of extra floor space (see Table 11) (CFI, 2006: 9; VNG, 2008a: 6-7).

[38] See for the specific conditions: Goetheer, 2008: 29-30.

[39] Prior to 2007, these extra resources were distributed on the basis of the ethnicity of the students. This measure was meant as a temporary policy to address the issues of disadvantaged students. The extra floor space therefore was realized in temporary solutions. However, these issues turned out to be more persistent than expected. Therefore the current regulation is applicable to permanent housing of the school (VNG, 2008A: 6-7).

Table 11; Additional floor space, based on the educational level of the parents (VNG, 2008a).

Educational level of the parents	**Weight**
Maximum primary education (one or both parents)	1,2
Maximum vocational education (both parents or parent taking care of the child)	0,3
G = summed weights	
L = total number of students	
$G_{corrected}$ = G – 0,06 * L. This is maximized at 80% of the total number of students (L).	
GFA added = 1,40 * $G_{corrected}$	

A school can apply for extra floor space when there is a mismatch between the current capacity and the floor space needed. To prevent expensive operations on the basis of a very small mismatch, a threshold of 55 m^2 GFA us used. Only if the mismatch exceeds this threshold, a schools is qualified for extra financial means and floor space (VNG, 2008a: 10). This threshold can be used as friction vacancy: the vacancy necessary to deal with changing demand.

In case of vacancy, this is expressed in square meters GFA. The municipality is authorized to demand floor space surplus for other use on the condition that the floor space to be used for another function is serried (VGN, 2008: 11). This gives the municipality freedom to use a floor space surplus at its discretion.

Next to the model regulation used by the municipalities, the central government holds a minimal floor space regulation per student. This regulation states a minimum floor space of 3,5 m^2 per student. This prevents the municipalities responsible for the accommodation of schools, to make the class rooms too small. Furthermore, there is a standard minimum of 70 m^2 per school. Therefore, a school can never be smaller than 70 m^2 (Sorgdrager, 1997: art. 3.1).

Besides these size restrictions, school buildings must meet quantitave standards regarding the amount of class rooms, extra rooms and specific facilities, which vary from school to school, depending on the school concept applied in the specific situation. Superfluously, the school buildings must meet the standards as set in the building law and applicable regulations[40] (Steijns & Koutamanis, 2004: 61-77).

Concluding can be stated that it is only possible to determine vacany based on regulations since 1997. Prior to this date the municipalies had more discretion regaring both building costs as well as maintenance costs. In the past decennia, the floor space demand and the correlated subsidies are more and more standardized.

Table 12; Building and maintenance regulations of the past decennia.

	Pre 1985	**1985 – 1997**	**1997 - 2008**	**2008 -now**
Building	At municipality's descretion	At municipality's descretion	Fixed subsidy based on number of groups or class rooms	Regulation based on number of students
Maintenance	At municipality's descretion	Fixed subsidy based on GFA and building year	Fixed subsidy based on number of groups or class rooms	Fixed subsidy based on number of students

2.5.2.2 Abrogation regulations

Since citizens are free to start their own schools and municipalities are responsible for the arrangement of accommodation and the central state for the funding of primary schools, this can

[40] See Steijns and Koutamanis (2004: 61-77) for a more in depth discussion of these laws and regulations.

easily exceed reasonable limits. As a result there could be much small schools, all demanding housing and funding. Therefore the central government has set standards (Dekker, 2012) of both the start and the continuation of schools. This is based on the number of students and differs per municipality. Then a school exceeds the thresholds of this regulation for more than three following years, the state terminates funding of the school (PO Raad, 2014).

2.5.2.3 Current financial arrangements

Currently the central government provides the school boards with a lump sum for their costs. The operational costs of the building, personnel[41] and materials all have to be paid from this budget. The school board is free to divide this budget at its discretion. They are held accountable by the Education Inspection and internal controllers. On average, the central government spents € 6.100 per student at primary education (Rijksoverheid, 2014d; Arkesteijn, Steijns & De Vries, 2009: 4).

Additionally since 2012, schools receive subsidies from a 'performance box'. These resources are labeled to be used for extra attention to specific educational domains[42]. Primary schools receive provision for their operational costs based on the Program of Requirements (Rijksoverheid, 2014d).

Table 13 gives an overview of the subsidies the central government provides to primary schools. Clearly the numbers of students and groups have a large impact on the subsidy a school receives (Rouvoet, 2010). For students with problems or handicaps, different budgets per students are used[43].

Table 13; Subsidies provided by the state to regular primary schools (Source: Rouvoet, 2010).

Y = Ya + Yb + Yc				
Y = subsidy by the central government				
Ya = subsidy depending of groups				
2 groups	3 groups	4 groups	5 groups	6 groups
€ 18.073,00	€ 23.253,00	€ 29.945,00	€ 35.773,00	€ 39.658,00
For every additional group: € 4.533,00				
In case of more than 13 groups this budgets is enlarged once with:				€ 1.727,00
Yb = fixed budget + budget per student * number of students				
Fixed budget		=	€ 12.801,09	
Budget per student		=	€ 290,80	
Yc = fixed budget + budget per student * number of students given Dutch language education				
Fixed budget		=	€ 106,06	
Budget per student		=	€ 18,99	

2.5.2.4 Costs of vacancy

In the introduction, it was mentioned that the issue of vacancy is truly important since it absorbs public funds, that could otherwise have been spent on service delivery. Molmans (2014) estimates annual housing costs of € 30,- per m^2 GFA per year.

In order to describe the scale of the problem vacancy poses, it is important to know the exact operation costs of a school building per m^2. Heijnders (2014) mentions the operation costs of a school per m^2 in 2009. With the inflation index (CBS Statline) these benchmarks can be indexed to the current (2013) costs as displayed in table Table 14.

[41] In the lump sum the effects of age of personnel on the salaries are taken into account by a weighted average (Rijksoverheid, 2014d).

[42] These domains are: Language, mathematics, science, technology, culture, talent development and the professionalization of teaching staff (Rijksoverheid, 2014d).

[43] See for the ministerial regulation: Rouvoet, 2010.

These benchmarks were crosschecked with the internal benchmarks of Grontmij (see Table 15). It becomes clear that the average costs per m^2 are circa €47,-[44] when the investment costs are not taken into account.

Table 14; Annual operation costs per m^2 (source: Heijnders, 2014; CBS Statline).

	2009	2013
energy	€15	€16
maintenance	€15	€16
cleaning	€15	€16
subtotal	€45	€48
investment costs	€90	€98
total	€135	€146

Table 15; Annual operation costs per m^2 (source: Grontmij).

	2013
building maintenance	€ 15,44
yard maintenance	€ 0,49
cleaning	€ 18,91
electricity	€ 1,60
heating	€ 6,37
water	€ 0,47
taxes	€ 2,30
total	€ 45,59

As described in chapter 2.5.2, suitable education accommodation is the responsibility of the municipality. Therefore, the investment costs are not carried by the school, but paid for by the municipality.

2.6 Primary schools: real estate context

Schools and their classrooms have undergone various drastic changes over the years. Based on the work of Braster (2011) these changes are described.

2.6.1 Prior to 1801

Braster (2011) decribes the situation in the schools prior to 1801 as very chaotic. The classrooms where messy places with the older students writing at randomly placed tables in the room. The younger students were places at benches, while their activities were restricted to reading. The youngest were sitting at the floor, primarily doing nothing useful at all.

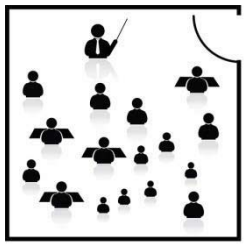


Fig. 12; Classroom prior to 1801.

2.6.2 1801-1857

The first school law of 1801 directed the division of the students in classes, whom ought to be taught jointly. Furthermore, the content of the courses was broadened, requiring explanation, silence and order. In this classical way of teaching, the teacher held a pivotal position in the room. The school desks were directed towards the teacher, who taught the students by means of a chalkboard.

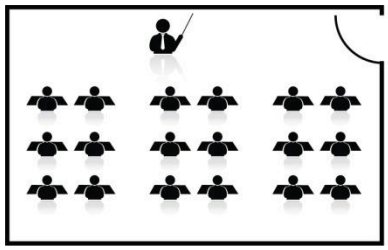


Fig. 13; Classroom circa 1801-1857.

The classes included three age groups, all placed in the same classroom. The classes were relatively small. The general school regulation of 1806 directed the addition of an extra teacher when the number of students in the classroom exceeded 70.

[44] ((45,59+48)/2 = 46,80

The central government initiated ideas regarding the architectural design of the building and its interior, but it held little financial means for implementation of these ideas. As a result the municipalities took the responsibility of building new schools. Leaving the design of schools at the will of the various local governments.

2.6.3 1857-1900

The best way of organizing education remained subject of debate. In 1862, during an annual meeting for school inspectors ideas regarding the division into six groups and the implementation of only one enrollment at the start of the season were suggested. Nevertheless, it took until the end of the 19th century to implement these ideas.

In this period primary schools were still built as one central classroom with three groups with benches for three classes. Only when the number of students became too big, the classrooms were divided since it was deemed undesirable when there was more than one teacher in one classroom.

As a consequence of a growing number of students, this was done more and more, changing the system gradually towards a division of the students into age groups, each with their own teacher and classroom. As a result, at the end of the 19th century, schools were build as corridor schools, with a corridor which connected the classrooms.

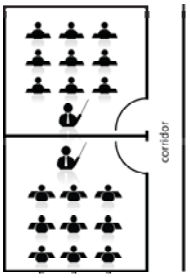


Fig. 14; Classrooms in a corridor school.

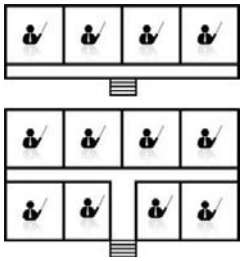


Fig. 15; Corridor schools

2.6.4 1900-1969

The division of the schools in age groups with their own teacher consolidated. However, the problem of individual differences between students initiated new ideas regarding the best way of education. Since the freedom of education was fixed in the constitution during the pacification of 1917 this paved the way for various other visions on education. The most important are Montessori education, Jenaplan, Daltonplan and Waldorf[45] schools. Together these concepts are currently applied in approximately 440 schools and hold 6,56% of the total population of students as shown in Table 7.

These concepts have specific views on the best pedagogic methods. Since none of this has a significant effects on the floor space demand of the school, nor on the layout of the school. These schools are no exemption to the government policies regarding funding for space. In this thesis therefore these concepts will not play a role of importance.

Nevertheless the rise of these concepts the majority of the schools remained using a classical way of teaching in which the school desks faced the teacher.

[45] In Dutch: vrijeschoolonderwijs.

2.6.5 1969-2001

In the 1950s, the space outside the school building received more attention. There was more concentration on the ventilation in the schools. Pavilion schools were invented (Fig. 16). The classrooms were grouped in aisles of the building, creating room for separate workplaces. The grouping of classrooms allowed ventilation and light from various sides of the classrooms. Furthermore, these schools allowed separate sub-playing grounds around the school, for various groups (Ritsema, 2014).

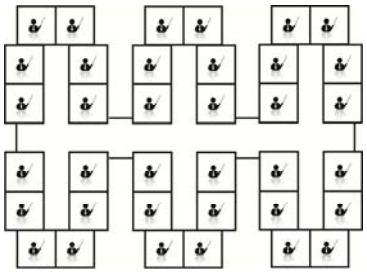


Fig. 16; Pavilion school.

During the 1980's pedagogic ideas changed towards more group work. As a result the designs of the schools and classrooms changed as well. The school desks are no longer placed in rows facing the teacher, but rather massed in small groups. The common activities and demand for more work spots changed the school designs towards a new design: the hall school (Fig. 17) (Ritsema, 2014).

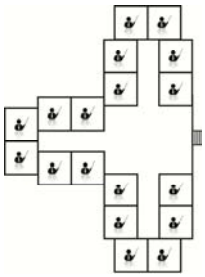


Fig. 17; Hall school.

Concluding can be stated that there is a strong relationship between the type of school building and its building year. Corridor schools are likely to be built before 1969, pavilion schools in the 50s and 60s and hall schools from the 80s to the present.

2.7 Causes of vacancy among primary schools

Hidden vacancy among primary schools in the Netherlands can have two primary reasons. First, the sheer numbers of students might be declining, due to demographic changes. On the other hand, the overall demand and supply of primary education might by constant, while there is a mismatch caused by changing wishes at the demand side. In other words, the demands of parents might be shifting, causing some schools to face vacancy, while others have floor space shortage. In this paragraph, possible causal factors of vacancy among primary schools in the Netherlands are explored, based on literature and interviews.

2.7.1 Demographic change

Developments of in the population are a consequence of various factors. Among others, the number of births, deaths and migration have a strong effect on the population. Especially immigration is hard to predict because of geo-political developments (Ritsema van Eck et al., 2013: 15).

Taking this into account, the population in the Netherlands is expected to remain rising until 2040. However the slope of this increase is diminishing (CBS, 2013a; Ritsema van Eck et al., 2013: 9). For large parts of the country, it remains uncertain whether the population will grow in the near future. In several areas population decline is expected (Ritsema van Eck et al., 2013).

In those regions in which the population is still expected to grow, the composition of the population is expected to undergo drastic changes. As a result of the aging baby boom generation, which is a large cohort, the average age will rise (Ritsema van Eck et al., 2013: 9). On the other hand, since the seventies, the birth rates are decreasing (CBS, 2013h: 9). Furthermore, in all regions the amount of families and young households are decreasing as a result of decreasing marriages.

Additionally, people in their twenties tend to postpone having children (CBS, 2013a; CBS, 2014a). Thus, the number of births is decreasing while on the other hand the number of deaths increasing (CBS, 2013a). Consequently the overall population is aging (Ritsema van Eck et al., 2013).

This effect is slightly dampened by immigration. Especially non-western immigrants are relatively young and often single. Furthermore, immigrant families tend to have more children (Ritsema van Eck et al., 2013: 22; 30).

2.7.1.1 Population decline areas

The remaining population growth is concentrated in the urban areas. Specifically the Randstad[46] is expected to face growth. Cities outside this region are also expected to grow. However, this prediction is very uncertain for the cities in rural areas, since many young people leave these areas (Ritsema van Eck et al., 2013). The central government has appointed 23 regions in which population decline is an increasing problem (BZK, 2014). A list of the municipalities that are in these regions can be found in Appendix K. Besides aging and rejuvenation, specific cause of population decline in these regions is the migration of families and higher educated people to the urban areas (Rijksoverheid, 2014f).

Overall can be concluded that the number of households will increase. However, this is primarily caused by the increase of elderly living alone. It is expected that areas already confronted with population decline and an aging population, will face aggravation of these effects (Ritsema van Eck et al., 2013). The Netherlands can thus be mapped into urban growth areas, rural decline areas and remaining regions, as displayed in Fig. 18.

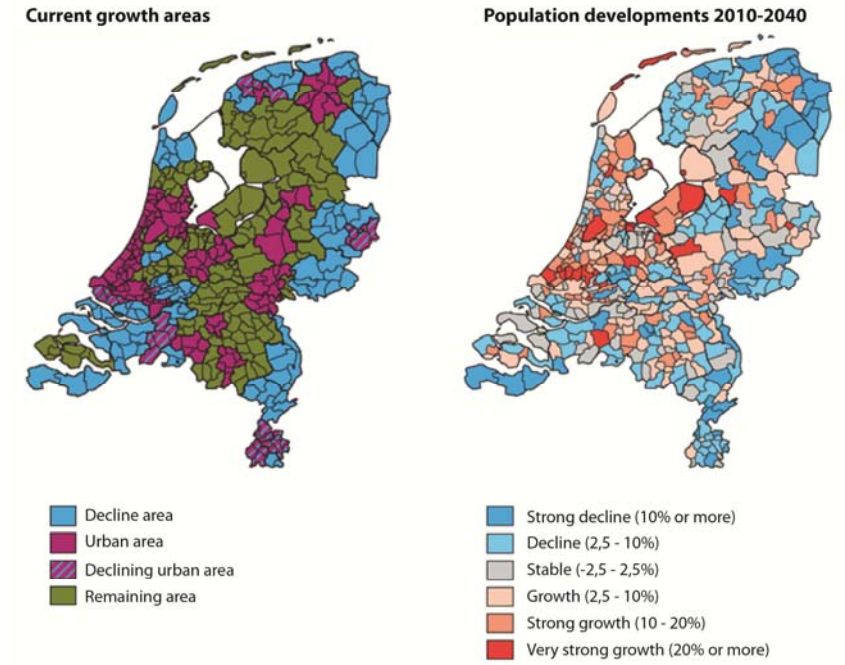


Fig. 18; Population. Source: Ritsema van Eck et al., 2013 (translation DMV).

[46] The Randstad is the urban area in the mid-west of the Netherlands, containing the biggest cities.

2.7.1.2 Children

The number of children is decreasing in the coming decennium. This holds true for almost all regions of the Netherlands and is expected to continue until 2025 (see Fig. 19) (CBS, 2013h: 12-18; Van Duin & Stoeldraijer, 2012: 13). Furthermore, the age groups of children 4 – 12 years old is decreasing since 2010 and will remain doing so the coming decade (Ritsema van Eck et al., 2013: 27-29).

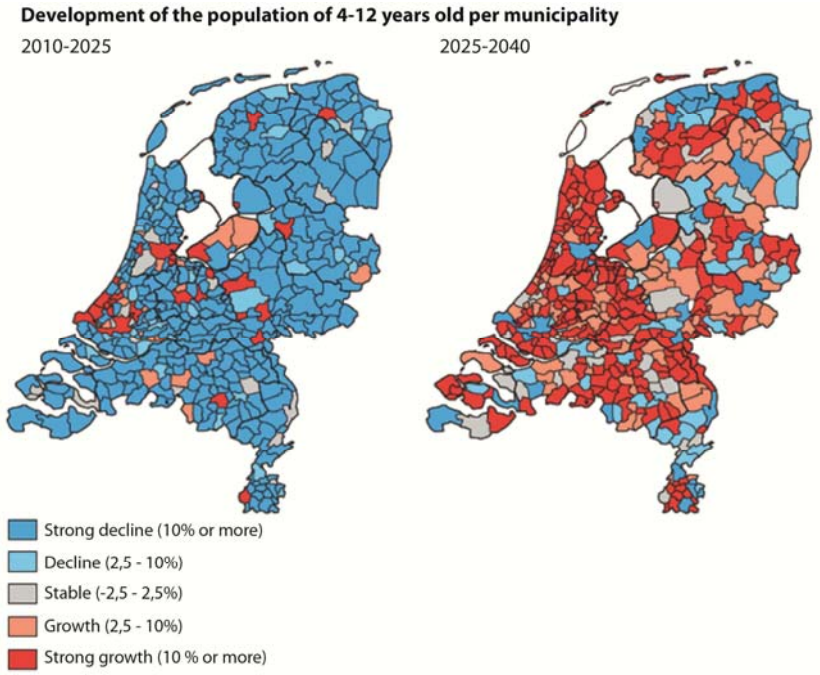


Fig. 19; Population developments. Source; Ritsema van Eck et al., 2013: 29. (translation DMV).

As a result schools and other services for children will face a decrease of demand, as is explicitly mentioned by Ritsema van Eck et al. (2013: 55). The total amount of people between 0 and 19 years old is expected to have decreased 5% compared to the situation in 2012 (Van Duin & Stoeldraijer, 2012: 13). Especially small primary schools in villages are expected to be victim of this tendency.

Molmans (2014) states a decrease of 160.000 students, which results in a decrease of the amount of vacant primary school floor space of 640.00 m^2 in 2022 due to this decline of children (Fig. 20)[47].

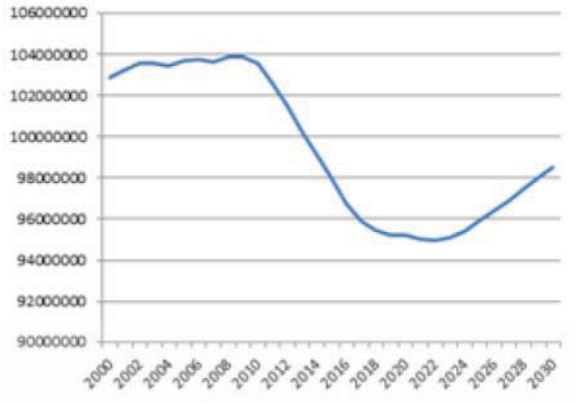


Fig. 20; Primary school space needed (Molmans, 2014).

[47] Molmans (2014) does not mention the student weights and their effect on the floor space demand.

However, it is important to note that there is uncertainty in the predictions regarding population growth for the coming years, as shown in Fig. 21. The uncertainty interval of the stochastic population forecast is added in the graph. Clearly, within the forecast interval of 67%, it is very well possible that the population of 0-19 years old will grow, contrary to the expected trend. At short notice this uncertainty is caused by the unpredictability of immigration and emigration. On the long run, uncertainty is mainly caused by the future developments of the life expectancy and the number of children per woman (Van Duin & Stoeldraijer, 2012: 13).

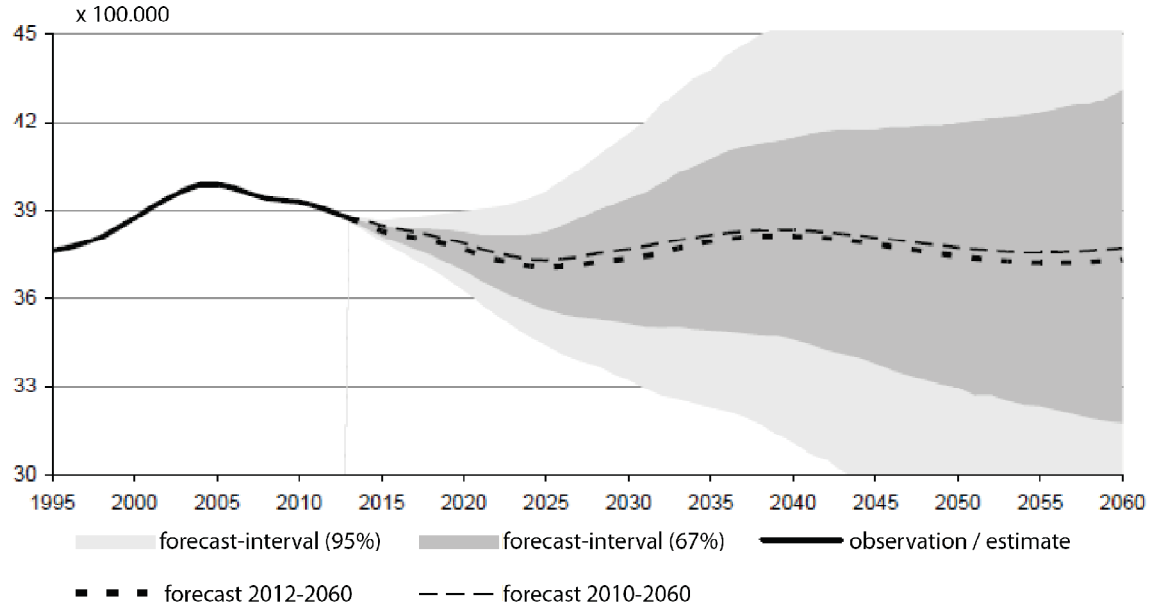


Fig. 21; Population 0-19 years; Source: Van Duin & Stoeldraijer, 2012: 14. (translation DMV).

Notwithstanding the uncertainty of the expectations, it can be concluded that the near future is expected to bring a decrease of children. Based on this analysis primary schools in the Netherlands are expected to face further vacancy.

2.7.2 Parents' choice

A literature study has been performed, regarding the choice of parents for a school. An overview of the results can be found in Appendix G.

Several researches in the Netherlands (Noailly & Koning, 2009; Karsten et al., 2002; Van der Houwen et al., 2004; Gilsing & Tierolf, 2010, Boterman, 2013) and abroad (Bosetti, 2004; Jacobs, 2013), have been performed on parents' school choices. These studies indicate that the most important drivers are distance, quality, culture or religion and ethnicity.

On average children live approximately 1,3 kilometer from their primary school (Noailly & Koning, 2009). Van der Houwen (et al., 2004) performed a survey research on 1.828 households with young children, regarding the travel habit of children to their schools. Their research confirms this statement: 63% of the respondents lived less than 1 kilometer from the school. The distance to a school is one of the most important factors in the decision for a school (Ter Avest et al., 2006: 246-247; Bosetti, 2004: 397; Boterman, 2013: 1137), especially for low-educated parents and immigrants (Gilsing & Tierolf, 2010: 76-77). Gilsing and Tierolf also found two-third of their respondents choosing a school within walking distance of their home (2010: 77). This average distance slightly differs per school type (see Table 16) (Van der Houwen et al., 2004: 26).

Table 16; Average travel distance per school type. Source: Van der Houwen et al., 2004: 26.

School type	
Public school	1.062 meter
Religious denomination	1.437 meter
Special schools	1.687 meter

Clearly parents are willing to sent their children to schools further away when they endorse a certain denomination. This holds specifically true for high-educated parents (Gilsing & Tierolf, 2010: 76). In other words, schools with a strong religious denomination or specific school concept are expected to have a wider service area. However, regarding islamic parents Ter Avest et al. conclude that distance and quality often play a more important role (2006: 246-247).

The view that parents find the denomination of a school of importance is supported by various authors (Van der Houwen et al., 2004: 38; Karsten, et al., 2002: 40; Bosetti, 2004: 397). Van der Houwen et al. find this to be the third (after distance and quality) important reason for school choice. Karsten (et al. 2002), used both surveys among the parents of 43 schools regarding their school choice as well as interviews by telephone with the school principals, to map parents' choices for the school. Their research indicates that the religious background of the school is of medium importance. Nevertheless, they found that parents deemed the cultural background and educational concepts of the school of great importance. This is supported by findings of Gilsing and Tierolf (2010: 76), who concluded that especially higher educated parents have a preference for a specific pedagogic approach. This preference is a stronger indicator for the school choice of these parents than the denomination or religious background of the school. For lower educated parents, these aspects are found not to play a role of significance in their decision making process. They primarily choose a school in the proximity of their house or prefer a safe neighborhood.

Since not all religious schools or schools with a special concept take this background equally serious, the preference for a certain pedagogical approach supports the notion that many parents value schools that do take this serious and are willing to travel more for this decision (Karsten et al. 2002: 40-41). Nevertheless research indicates that the religious background is of decreasing importance for parents over the years[48] (Dijkstra & Witziers, 2001: 142).

Perhaps parents find this an important part of the quality of a school. For it is absolutely clear that parents deem the quality of a school one of the most important factors (Van der Houwen et al., 2004: 38; Karsten, et al., 2002: 40; Noailly & Koning, 2009; Gilsing & Tierolf, 2010: 76; Dijkstra & Witziers, 2001: 143; Boterman, 2013). Quality of a school is hard to define (Peschar & Van der Wal, 2001). In the Netherlands the final test scores[49] are a quantitative indicator of the school quality. However, research indicates that parents obtain information on the quality of a school primarily through non-written media: school visits, a conversation with teachers or the principal or with other parents (Gilsing & Tierolf, 2010: 77; 50-52; Bosetti, 2004: 395; 400; Boterman, 2013: 1144). Gilsing and Tierolf (2010: 77; 50-52) additionally mention that lower educated and immigrant parents are not as well informed as higher educated parents.

However, Jacobs (2013: 462) mentions research indicating that test scores play a prominent role in the US. Furthermore, only international studies indicate a prominent place for the class size in the decision making process of parents (Bosetti, 2004: 397; Jacobs, 2013: 463).

[48] This could very well be an indication of ongoing secularization.

[49] Most primary schools use the CITO-test, however other tests are available as well (Entree-test / SEO-test,)

The research of several authors (Karsten et al., 2004; Dijkstra & Witziers, 2001: 143; Jacobs, 2013: 463; Boterman, 2013) also adress the importance of the cultural and ethnic background of the majority of the children in the school. Schools with a majority of the children with a non-western background are called 'black schools'. Both western and non-western parents tend to choose other schools because a 'black school' is deemed not representative for the Dutch society (Gilsing & Tierolf, 2010: 76; 50-52). This is in line with the conclusions of Boterman (2013). By means of semi structured interviews, the impact of a school's ethnic population on parents' choice in Amsterdam was researched. Like others (Karsten et al. 2002), this research indicated that parents fear problems of safety and quality when their child is enlisted on a 'black school'. When the number of non-western immigrant students exceets a certain percentage, this becomes a veto criteria: parents prefer other schools (Gilsing & Tierolf, 2010: 77; 50-52; Jacobs, 2013: 463; Karsten et al., 2002: 41).

For this matter, Paulle points at the negative effects of high concentrations children of poor, low educated parents in schools. The chances of all children at such a school decrease (2006: 4). According to Paulle, race nor ethnicity predict the pupil's performance but their social-economic background. Paulle states that the educational level of the parents[50] the best indicator is for a child's future performance (2010: 11). He advocates the mixing of children of various social-economic backgrounds in order to positively impact children of a low social-economic background with the behavior of children of a higher one. The other way around should be avoided, since children of a better background can be negatively affected by too large numbers of children of a low social-economic background. He refers to research of Kahlenberg (2001), who mentions a tipping point of 40%. If the number of children of a low social-economic background exceeds this percentage, the other children are likely to be negatively affected. Paulle, pleads for an even safer percentage of only 30% (Paulle, 2006: 13). Gilsing and Tierolf found no refutation of this percentage (Gilsing & Tierolf, 2010: 77).

Next to the quality of the school, the attending of friends of the children to the same school turns out to be an important factor as well (Van der Houwen et al., 2004: 38; Karsten, et al., 2002: 40; Jacobs, 2013: 463). Besides this argument, various researches (Van der Houwen et al., 2004: 38; Karsten et al., 2002: 40) stress the social and traffic safety of the vicinity of the school as part of the decisionmaking process.

Interestingly, with respect to social safety, it is striking that only one author (Karsten et al., 2002: 107) mentions the importance of bullying for parents. Victimization of bullying by the children is an important reason for school change. However, this is not mentioned as a major reason in the school choice process in the literature.

Gilsing and Tierolf conclude that the social and traffic safety of the vicinity of the school are of more important to lower educated parents than to higher educated parents (2010: 76). Van der Houwen (et al., 2004: 38) also mentions the size of the school as a factor of influence. Interestingly, this is lacking in the research of Karsten et al. However, Karsten et al. (2004: 38) include the precence of additional school care (BSO)[51], which suprisingly is not regarded as an important factor for choosing a school.

Concluding can be stated that there is quite some research on parents' school choice in the Netherlands and abroad. Various approaches like surveys and interviews are used on both parents as

[50] This is in line with the student-weight regulation, which is basis on the educational level of the parents.

[51] School care (in Dutch: Buitenschoolse opvang (BSO)) involves the care for the children outside school hours, to enable parents to pick up the children later, or bring them earlier to the school.

well as schoolprincipals in order to map the parents' logic. This gives an overview of the important drivers for school-choice. As shown above, among others, distance, quality, culture or religion and ethnicity are the most important aspects in parents' school choice as described in literature. An overview of all aspects mentioned in the literature study above can be found in Appendix G.

2.7.3 Building characteristics

Based on the researches discussed in the previous chapter, the school building and its condition only play a minor role. In the research of Karsten (et al., 2002: 40), the parents indicate that the tidiness of the school is of some importance to them. This is supported by a research in Amsterdam (ASV, 2014). Nevertheless, literature gives no reason to attribute great influence to the building regarding the school choice. For that matter, Gilsing and Tierolf state that the effects of investments in the quality of education, school building or facilities in the vicinity of the school are not mentioned in literature (2010: 79).

As discussed in the chapter 2.4.4, there is a discussion on the quality of school buildings. Research indicates that many school buildings have a bad internal climate (Van Buggenum, 2003; Rijksbouwmeester, 2009), which comprimises learning performances (De Gids, Van Oel, Phaff, & Kalkman, 2007). This triggers the question whether this is indeed a matter of minor importance to the parents chosing a school for their children.

This issue was adressed in an explorative research in Amsterdam (Martens, Walraven & Lucassen, 2013). Primary question was whether school buildings could be redesigned in such a way that they would attract new students.

First explorations indicated a relationship between the quality of the school building and the popularity of the school. On the other hand, this relationship is clearly not liniear: not all schools with an excellent building are popular and vice versa, not all popular schools have an excellent building. They conclude that all parents judge schools on four aspects: tidiness, safety, space and light. However, these aspects do not play an important role in the school selection process. Distance, quality and the atmosphere in the school are far more important. This is in line with the previous chapter (Martens, Walraven & Lucassen, 2013).

Because this research focusses on the builings used for primary education, this aspect will be included. It is excpected to play only a minor role in the school choice of parents. On the other hand, when facing vacancy, the building characteristics play an important role in the possibilities for future use. Therefore this aspect will be imporant for the strategies dealing with vacancy as well.

2.8 Conclusion

In this chapter, many issues have been addressed. This conclusion provides a brief overview of the lessons learnt from literature.

First of all, it is important to note that the size (m^2 GFA) of public real estate remains unknown, despite several serious attempts to measure this size. Partially this is caused by the discussion about which buildings should be counted as 'public'. On the other hand, information regarding the buildings is decentralized which makes obtaining a national overview harder.

This is the case with primary schools as well. Although many authors mention vacancy among primary schools nearly none of them mentions the size of vacancy of the sector (see Table 1). In two researches, the size of the primary schools is mentioned: Van der Wal (2011): 10,1 million m^2 and

Van Elp and Zuidema (2013): 15,8 million m^2. However, their total stocks clearly do not match. And as a result the scale of the problem of vacancy remains unknown.

Second, vacancy itself is easily defined as the difference between the actual GFA of the school and the GFA according to the government standard. This standard uses the amount of children on the school and the educational levels of their parents, for the calculation of the GFA.

Furthermore, is concluded that the school receives funding according to the amount of children on the school. Less children, results in less budget and vacancy. On the other hand, vacancy costs money, since the classrooms need a bare minimum of maintenance and are often still in use, requiring heating, electricity and cleaning.

As a result, it is concluded that there is a strong correlation between vacancy and budget. Less children means vacancy, which means operation costs for empty rooms. And on the other hand, less children results in less budget. And since the budget is roughly used for two aspects: facilities and education, it effects both. Based on the literature study, this results in the following conceptual relationship (Fig. 22).

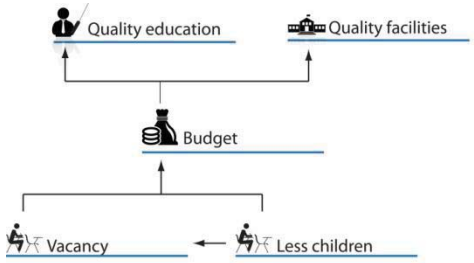


Fig. 22; Vacancy and budget.

Third, the literature study showed that vacancy is caused by less children, which is caused by two important drivers: demographic developments and parent's choice (Fig. 23).

Literature indicates that the number of children in the Netherlands will be declining up till 2025. This trend will be strongest in regions of population decline (see Appendix K).

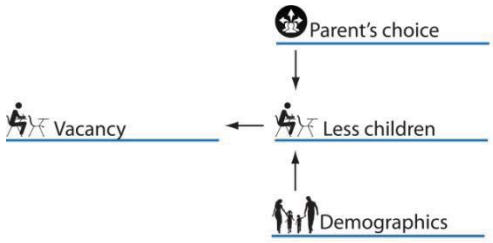


Fig. 23; Demographics and parent's choice.

Regarding the choice of parents for a school, the existing literature showed that distance, quality, culture or religion and ethnicity play important roles in the decision making process.

Additionally, social and traffic safety are found to be aspects of concern for parents while chosing a school for their children.

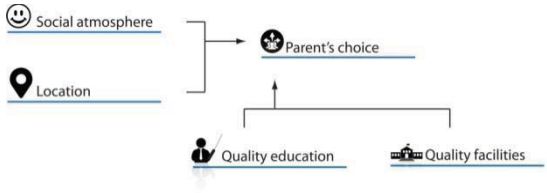


Fig. 24; Aspects of parent's choice.

These aspects can be allocated to three main categories: social atmosphere (social safety, denomination and culture), location (traffic safety and distance), and quality of education (quality) (see Fig. 24).

Furthermore, it was concluded that there is little to no research regarding the relationship between of the building to the choice of the parents for the school. However, it is assumed that there might be some correlation between the quality of the facilities of the school and the choice of the parents. To put it in extremes: a very shabby school is less likely to attract new children. Research by Martens, Walraven and Lucassen (2013) indicates a relationship (but not liniear) between the quality of the school building and the popularity of the school. They found that parents judged the schools on four aspects: tidiness, safety, space and light.

Thus the final relationship between vacancy and the other factors can be modeled as displayed below (see Fig. 25). As vacancy is caused by demographic developments and parent's choice, it

results in a decreased budget. This will ultimalty affect both the quality of the facilities as well as the education. In their turn, these two aspects will affect the choice of parents. However, this choice is also affected by two separate factors: the social admosphere on the school and the location of the school. And of course, the location of the school is related to the demographic developments. These two factors are not influenced by the budget of the quality of the education nor facilities.

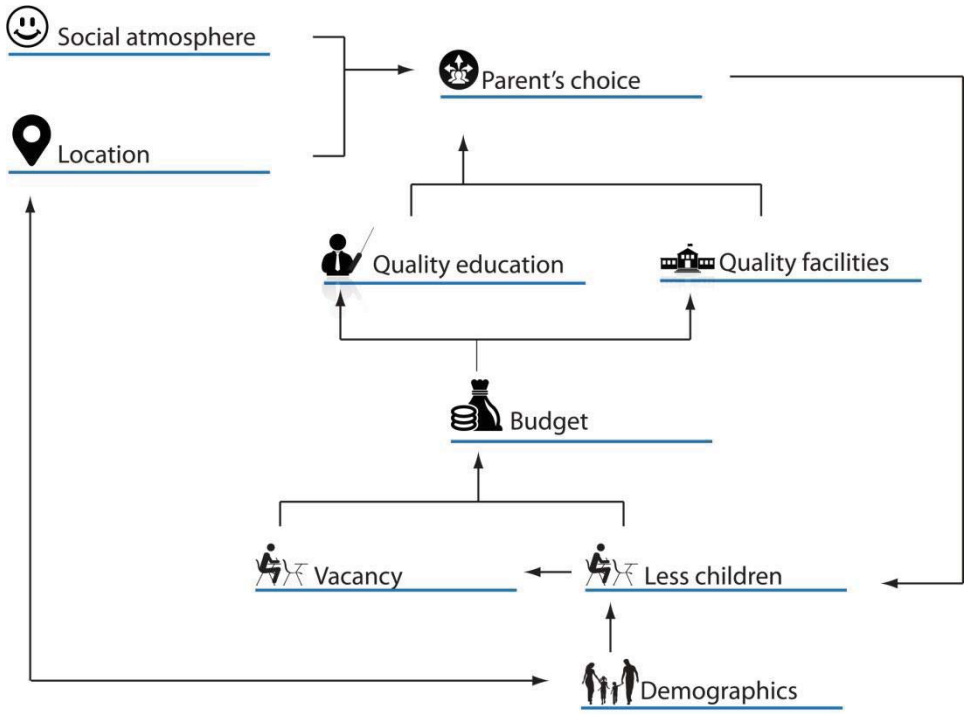


Fig. 25; Conceptual model.

3. Methodology

In this chapter the steps towards the final results are discussed. First, the various research methods are discussed. Furthermore, the most important variables and the way in which they were obtained are explained. The statistical approach, including the recoding of certain variables, pre-selection process and final model construction are also discussed. This chapter thus paves the way for the final results of the research.

3.1 Research design

In order answer the research questions a cross sectional database research is conducted. The sources of the data are described below.

3.1.1 Research Method 1. Survey among parents

As concluded in chapter 2.7.3, building characteristics of primary schools in relation to the choice of parents have not been subject to research[52].

[52] Exempt for the small explorative research of Martens, Walraven and Lucassen (2013).

A survey is used as a method to measure the expressed preferences of parents in their school choice. In addition to questions related to the social atmosphere and educational quality of the schools, aspects of the building and the location of the schools were asked.

In the three municipalities selected, the schools were asked to sent an survey to the parents of group one by email. This happened in September, in the first month of school. This group of parents is selected because they have their school choice still fresh in mind. Furthermore, they least likely to have acquired a bias regarding the school yet. Therefore they were regarded the best group to investigate school choice preference among parents. The survey sent to the parents can be found in Appendix C.

This survey will be used to cross-check the results of the statistical analysis: are the results of the survey among the parents in line with existing literature and in line with the predictive factors found by means of the statistical analysis as described below?

3.1.2 Research Method 2. Survey among schools

In order to relate vacancy and the expressed preference of parents with the actual situation, two research methods were used to map the current situation in the schools. First, the school principals were asked to fill in survey sent by email. Purpose of this survey was to acquire data that could not be obtained from existing datasets of personal observation, like the overall climate in the school, social behavior like bullying and the social security and traffic safety around the school. The survey sent to the schools can be found in Appendix D.

3.1.3 Research Method 3. Assessment of building characteristics

Additionally, the schools were all assessed in order to investigate building condition and appearance and facilities. This was done by means of observation and measurement of both objective and subjective characteristics of the school building. Based on the research of Martens, Walraven & Lucassen (2013), a checklist was developed regarding five primary aspects of the building, it's vicinity, exterior, interior, entrance and the playing ground. The checklist used for mapping the schools can be found in Appendix E. The results the assessment per school can be found in Appendix N.

3.2 Sample

Because publicly available databases like the BAG do not contain specific information on the building characteristics, an in-depth analysis was performed at the schools of three randomly selected municipalities.

The municipalities selected are: Brielle, Purmerend and Horst aan de Maas. This is done by means of a stratified random selection.

The municipalities were divided into four groups based on their population size (Group 1: 0-20.000; Group 2: 20.000-60.000; Group 3: >60.000-100.000; Group 4: >100.000). The group with municipalities with a population of more than 100.000 people was left out for reasons of limitations. From the other two groups, one municipality was selected.

Fig. 26; Selected municipalities.

3.3 Measures

3.3.1 Dependent variable

The dependent variable of this research is vacancy. It is defined as *the mismatch between demand and supply, resulting in a surplus of floor space*. That is *the situation in which a school uses the entire school building, while not needing all available floor space on the basis of government regulations*. This requires knowledge regarding both current demand and current supply.

3.3.1.1 Demand

Table 17; Calculation of current demand.

$$N = \begin{cases} 200 + 5,03L + 0,8L \; if \; G > 0,8\,L \\ 200 + 5,03L + 1,4G \; if \; G \leq 0,8\,L \end{cases}$$ [53]

***N* = Standard gross floor area**
***G* = summed weights of students on the school**
***L* = total number of students on the school**

The Executive Agency for Education (DUO) holds lists of all primary schools in the Netherlands per year. This information will be used, which makes it not necessary to look at the ownership status of the school building. The number of pupils per school, as well as their weights (G) are available on the website of the Executive Agency for Education (DUO, 2013). This data is used for the calculation of the current demand as described in Table 17.

This database holds the number of students for all of the 7.116 primary schools in the Netherlands. For purposes of limitations, the schools for children with special needs were excluded from this research. The remaining 6.802 regular primary schools are subject to this research.

3.3.1.2 Supply

Notwithstanding some serious attempts to estimate the total stock, the literature study of chapter 2 revealed that there is much uncertainty regarding the GFA of every school in the Netherlands.

The existing data is not consistent regarding the total amount of floor space of primary schools, nor does it give a differentiation of the total GFA per school. The last is necessary to investigate predictive factors for vacancy among primary schools. Consequently, this is impossible with the available data discussed in the literature study.

The responsibility of the housing of primary schools is decentralized, as is information regarding the size of primary schools.

The only centralized database on building information is the Cadastre's Basic Administration on Buildings and Addresses (BAG). This database holds information on the building's gross floor area, building year and function. The municipalities are responsible for the delivery of the information for this database.

[53] 2253 of the 6803 (33%) schools meet this threshold (DUO, 2013).

An extract of all the buildings marked with an educational function in this database is matched with the addresses of the primary schools in the Netherlands. In this way the building years and GFA's of primary schools can be obtained.

3.3.1.3 Verified municipal data

The municipalities are responsible for the delivery of the right information to the BAG. Nevertheless, the assessment of the database revealed several excessive results of unrealistic small or large schools.

As a result 100 municipalities with more than 40% vacancy or 40% floor space demand (i.e.: shortage of floor space) were contacted by email. They were approached with the demand for more accurate data. Of this group, 80 (80%) have reacted. In total, 74 (74%) of the municipalities delivered useful information regarding the size of their primary schools. This data was delivered by the departments of education of the various municipalities. It is assumed that these departments have an accurate sight on the status quo of the educational real estate in their municipality.

In total 18% of the Dutch municipalities have delivered useful information on 1560 schools for this research. There is a significant difference (P< 0,000) between the vacancy as derived from the BAG and the vacancy after the process of validation (see Table 18 for the results of a paired samples t-test).

Table 18; Paired samples t-test Vacancy_2013 and Vacancy_Raw.

	Paired Differences					t	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
				Lower	Upper		
VACANCY 2013 – VACANCY_Raw	-2007,216	45249,53	548,650	-3082,742	-931,689	-3,658	,000

Since this data is explicitly checked by the municipalities, it is assumed to hold a greater reliability than the overall data in the BAG. Therefore, this dataset is analyzed separately. Appendix B holds an elaborate discussion of the way in which the data was obtained.

It should be noted that both the information from the municipalities as well as the BAG only contain data on the status quo. Therefore, it is impossible to distinguish trends regarding the supply of floor space of primary schools based on this dataset.

3.3.1.4 Survey

Furthermore, as discussed in paragraph 2.5.2.1 of the literature study, between 1997 and 2008 the demand of primary schools was measured in groups. Information regarding number of groups and classrooms in not centrally available.

However, in the survey, the principals were asked the number of groups as well as the number of temporary and permanent classrooms of the school.

This is used in the analyses of the verified sample as a cross-check for the vacancy. It is expected that there should not be a significant difference between the vacancy as expressed in classrooms or as calculated using the standard.

3.3.2 Independent variables

As described in chapter 2.8, four main categories are assumed to affect vacancy in primary schools: social atmosphere, location, quality of the building and quality of education. The significant

dependent variables related to these categories will be discussed below. An overview of all variables measured in this research can be found in Appendix M.

3.3.2.1 Social atmosphere

The social atmosphere aspect contains two factors: denomination and the number of groups. Other factors, like bullying were tested insignificant. The denomination of the school (RELIGIE2) was available as a nominal variable at the dataset of the DUO (2013). It contains seventeen categories. This variable was recoded as described in chapter 3.4.1. This variable describes the social atmosphere or culture of the school.

The number of groups is a continuous variable and was obtained by means of a survey among the principals of the schools in three municipalities.

3.3.2.2 Location

The location of the school contains two significant factors: the number of children in the postal code area and rejuvenation.

The postal code areas form the smallest grid of measurement of the population, publicly available on a national scale. Therefore, this is measured as the absolute number of children between 0 and 15 years old in the postal code area of the school (POSTCODE). This information was obtained at the Central Bureau for Statistics (CBS, 2013).

Rejuvenation (REJUVENATION) is measured as the average growth of the number of children between 0 and 15 years old in municipality of the school in the past 10 years. Population decline is measured in the same way as the average growth of the population municipality of the school. Because literature mentions shrinkage areas very often, also the total average population growth of the municipality of the past 10 years is taken into account.

3.3.2.3 Quality facilities

The quality of the facilities contains nice significant factors, as discussed below.

The building year of the schools (BOUWJAAR2) is obtained through the BAG or corrected by the municipalities. Furthermore, it is categorized into five categories as described in chapter 3.4.1.

The heating is a dichotomized variable indicating the performance of the heating system of the school. This variable is based on the survey among the principals of the schools.

In chapter 2.6, three school building types (EXT_TYPE) have been distinguished (see Fig. 27 - Fig. 29). Based on the assessment of building characteristics, these types are included as nominal variables.

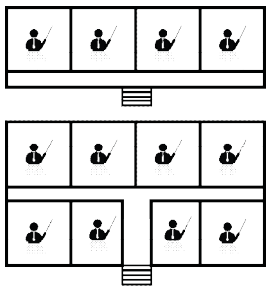


Fig. 27; Corridor school, ca. pre 1969.

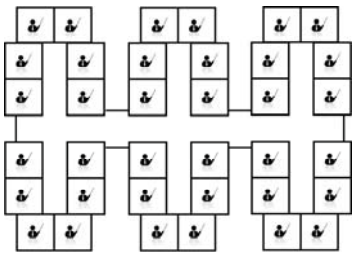


Fig. 28; Pavilion school, ca. 1950-1980.

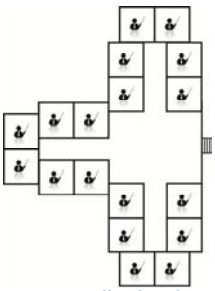


Fig. 29; Hall school, ca. post 1980.

The clustering of functions (EXT_CLUSTERING_FUNCTIES) is a dummy variable for the presence of other functions in the school building like child care or a library. This variable is also based on the assessment of building characteristics.

The alignment of the building with the surrounding buildings (EXT_ROOILIJN) is a dummy variable. It indicates the architectonic character of the building. This variable is based on the assessment of building characteristics.

Fig. 30; Aligned to surrounding buildings.

Fig. 31; Not aligned to surrounding buildings.

The alignment of the building height (EXT_HOOGTE) with the surrounding buildings is a dummy variable. It is an indication for the blending of the building in the surroundings. Is the building in harmony with the surrounding buildings, or is it in contrast?

Fig. 32; Difference in height.

Fig. 33; No difference in height.

Another variable indicating how the building comes across to the viewer is the presence special architecture (EXT_ARCH_KENMERKEN). This is a dummy variable for the presence of unusual architectural objects on the building or for the building as a whole (see Fig. 34 - Fig. 35).


Fig. 34; Special architecture at the entrance.


Fig. 35; No special architecture at entrance.

The presence of windows allowing a view from the corridor to the classrooms and vice versa (INT_VRIJZICHT_GANG) is a dummy variable. It indicates the both the lightness of the building, as well as the transparency of the activities in the building, which is a cultural aspect. This variable is based on the assessment of building characteristics.


Fig. 36; Clear view corridor.


Fig. 37; No clear view corridor.

The presence of a principal's office (DIRECTIEKAMER) is a dummy variable. This variable describes the characteristics of the facilities of the school and is based on the survey among the principals of the schools.

The size of the playing ground (SP_SIZE) of the school was approximated with the measure tool of Google Maps[54]. Although, this is not the most accurate measurement tool for measuring surfaces, this method generates an estimate of the playing ground that is good enough for differentiation between the schools. Furthermore, the overall shape of the playing ground was checked during the assessment of the building characteristics.

3.3.2.4 Quality education

The quality of the education is hard to measure (Peschar & Van der Wal, 2001). The principals were asked the percentage of children that went to VWO. However, this factor turned out to be insignificant.

Nevertheless, The government uses the test scores in the final test at the primary school as measure to gauge the educational performance of primary schools. Circa 90% of the schools use the CITO-test. Numerous authors have argued whether these test scores are a fair indicator of the quality of the school. Nevertheless, it is expected that since the school's average test scores are easily accessible, parent will use this among others as an indicator for the quality of the school. These scores (SCORE_2013) are available for all schools in the Netherlands for the past 4 years (Dronkers, 2013) and will be used as an indicator for quality.

3.4 Statistical analysis

As discussed in chapter 2.5.2, municipalities have great influence on education real estate. They provide financial resources to the schools and decide on expansion and new construction. In case of vacancy, the municipalities also often have a leading role in the redistribution of space or taking strategic decisions on the future of the buildings. In addition, it is also concluded on the basis of the available literature that parents generally do not travel long distances for a primary school. It can therefore be concluded that there are strong local dynamics that affect the schools. This must be accounted for in the models. Therefore it is decided to work with multilevel linear models. This allows for hierarchical layers in the model (Field, 2009: 726-728).

A distinction is made between multilevel linear models with a fixed slope and a random intersect (B.), a random slope and a fixed intersect (C.) and a random slope and intersect (D.). The effect on the model is visible in Fig. 38 (Field, 2009: 733).

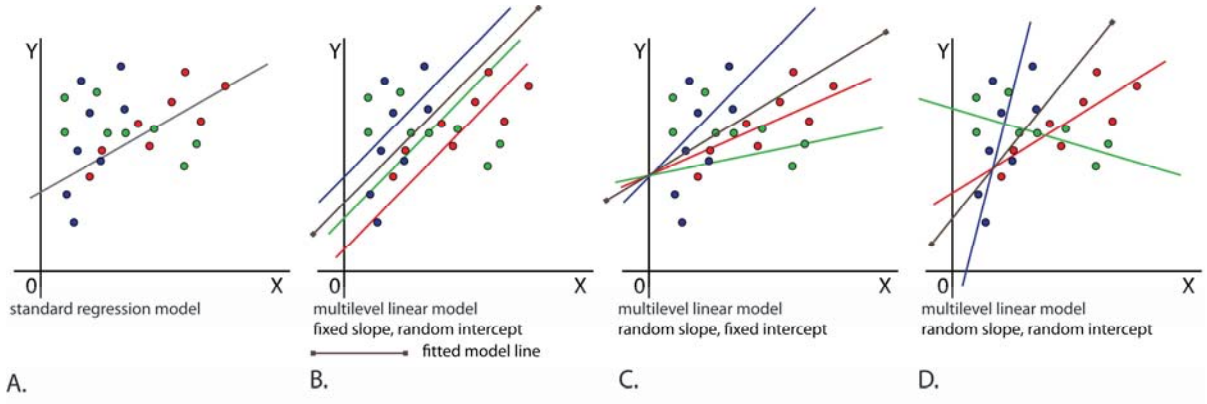


Fig. 38; Multilevel linear models.

[54] www.maps.google.com

Furthermore, the use of multilevel linear models has various benefits, compared to regular regression models (A.). First, the assumption of homogeneity of regression slopes can be discarded. In a regular regression model, the relationship between a covariate and the outcome is assumed to be the same across different groups that make the predictor variable. Clearly, this assumption is not necessary for multilevel linear models since the various groups are distinguished in the model (Field, 2009: 729).

Second, when using a normal regression model, the data must be independent. Dependence between variables can be accounted for by means of a multilevel linear model. This makes the assumption of independence superfluous (Field, 2009: 730).

Third, whereas regression models have trouble dealing with missing data, mixed level linear models do not have this issue (Field, 2009: 730).

3.4.1 Recoding

Several variables consisted of too many optional values. This could compromise the predictability of the variables. Therefore, these variables were recoded into new variables as described in Table 19.

Table 19; Recoded variables.

Old name	Label	Value	New name		Value
Building_Year	Building year of the school building	Scale	Bouwjaar2		System missing = 'pre 1600' 2 = '1600- 1944' 3 = '1945-1959' 4= '1960-1984' 5 = '1985-1996' 6 = '1997-2007' 7 = 'post 2008'
Religie	Denomination of the school	1 = ABZ 2 = ASF 3 = EVA 4 = EVB 5 = GEV 6 = HIN 7 = IC 8 = ISL 9 = JOO 10 = OPB 11 = PC 12 = REF 13 = RK 14 = SCA 15 = SOP 16 = SOR 17 = SPR	Religie2	10 → 1-9 → 11-17→	1 = 'OPB' 2 = 'RELIGOUS'
Rejuvenation	Percentage of rejuvenation of the municipality	Scale	Vergroening	Negative Positive	0 = 'decline of children' 1 = 'increase of children'

It concerned the variable regarding the building year of the schools, that variable was a scale. It is recoded into four categories corresponding to the changes in the policies regarding funding of the school building as described in chapter 2.5.2.

Furthermore, the variable regarding the denomination of the school[55] contained a nominal measure of seventeen options. As discussed in the literature study, the most important distinction regarding denomination is the difference between public (OPB) and private (all other) schools. Therefore, this variable was dichotomized into two categories: public and private schools.

[55] Religie.

Last, the variable regarding the rejuvenation was recoded from a continuous variable regarding the percentage of growth of decline of the amount of children in the municipality, into a dummy variable of positive and negative rejuvenation.

3.4.2 Pre-selection

In order to find the individual effects of the independent variables on the dependent variable, an univariate multilevel linear model analysis is performed. The selection criterion for adding a variable was a p-value of < 0.25.

On the BAG and the Verified municipal data, the multilevel linear model analysis contained a random effect parameter for schools within the municipalities. This random effect was significant which leads to the conclusion that the municipal context is a factor of importance for the vacancy among primary schools.

Due to its small size (N = 31) estimation of the random effect parameter for schools within the municipalities was not possible for the Verified sample. Therefore, the multilevel linear model analysis on the Verified sample was performed without random effect parameter for schools within the municipalities, as a normal regression analysis. As a result, the random differentiations due to municipal factors were not taken into account in the model.

Table 20 contains an overview of the univariate multilevel linear model analysis of the various factors with the dependent variable. The results marked red are not significant (p > 0,25), the results marked orange have p-values between 0,05 and 0,25 and the results marked green are significant (p < 0,05).

The table shows six different rows of univariate analyses. The first two were performed on the data available for the verified sample, with 31 schools. This contains building information, obtained through the assessment of building characteristics, as well as information obtained with the survey, besides the information available for all schools in the Netherlands (demographic information etc.).

These variables were tested on two dependent variables:

1. The vacancy as indicated by the principals in the online survey.
2. The vacancy in 2013 as calculated by means of the government standard.

For the other four datasets, the dependent variable was the vacancy in 2013 as calculated by means of the government standard.

These datasets are the complete BAG, the Verified Municipal Data (VMD) and for both datasets, the effect of the Cito-score is also tested on the selection of schools that use this testing method.

Table 20; Significance levels of univariate multilevel linear model analysis datasets.

	Factors	Verified Sample		Verified Municipal Data		enriched-BAG	
		vacancy according to principals	vacancy according to standard	VMD complete	VMD CITO	enriched-BAG complete	enriched-BAG CITO
	delicine region	-	-	0,723	0,398	0,198	0,135
	building year	0,352	0,894	0,000	0,000	0,000	0,000
	denomination	0,591	0,282	0,012	0,101	0,002	0,002
	children in postcode	0,000	0,537	0,002	0,005	0,000	0,000
	rejuvenation	-	0,450	0,000	0,009	0,765	0,819
	average size municipality	-	0,636	0,815	0,943	0,936	0,909
	growth municipality	-	0,276	0,378	0,423	0,278	0,261
	rejuvenation municipality	-	-	0,013	0,044	0,701	0,873
	cito score 2013	N.A.	N.A.		0,050		0,000
interior	number of classrooms	0,254	0,559				
	number of additional rooms	0,818	0,138				
	size theatre	0,139	0,641				
	accessability handicapped	0,634	0,045				
	clear view corridors	0,917	0,005				
	height corridors	0,264	0,489				
	height classrooms	0,669	0,940				
	cleaning	0,433	0,532				
	maintainance	0,521	0,004				
	rent to other parties	0,143	0,004				
	studio space	0,184	0,601				
	hall	0,712	0,071				
	crafts room	0,644	0,946				
	kitchen	0,193	0,489				
	theatre	0,522	0,461				
	technic room	1,000	0,221				
	library	0,114	0,145				
	computer room	0,161	0,365				
	remedial teacher room	1,000	0,349				
	principals office	0,688	0,034				
	staff office	0,954	0,826				
	temporary classrooms	0,065	0,005				
	permanent classrooms	0,470	0,207				
	number of groups	0,052	0,268				
playing ground	size playing ground	0,003	0,085				
	number of playingsets	0,169	0,220				
	view on playing ground	-	-				
	view on the public road	0,822	0,322				
	degredation	1,000	0,282				
	social security	0,620	0,394				
surroundings	road for cars near the school	0,861	0,284				
	bicycle lane	0,572	0,277				
	public transport	0,750	0,123				
	school zone	0,779	0,195				
	location from buildings	0,578	0,663				
entrance	clear view	0,965	0,353				
	number of entrances	0,607	0,205				
	supervision entrance	0,296	0,791				
	size entrance	0,173	0,394				
social	expected growth	0,299	0,031				
	percentage to VWO	0,009	0,702				
	percentage to HAVO	0,237	0,366				
	scale bullying	0,657	0,118				
	duration bullying	0,744	0,932				
	non western immigrants	0,376	0,821				
exterior	building year pre-post 1986	0,454	0,384				
	renovation	0,624	0,835				
	Harmonious height	0,184	0,203				
	alignment to buildings	0,770	0,047				
	harmonious style	0,576	0,471				
	type of building	0,172	0,179				
	harmonious color	0,421	0,626				
	harmonious materials	0,887	0,419				
	special archicture	0,200	0,730				
	unity fo the building	0,054	0,825				
	clustering of functions	0,249	0,058				
	number of floors	0,531	0,470				
	perception of size	0,391	0,391				
climate	ventilation	0,326	0,880				
	cooling	0,260	0,238				
	heating	0,191	0,155				
	daylight classrooms	0,018	0,136				
	daylight corridor	0,072	0,774				
	clutter	0,776	0,116				
	windows classrooms	-	0,145				
	windows corridor	0,860	0,752				

Legend

color	p value
	p < 0,05
	0,05 < p > 0,25
	p > 0,25

3.4.3 Final model Construction

As stated above, the small sample size of the Verified sample affects the way in which the final model can be constructed. Therefore, the final model construction BAG and the Verified municipal data (VMD) and the Verified sample will be discussed separately below.

3.4.3.1 BAG and Verified Municiapal Data

As stated above, local dynamics are presumably making it impossible to model the correlation between vacancy and the various determinants in a single regression line.

Table 21; AICs of BAG and Verified Municipal Data.

	BAG	VMD
fixed model	111326	24835
random intercept	111158	24781

Table 21 gives an overview of the different Akaike's Information Criterions (AIC) of the various models, which indicates the *goodness of fit* of the model. Interpretation comes down to: the lower, the better. Clearly, the models with a random effect parameter for schools within the municipalities have a better goodness of fit. Therefore, the final model will contain a random effect parameter for schools within municipalities.

Based on the selection process, the significant factors ($p < 0,25$) were included in the model. Then, the least significant factor was eliminated up to the point where every factor in the model was significant ($P < 0,10$). Table 22 shows the elimination process of the BAG as a whole. Table 23 shows the elimination process of the VMD. For both a separate analysis is done for the effect of the Cito-scores. Only the schools that use the Cito-test were included in these samples, since not every school uses the Cito-test[56].

Table 22; Elimination of least significant factors BAG.

Model	BAG	N=6803
	eliminated factor	**AIC**
1		111160
2	decline region	111158
	BAG (incl. Cito)	**N=5511**
	eliminated factor	**AIC**
1		88037
2	decline region	88036

Table 23; Elimination of least significant factors VMD.

Model	VMD	N=1560
	eliminated factor	**AIC**
1		24781
	VMD (incl. Cito)	**N=1156**
	eliminated factor	**AIC**
1		17978
2	denomination	18224

The results of the elimination process show that decline region is not significantly correlated to vacancy for the BAG as a whole. Interestingly, in the VMD, the decline region is significantly related to the dependent variable. In fact, all factors included based on the pre-selection turned out to be significantly correlated.

In both the BAG as well as the VMD, the Cito-scores are significantly correlated to vacancy. In the VMD, the denominations of the schools turn out to be not significantly correlated to the dependent variable when the Cito-scores are taken into account.

[56] The effect on the number of cases is visible in the 'N').

3.4.3.2 Verified sample

In the case of the verified sample, a forward regression was used in search for the model that best fits the factors. The independent variables were added to the model per cluster (see for the clusters Table 20). The least significant affecting factors were eliminated stepwise, up to the point at which every factor is significant ($p<0.10$). The clusters were added in the same order as displayed in Table 20, starting with interior factors.

Table 24 gives an overview of the step by step process of adding and elimination factors with the vacancy as calculated based on the government standard. The final model is model 27, with an AIC of 383.

This model contains predictors concerning the presence of windows in the corridors, a principal's office, height of the building, alignment with other buildings, type, clustering of functions, and heating. The results of this final model are discussed in chapter 4.6.3.4.6.4

Table 25 gives an overview of the step by step process of adding and elimination factors with the vacancy as indicated by the principals. The final model is model 24, with an AIC of 284.

This model contains predictors concerning the size of the playing ground, the height, architectural specialties and number of groups. The results of this final model are discussed in chapter 4.6.4.

Table 24; Calculated vacancy; Entering and elimination process of factors.

Dependent variable		VACANCY_2013	
		Verified sample	N=31
Model	Cluster	eliminated factor	AIC
1	**Interior**		411
2		permanent classrooms	409
3		accessibility handicapped	405
4		number of additional rooms	403
5		rent to other parties	402
6		technical room	400
7		hall	399
8	**playing ground**		401
9		size playing ground	399
10		number of playing sets	399
11	**surroundings**		390
12		school zone	388
13		public transport	399
14	**entrance**		401
15		number of entrances	399
16	**social**		389
17		bullying	388
18		expected growth	399
19	**exterior**		397
20		library	395
21		temporary classrooms	395
22	**climate**		387
23		daylight classrooms	387
24		clutter in corridors	385
25		cooling	384
26		windows classrooms	383
27		maintenance	383

Table 25; Vacancy according to principals; Entering and elimination process of factors.

Dependent variable		VACANCY_PRINCIPALS	
		Verified sample	N=31
Model	Cluster	eliminated factor	AIC
1	**Interior+children in vicinity**		302
2		rent to other parties	300
3		children in vicinity	298
4		kitchen	296
5		size theatre	295
6		studio space	294
7		computer room	294
8	**playing ground**		290
9		temporary classrooms	289
10		number of playingsets	289
11		library	289
12	**entrance**		290
13		size entrance	289
14	**social**		273
15		percentage to VWO	271
16		percentage to HAVO	289
17	**exterior**		287
18		type	285
19		architectural unity	284
20		clustering functions	284
21	**climate**		278
22		daylight classrooms	278
23		daylight corridors	276
24		heating	284

4. Results

This chapter will give a plain overview of all results of this research. First paragraphs will answer the question regarding the current vacancy among primary schools. To do so, the current demand and current supply are discussed, in order to conclude what the current mismatch is. The results of this analysis are related to literature as discussed in chapter 2.

The following paragraphs present the results of the statistical analyses. These analyses were performed in order to find the most important predictors of vacancy among primary schools. The results of this analysis are related to literature.

Furthermore, the results of the survey among the parents of group one are discussed. They are related to the literature as well as to the findings of the statistical analyses regarding the predictive factors of vacancy.

This research uses three samples: the BAG, Verified municipal data and a Verified sample. As far as applicable the analyses and results are presented per sample. Comparisons are made in order to answer the sub questions as good as possible.

4.1 What is the current vacancy?

In order to calculate the current vacancy, both current demand and current supply must be known. This question will be answered on three levels, based on the principle of zooming-in: first the whole of the Netherlands will be addressed based on the information obtained from the BAG and the various municipalities that delivered extra information. Second based on the information sent by the municipalities, a selection of the schools will be analyzed. And third, the three municipalities that were selected for further inspection, will be discussed more in detail.

4.2 Current demand

The current total floor space demand is derived from both student numbers and their 'weights'. Both the number of students and their weights are derived from the data of the DUO (2013). Thus the current floor space demand for each regular school[57] registered at the ministry of Education can be calculated. In 2013, there were 6.802 regular schools registered. In total there were circa 14.7 million students.

Second factor of influence on the current floor space demand are the student weights as discussed in chapter 2.5.2.1. If the maximum completed education of one or both of the parents is primary education, the student is given a 0,3 'weight'. If the maximum completed education of one or both of the parents is vocational education, the student is given a 1,2 'weight'. The total number of 0,3-weight students in the Netherlands is 87.315, which exceeds the 73.746 1,2-weight students in the Netherlands. See Fig. 39 for an overview of the distribution of students weights in the Netherlands.

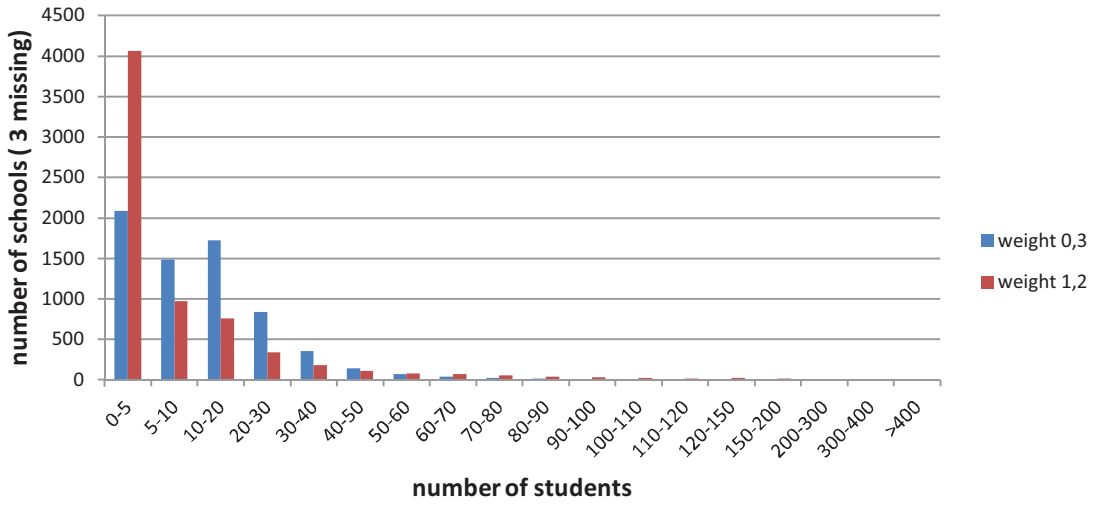


Fig. 39; Distribution of student weights on regular primary schools in the Netherlands in 2013 (N=6799, 3 missing).

However the sum of the weights must exceed 6% of the total number of students on the school in order to result in a positive 'school weight'. Additionally, this school-weight' may not exceed 80% of the total number of student on the school. This 'corrected school weight' is multiplied by 1,40 m^2 extra floor space. As a result of this correction, most of the schools (67%) have no extra 'weight'. And only 129 schools (1,9%) have a weight that exceeds 100. See Fig. 40 for an overview of the school weight distribution in the Netherlands in 2013.

[57] Schools for education for children with special needs are left out of the analysis as described in chapter 3.

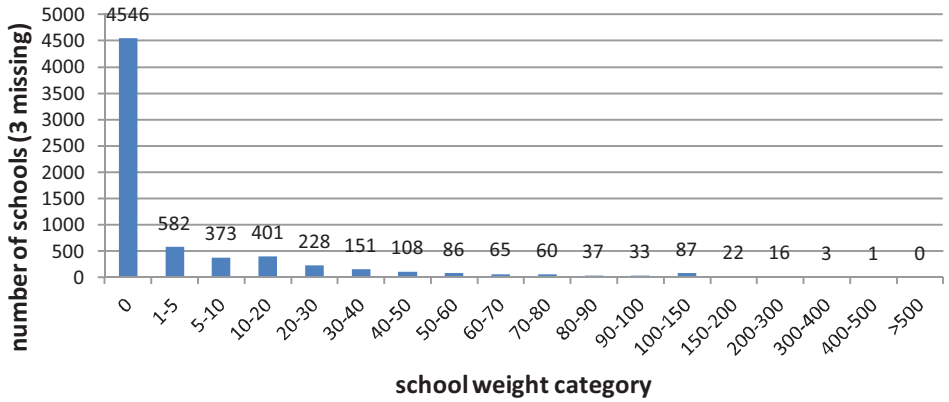


Fig. 40; Distribution of school weights of the regular primary schools in the Netherlands in 2013 (N=6799, 3 missing).

As a result of both these school weights and the student numbers, is calculated that the current demand in 2013 was circa 8,8 million m^2.

Since 2010 the number of students is declining on average per year with 0,929%, the total floor space demand is declining as well, with an average per year of 1,007%. The difference is caused by the effects of the weights of students. Table 26 gives an overview of the exact numbers.

Table 26; Demand BAG 2010-2013.

year	2010	2011	2012	2013
total number of students	1.531.932	1.519.631	1506437	1475634
growth		-0,80%	-0,87%	-2,04%
total demand (m^2 GFA)	9.140.678	9.081.293	9.017.097	8.865.589
growth	0,00%	-0,65%	-0,71%	-1,68%
average school demand (m^2 GFA)	1.351	1.340	1.329	1.303
growth		-0,80%	-0,87%	-1,90%
average number of students per school	225	223	221	217

Fig. 41 shows a histogram of the distribution of students over the schools. The schools have on average 217 students. The majority (64%) of the schools contain between 50 and 250 students. 96% of the schools have between 0 and 500 students. There are some very large primary schools: 122 schools (1,8%) have more than 600 students. This might by caused by administrative mergers of schools.

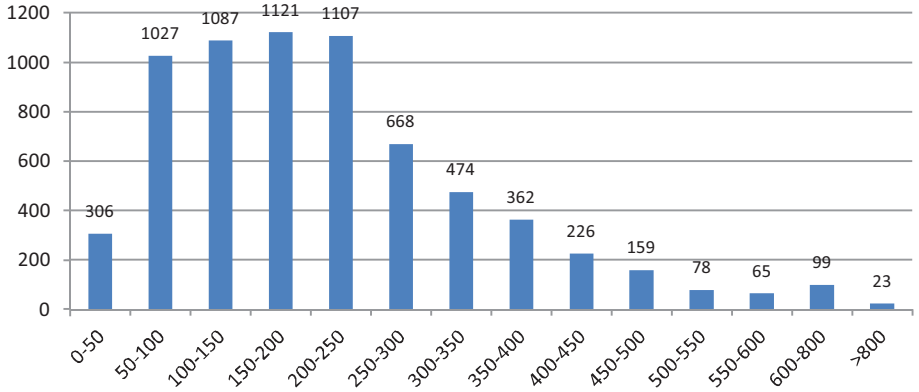


Fig. 41; Distribution of students over the schools (N = 1.475.634).

4.2.1 Current demand: Verified municipal data

The current demand of the verified municipal data is calculated in the same manner. Table 27 gives an overview of the development of the demand of this dataset over time. It becomes clear that the average annual decline is less than for the total BAG.

Table 27; Demand Verified municipal data 2010-2013.

year	2010	2011	2012	2013
total number of students	407.466	407.090	405.142	397.995
growth		-0,09%	-0,48%	-1,76%
total demand (m^2 GFA)	2.385.804	2.384.434	2.375.286	2.341.428
Growth		-0,06%	-0,38%	-1,43%
average school demand (m^2 GFA)	1.542	1.539	1.530	1.501
growth		-0,19%	-0,58%	-1,93%
average number of students per school	261	261	260	255

4.2.2 Current demand: Verified sample

The number of students on the schools differs in per schools. However, whereas Brielle (168) and Horst aan de Maas (160) have on average circa 160 students, the average number of students is double as high in Purmerend (326). Nevertheless, it can be stated that most schools (68,75%) have between 100 and 250 students (Fig. 42).

In total there are 6.283 students in the selected schools. As a result there is a total demand of floor space of 42.462 m^2 GFA.

Regarding the future demand of the coming three years, most (55%) expect a decline of more than 5% (Fig. 43).

Furthermore, the principals indicate that there is a total of 275 groups of students in the schools. 76,73% of the schools have between four and thirteen groups. Only two schools have more than 14 groups (see Fig. 44). These schools are the Wheermolen and Klim-op[58], both in Purmerend.

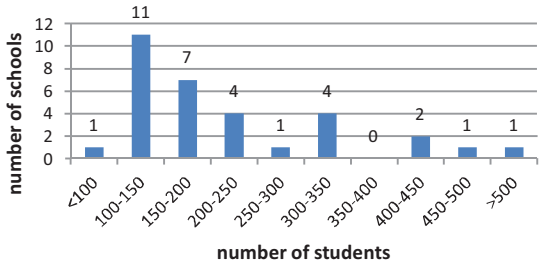


Fig. 42; Distribution of students in the selected municipalities (N =32).

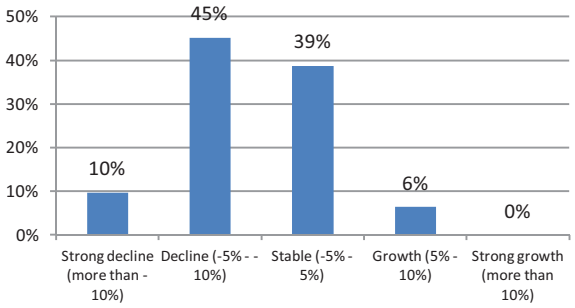


Fig. 43; Students prognosis of principals for coming 3 years (N=32).

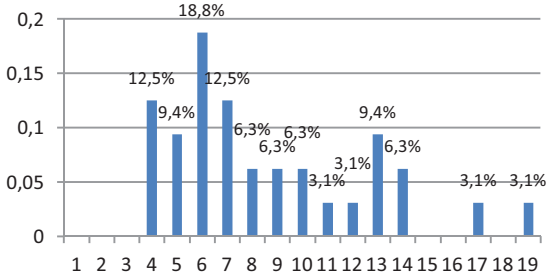


Fig. 44; Number of groups (N=32).

[58] Wheermolen had 400 and Klim-op 444 students in 2013.

4.2.3 Subconclusion

As described, the total demand of a school can be calculated based on the information of the DUO. For both the three datasets of this research as well as two authors discussed in chapter 2, the demand is calculated. The specific schools and years were taken into account.

	Van der Wal, 2011	Van Elp & Zuidema, 2013	BAG enriched	Verified Municipal Data	Verified Sample
year	2011	2012	2013	2013	2013
number of schools	6966	6901	6.802	1.560	31
number of students	1.519.631	1.506.437	1.475.634	397.995	6.283
demand GFA (m2)	9.131.829	9.011.288	8.865.589	2.341.428	42.462
average students per school	218	218	217	255	203

Moreover, based on the information of the survey of the verified sample, it is concluded that the principals of most schools expect a 5%+ decline of the number of children in the coming three years. This is in line with the national expectations as discussed in chapter 2.7.1.2.

Furthermore it is concluded that their demand can also be expressed in number of groups. These groups will be used to cross-check the results of the data.

4.3 Current supply

4.3.1 According to the enriched-BAG

Based on the information in the BAG, enriched with the information from the municipalities, it is concluded that there is a total supply of primary school space in the Netherlands of 9,6 million m^2. As a result, the schools are on average 1.415 m^2. Table 28 gives an overview of the results.

Table 28; Current supply BAG 2013.

Year	2013
total number of schools	6.802
total floor space supply (m^2)	9.624.391
average GFA per school (m^2)	1.415
average building year	1974

Furthermore, the majority (34%) of the schools is between 1.000 m^2 and 1.500 m^2. In total, 96% of the schools have a GFA smaller than 3.500 m^2. 245 schools (3,6%) have a GFA bigger than 3.500 m^2. Some of these cases might by cause by errors in the data. However, it should be noted that 122 schools have more than 600 students[59]. Thus some of these schools must actually have +3.500 m^2 floor space.

[59] According to the standard, discussed in paragraph 2.5.2.1 , more than 656 students leads to a GFA demand of more than 3500 m^2.

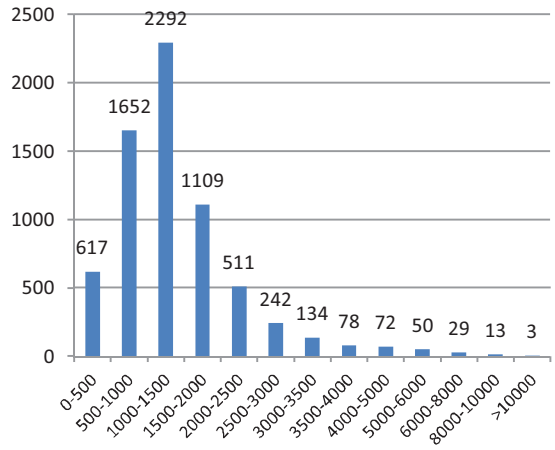


Fig. 45; Distribution of school size (m^2) (N=6802).

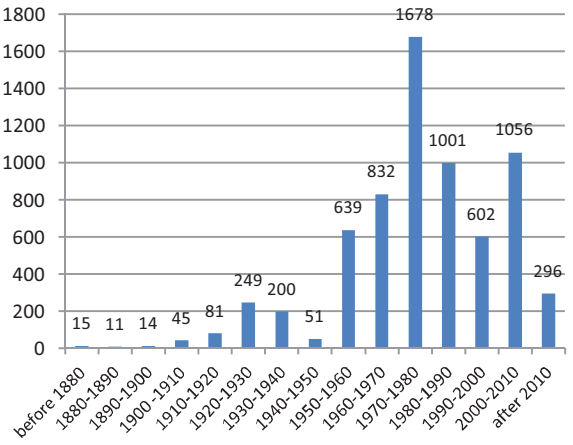


Fig. 46; Histogram of the building years of the primary schools (N=6770, missing: 32).

Fig. 46 gives an histogram of the building years of the schools. It is concluded that the schools have an average building year of 1974. It is clear that the building of schools took flight in the fifties, with a peak in the seventies, after a sharp drop during WOII and its aftermath. Furthermore, there is another peak in the building of schools in de new millennium.

4.3.2 According to the Verified municipal data

Based on the information of the municipalities, there is a current supply of approximately 2,6 million m^2 GFA (see Table 29).

The average building years is approximately the same as that of the BAG. However, on average the schools are 20% larger than in the BAG. The reason of this difference is unknown.

Table 29; Current supply Verified municipal data 2013.

Year	2013
total number of schools	1.560
total floor space supply (m^2)	2.658.447
average GFA per school (m^2)	1.704
average building year	1973

4.3.3 According to the Verified Sample

According to the information of the municipalities, there is 45.899 m^2 GFA in the 31 schools of this research. Half (50%) of the supply is located in Purmerend (see Table 30).

Furthermore, the principals indicated that there are in total 289 permanent classrooms and 15 temporary classrooms (see Table 31).

Table 30; Current supply in 2013 (N=31).

	supply (m^2)	percentage
Purmerend	22.967	50%
Horst aan de Maas	17.338	38%
Brielle	5.594	12%
Total	45.899	100%

Table 31; Current supply (classrooms) Verified sample.

	Perm. Classrooms	percentage	Temp. Classrooms	percentage	Total Classrooms	percentage
Purmerend	143	49%	7	47%	150	49%
Horst aan de Maas	114	39%	1	7%	115	38%
Brielle	32	11%	7	47%	39	13%
Total	289	100%	15	100%	304	100%

All principals have noted the available classrooms as well. First of all, it should be noted that 22,5% of the schools have temporary classrooms. It is unknown whether the BAG takes these temporary buildings into account.

In total they hold 4% of the available classrooms. When assumed that an average classroom is approximately 50 m^2, this would mean that the total stock of the schools is 1,3%[60] larger than noted in the BAG.

Fig. 47; Temporary classrooms at the schoolyard of Het Geuzenschip in Brielle

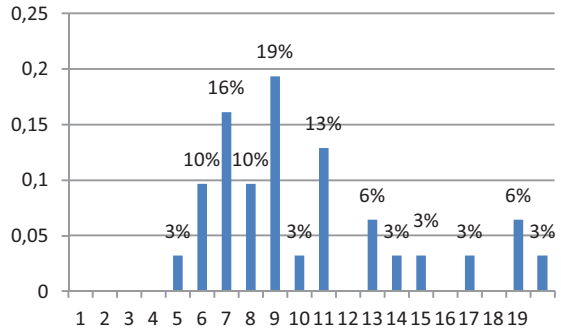


Fig. 48; Permanent classrooms (N=31).

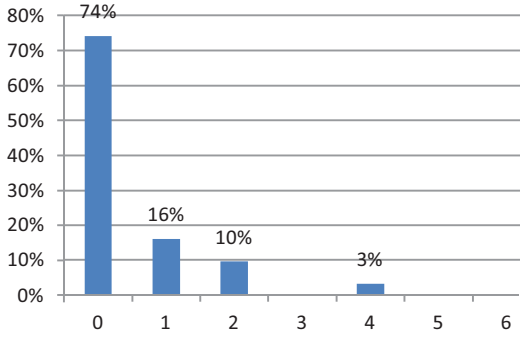


Fig. 49; Temporary classrooms (N=32).

Furthermore, it becomes clear that almost all schools have a staff room and room for the principal. Only De Smitse in Purmerend lacks both rooms. However, this school shares a building the De Ploegschaar (both of foundation CPOW) and consequently, they share the principal's office. Fig. 50 gives an overview of the additional rooms in the schools.

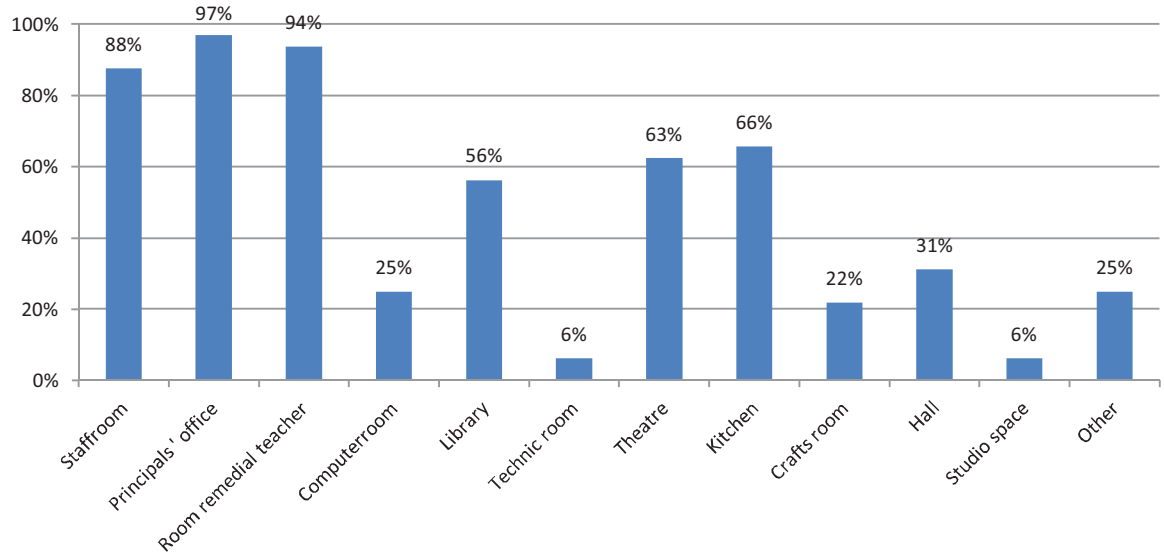


Fig. 50; Additional rooms in the schools (N =32).

[60] 12 temporary classrooms * 50 m^2 = 600m^2. 600m^2 = 1,3% of 45899 m^2.

4.4 Current mismatch

4.4.1 According to the enriched-BAG

Based on the current demand and supply as discussed in the paragraphs above, the current mismatch between demand and supply is calculated. Table 32 gives an overview of the current mismatch. As shown, there is a total vacancy among the schools of circa 2,2 million m^2 (23,59% of the total supply) and a surplus among schools of circa 1,5 million m^2 (15,72% of the total supply). The GFA in the data set only takes into account the floor space of the school. Therefore shared use of school buildings is not visible. However, as discussed in paragraph 2.5.2.1, municipalities are allowed to assign obsolete floor space to schools with a shortage of floor space. Therefore the total shortage can be subtracted from the total vacancy, under the assumption that municipalities will assign empty space to schools in need and that therefore much of the vacant floor space is used by other schools.

This leads to the conclusion that there is approximately 0,75 million m^2 vacant school floor place. This is 7,87% of the total stock of primary school real estate in the Netherlands. This is on average 111 m^2 per school, which is the equivalent of two classrooms[61].

Table 32; Current mismatch 2013 (N=6802).

year	2013	
	total	average per school
demand GFA (m2)	8.865.589	1.303
supply GFA (m2)	9.622.977	1.415
vacancy	757.388	111
percentage of supply	7,87%	7,87%
total vacant GFA	2.270.543	
percentage of supply	23,59%	
total GFA shortage	1.513.155	
percentage of supply	15,72%	

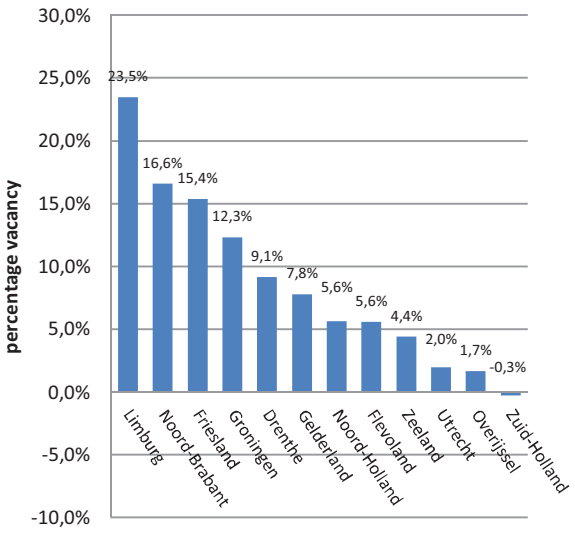


Fig. 51; Relative vacancy per province.

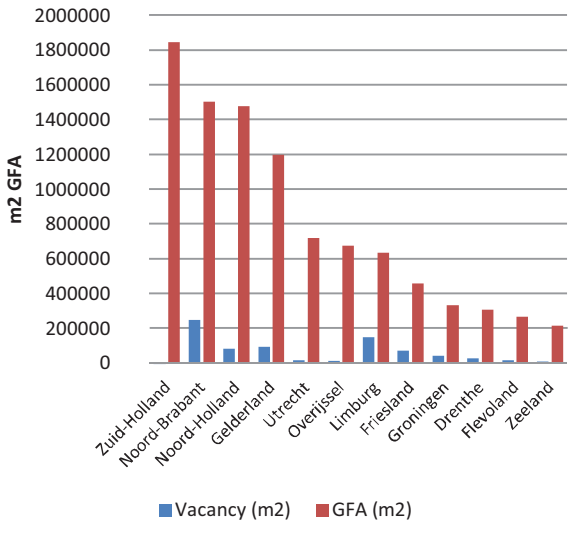


Fig. 52; Absolute GFA and vacancy per province.

[61] Circa 7m x 7m per classroom.

This leads to the conclusion that overall there are too much primary school buildings. Fig. 51 gives an overview of the relative vacancy per province. As shown, Friesland, Limburg and Noord-Brabant have by far the biggest relative vacancy among their primary school stock. Interestingly, these provinces also have the highest population decline, as described in chapter 2.7.1. These results meet the expectations based on literature.

Fig. 52 gives an overview of the absolute primary school real estate stock and absolute vacancy per province. Clearly, Zuid-Holland, Noord-Holland and Noord-Brabant have the biggest stock. Drenthe, Flevoland and Zeeland are hold the smallest stock of primary schools.

Furthermore, Gelderland, Noord-Brabant, Noord-Holland and Zuid-Holland also have the most schools in absolute numbers (see Fig. 54). However, the schools in Limburg, Noord-Brabant and Noord-Holland are on average the biggest (see Fig. 53).

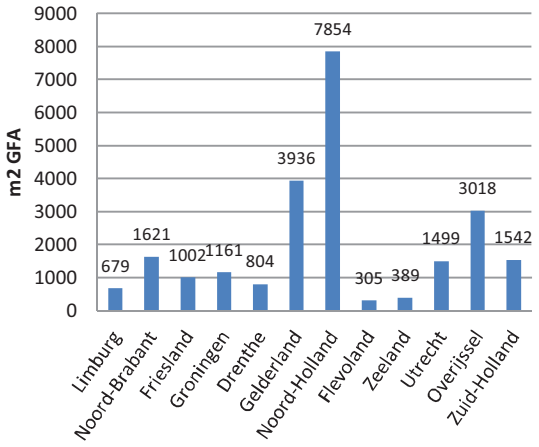


Fig. 53; Average school size (GFA) per province (N=6802).

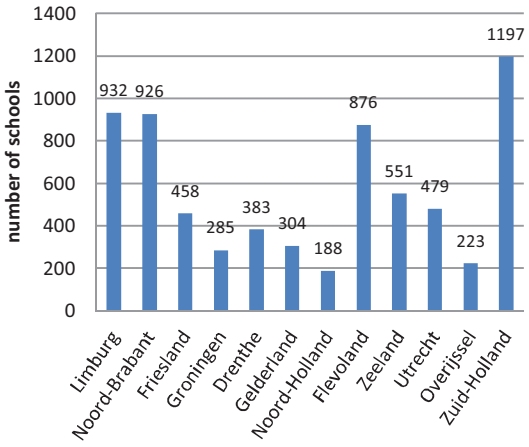


Fig. 54; Number of schools per province (N=6802).

On municipal[62] level, 38,5% of the municipalities have a shortage or vacancy of floor space that does not exceed 10% of their total supply. According to the data, 39% of the municipalities have a shortage of floor space among their primary schools and 61,3% are confronted with vacancy. 80% of the municipalities with vacancy have a relative vacancy below 25%. The same holds true for the relative shortage of municipalities with too little primary school floor space. Fig. 55 shows a distribution of the vacancy or shortage among municipalities.

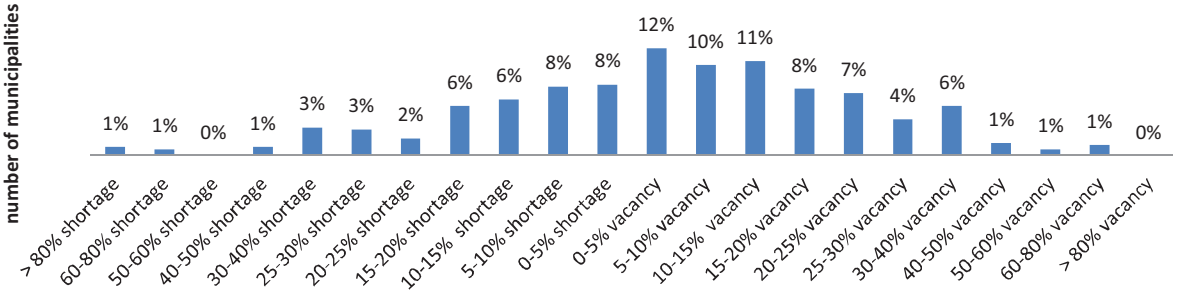


Fig. 55; Distribution of vacancy by percentage among municipalities (N=408).

An overview of all the results based on the (enriched) information of the BAG can be found in Appendix F.

[62] In all calculations, the list of municipalities in 2013 is used. In 2013 there were 408 municipalities in the Netherlands.

4.4.2 According to the Verified Municipal Data (VMD)

Based on the data of the DUO (2013) there is a current demand of approximately 2,3 million m^2 GFA. Based on the information of the municipalities, there is a current supply of approximately 2,6 million m^2 GFA. As a consequence there is approximately 0,3 million m^2 GFA vacant floor space (see Table 33). That is 11,92% of the total supply.

Table 33; current supply and demand 2013 74 municipalities (N =1560).

year	2013	
	total	average per school
demand GFA (m2)	2.341.428	1.501
supply GFA (m2)	2.658.447	1.704
vacancy	317.019	203
percentage of supply	11,92%	11,92%
total vacant GFA	580.728	
percentage of supply	21,84%	
total GFA shortage	-263.709	
percentage of supply	9,92%	

This is considerably higher than the result of the overall BAG (7,87%). This might be caused by the fact that the municipalities were selected based on their excessive vacancy or shortage. It was assumed that this data was erroneously. As it turns out, this dataset contains 145 schools (9,29%) with more than 1000 m^2 vacant floor space. This is relatively more than in the BAG-data (7,95%). Furthermore, the BAG-dataset contained 6,57% of the school buildings with more than 1000 m^2 GFA shortage while in the data of these municipalities only 5,38% of the schools have a shortage of more than 1.000 m^2 GFA. Fig. 56 gives an overview of the distribution of vacancy and shortage of GFA in this dataset.

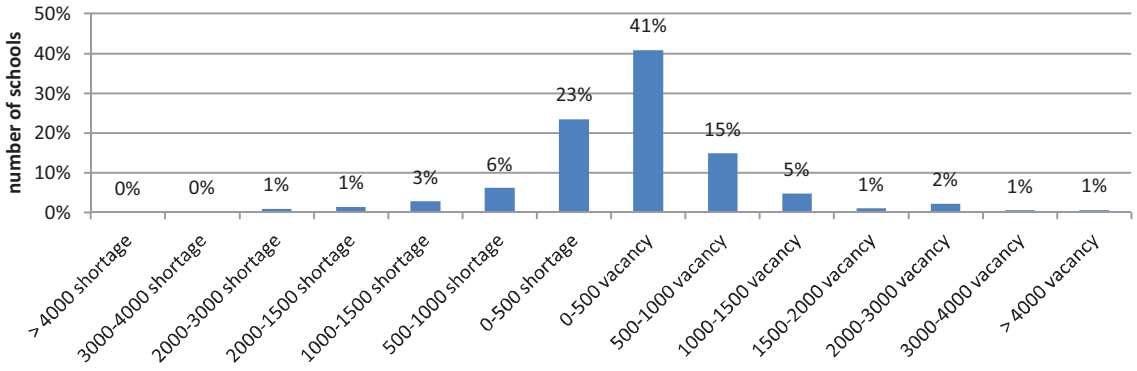


Fig. 56; Distribution of shortage and vacancy (m^2) among schools (N = 1560).

Both in the municipal dataset (64,29%) as well as in the BAG (66,66%), one third of the schools have between 500 m^2 GFA shortage and 500 m^2 GFA vacancy. This leads to the conclusion that the municipalities that sent extra data indeed had, compared to the overall BAG data, an above average vacancy among their schools. Because these municipalities were not randomly selected[63] no general conclusions regarding the national situation can be drawn, based on this data set.

[63] It should be noted that this data set contains no schools from Friesland. And only 34 schools from Drenthe are included.

4.4.2.1 Difference between the datasets

In order to check the significance of the differences between the two datasets, a t-test[64] is performed. The significance level used is p<0,05. The variability of the growth of the municipality and vacancy in the two datasets is not significantly different, but there is a statistically significant difference between the means of the two datasets, which exceed chance.

Furthermore, it is concluded that variability of the building years of the schools in the two datasets is significantly different, but there is no statistically significant difference between the means of the two datasets.

And last, the number of children in the postcode area, the regions of population decline, average size of the municipalities and rejuvenation in the municipalities are all significantly different.

Table 34; Independent samples test BAG and VMD.

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
						Lower	Upper
VACANCY_2013	2,57	0,109	-4,25	0,000	-119,209	-174,198	-64,221
			-4,647	0,000	-119,209	-169,506	-68,912
Building year	11,991	0,001	0,792	0,428	1,385	-2,042	4,812
			0,561	0,575	1,385	-3,460	6,230
Decline region	235,975	0	-6,919	0,000	-0,089	-0,114	-0,064
			-7,383	0,000	-0,089	-0,112	-0,065
Growth municipality	0,906	0,341	-5,818	0,000	-0,003	-0,003	-0,002
			-6,56	0,000	-0,003	-0,003	-0,002
Children in vicinty	44,162	0	-12,877	0,000	-330,712	-381,057	-280,367
			-11,436	0,000	-330,712	-387,421	-274,002
Size municipality	533,115	0	-20,746	0,000	-100277,118	-109752,551	-90801,686
			-15,387	0,000	-100277,118	-113058,253	-87495,983
rejuvenation	20,458	0	-2,391	0,017	-0,002	-0,004	0,000
			-3,82	0,000	-0,002	-0,004	-,00120

Furthermore it is noted that the municipalities note on average a reduction of 1.088m^2 or 6,28% of their current supply when compared to the error-checked version of the BAG. On average the amount floor space was increased by the municipalities is 6.643 m^2 GFA and on average the municipalities that reduced their stock stated a reduction of 19.910 m^2 GFA. As displayed below, most (48%) municipalities increased their total stock with 500 m^2 GFA at max.

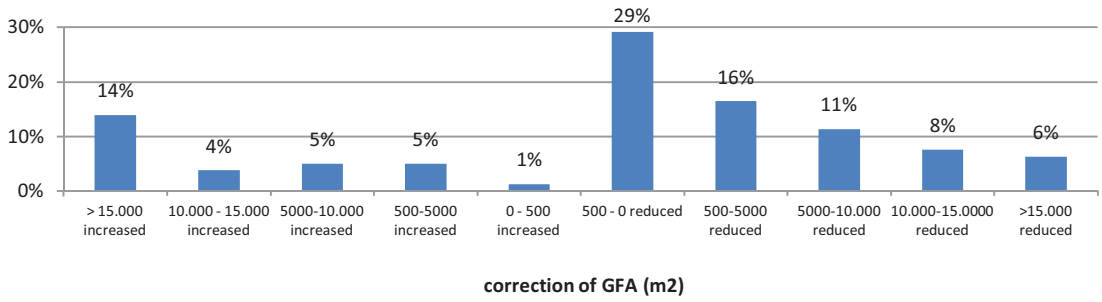


Fig. 57; Distribution of correction of the BAG dataset.

[64] Independent samples t-test.

4.4.3 According to the Verified sample

Based on the information of the municipality, it is concluded that there is an overall vacancy of 7,5% in the Verified sample (see Table 35). However, it becomes clear that the vacancy differs quite among the municipalities. Horst aan de Maas has the highest average vacancy (12,9%) while Purmerend has the lowest average vacancy (3,6%).

Table 35; Current mismatch GFA (N=32).

	supply	demand	vacancy	percentage of supply
Group 3 (Purmerend)	22.967	22.142	826	3,6%
Group 2 (Horst aan de Maas)	17.338	15.095	2.243	12,9%
Group 1 (Brielle)	5.594	5.226	368	6,6%
Total	45.899	42.462	3.437	7,5%

When looking at the classrooms and assuming that every group is located in an individual classroom, almost the same picture arises. Only in Purmerend there is more vacancy looking at the classrooms. This might be caused by the fact that the school Kawana has a very high average number of children per groups[65].

Table 36; Current mismatch classrooms (N=32).

	Groups	Perm. Classrooms	Temp. Classrooms	Total classrooms	Vacant classrooms	Percentage of total classrooms
Group 3 (Purmerend)	139	143	7	150	11	7,3%
Group 2 (Horst aan de Maas)	100	114	1	115	15	13,0%
Group 1 (Brielle)	36	32	7	39	3	7,7%
Total	275	289	15	304	29	9,5%

While the percentages seem to match on a municipal scale, this is not true on school level. The percentages vacancy as calculated according to the standard (NORM_PERC) and based on the groups (GROUP_PERC) differ significantly (p= 0,060).

Table 37; T-test vacancies.

	Paired Differences					t	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
				Lower	Upper		
NORM_PERC - GROUP_PERC	-0,0799	0,2195	0,0408	-0,1634	0,0035	-1,961	0,06

This might be caused by two factors. First, measuring groups does not account for the number of children per group. As a consequence, the groups can be very small. This would result in vacancy according to the standard, while the classroom is still in use by a group.

Furthermore, none of the schools seems to have a shortage of floor space. However, according to the standard 39% of the schools has a shortage. In practice these children will be placed in larger groups. Consequently, this is not accounted for in the calculation of vacancy in groups.

Therefore it is concluded that measuring vacancy in groups is a error-prone expression of the actual situation.

[65] OBS Kawana has 584 students and 14 groups, which make an average groups size of 42 students.

4.4.3.1 Vacancy according to the principals

According to the municipal data, 56,25% of the schools has a vacancy. Interestingly, only 44% of the principals reports vacancy (see Fig. 59). The principals were asked to indicate the amount (GFA) of vacancy (see Fig. 58). Strikingly, on average the difference between the reported vacancy and the municipal data is 67m^2. The principals report on average only 37% of the vacancy that could be concluded as a result of the municipal data. Table 38 gives an overview of the vacancy as indicated by the principals per municipality.

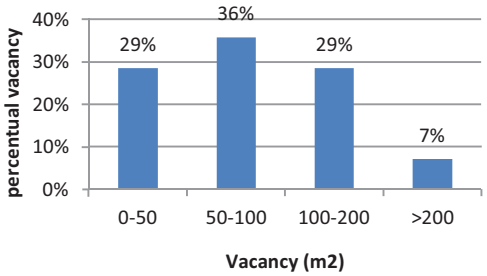


Fig. 58; Distribution of vacancy according to the principals (N=32).

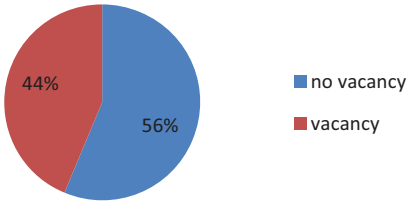


Fig. 59; Vacancy according to the principals (N=32).

This difference can be caused by the fact that 44% of the schools rent a total of 1.002 m^2 floor space to third parties (see Fig. 60). 71% of the schools of which the principal indicates vacancy, rents floor space to third parties. In 31% of the cases in which there is vacancy based on the municipal data, the school principal indicates rent to third parties.

On average, the schools rent 71 m^2 to third parties. This corresponds with difference the between the reported vacancy and the municipal data (67m^2). Fig. 61 shows that the schools rent approximately one or two classrooms to other parties[66].

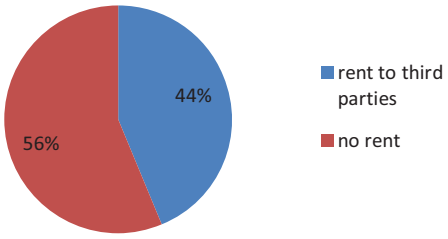


Fig. 60; Rent to third parties (N=32).

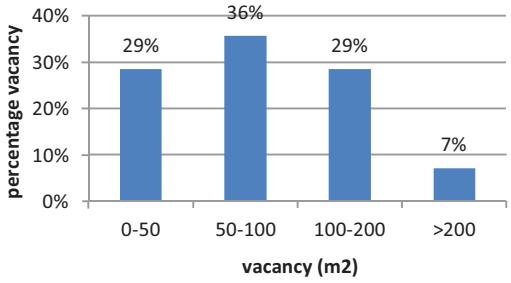


Fig. 61; Distribution of the amount (m^2) GFA rent to third parties (N=14).

In 27% of the schools, this rent to third parties happens on a daily basis. Child care is most (18%) mentioned. Moreover, various associations use 42% of the schools as their basis (in 27% of the schools on a weekly basis).

Based on the data of the three municipalities, it is concluded that vacancy among primary schools is dampened by the rent of floor space from the schools to other parties. As a result, the school space is not empty. Nevertheless, it is not used for its primary purpose: primary education.

[66] Assuming an average classroom size of 7 x 7 m.

Additionally it should be noted that school principals have a strong incentive to downplay the amount of vacant floor space in their building, since it gives them extra floor space or allows the school to rent floor space to third parties.

However, overall, 29% of the vacancy registered by the municipality seems to be rented to third parties. This leads to the conclusion that one-third of the vacancy is solved by the schools themselves.

Table 38; Current mismatch and rented GFA 2013 (N=31).

	supply munipality	demand	vacancy principals	vacancy municipality	rented	rented/vac. Muni
Group 3 (Purmerend)	22.967	22.142	592	826	405	49%
Group 2 (Horst aan de Maas)	17.338	15.095	689	2.243	497	22%
Group 1 (Brielle)	5.594	5.226	0	368	100	27%
Total	45.899	42.462	1.281	3.437	1.002	29%

4.4.3.2 Sub conclusions

Based on the information obtained though the surveys several things can be concluded:

1. Many schools have temporary classrooms. Often these classrooms are containers placed on the schoolyard for temporary use. It remains unknown whether the BAG takes these buildings into account. If the BAG does not take these temporary classrooms into account the total stock might be 1,3% larger.
2. Calculation of the vacancy of a school based on classrooms does not lead to very different vacancy percentages on a municipal level. However, this method does not take the group size into account and is therefore an unreliable method of calculation on school to school basis.
3. The principals have a strikingly different perception of vacancy. 10% of the principals state that they have no vacancy, although the calculation based on the standard indicates the contrary. Furthermore, the vacancy reported by the principals accounts for 37% of the vacancy as calculation based on the standard.
4. 27% of the schools rent floor space to third parties on a daily basis. Most often this concerns child care. Although this space is only in use outside school time, it is not completely vacant. On average the rented space accounts for circa 30% of the vacancy as calculated based on the standard. If this is true for all schools this would mean an overall reduction of the vacancy of 30%.

4.5 Subconclusion

Based on the data from the BAG it is concluded that there is an average national vacancy among regular primary schools of 7,87%. Based on the media as mentioned in chapter 0 it seems that there is a imminent threat of very high levels of vacancy among primary schools in the Netherlands. However, the vacancy levels found in this research are not alarmingly high. Therefore it is concluded that the issue of vacancy among primary schools as framed in the media articles mentioned is exaggerated on a national scale. Nevertheless, the problem might be imminent in specific local situations.

Furthermore, it becomes clear that the vacancy rates are on average much higher in the provinces of Friesland, Groningen, Noord-Brabant and Limburg. This is in line with the expectations since these provinces hold regions of population decline as discussed in chapter 2.7.1.

Based on the selection of municipalities it is concluded that the vacancy rates are even higher, up to an average of 11,92%.

Although the case studies confirm the national average vacancy with 7,49%, the situation is different when taken a closer look. It turns out that circa one-third of the vacancy as registered by the municipality is recognized by the principals as vacancy. Another one-third of the vacancy as registered by the municipality is rented to third parties. The last one-third of the vacancy as registered by the municipality is not accounted for and can be regarded as the discrepancy of the perception between the perception of the municipality and principal's of the floor space supply.

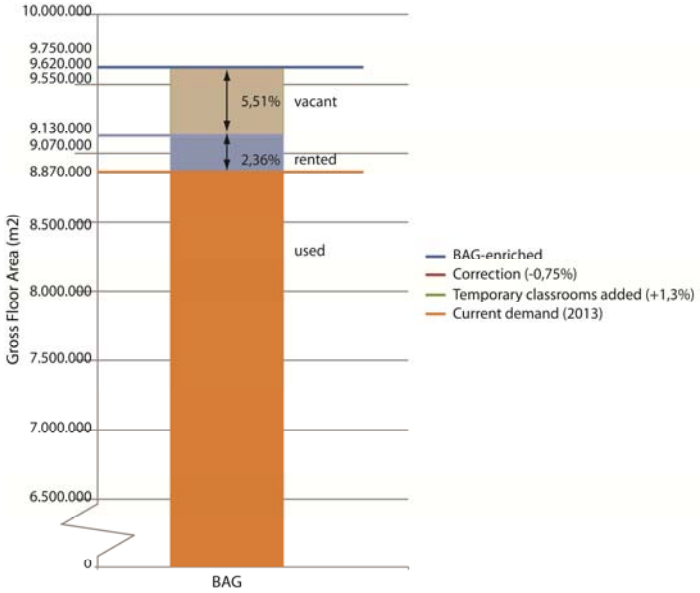


Fig. 62; Mismatch according to the BAG (2013).

In chapter 2.5.2, it became clear that schools only qualify for extension of the existing building when the shortage exceeds 55m^2. This can be assumed to be the friction vacancy necessary to adapt to demand changes, which is on average 4%[67]. Clearly the vacancy levels found exceed this 4%. However, this does not lead to alarming percentages of vacancy on a national scale.

Furthermore, based on the data of the three municipalities, it is concluded that there is a large discrepancy between the vacancy as concluded based on the BAG or municipal data and the situation as perceived by the principals of the schools. Furthermore, it is concluded that one-third of the registered vacancy is in practice used by third parties to whom the schools rented floor space.

[67] The average schools is 1415m^2. 55m2 / 1415m^2 = 3,9%.

4.6 What are the most important predictors of vacancy?

In order to find predictive correlations with the dependent variable vacancy, multilevel linear model analysis is used to find the correlations between various factors and vacancy. The results will be discussed separately for the BAG, the Verified Municipal Data and the Verified sample.

4.6.1 Correlations according to the BAG

The final model (N = 6803) of the BAG (ACI = 111158) contains the building year of the schools, the denomination and the number of children in the postal code area (see Table 39).

The question remains to what extent the various factors affect the vacancy among school.

Table 39; Fixed effects for BAG (N= 6803, without Cito-score).

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	1399,042	56,946	,000
Building year	5	6707,100	9,763	,000
Denomination	1	6707,353	10,912	,001
Children in vicinity	1	4201,054	16,438	,000

a. Dependent Variable: VACANCY_2013.

The impact of the various factors, differentiated for their categories is displayed in Table 40.

Table 40; Estimates of fixed effects of the various factors for BAG (N= 6803, without Cito-score).

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	352,076	47,885	5137,480	7,352	,000	258,200	445,953
[1600-1944]	-193,101	56,736	6710,646	-3,404	,001	-304,321	-81,881
[1945-1959]	-186,173	55,332	6701,973	-3,365	,001	-294,642	-77,704
[1960-1984]	-169,402	44,523	6709,116	-3,805	,000	-256,681	-82,122
[1985-1996]	-334,724	52,458	6706,505	-6,381	,000	-437,559	-231,890
[1997-2007]	-272,877	51,582	6710,463	-5,290	,000	-373,994	-171,761
[post 2008]	0b	0	.	.	.	.	.
[Public]	83,318	25,223	6707,353	3,303	,001	33,873	132,762
[Private]	0b	0	.	.	.	.	.
Children in vicinity	-,061	,015	4201,054	-4,054	,000	-,091	-,032

a. Dependent Variable: VACANCY_2013.

b. This parameter is set to zero because it is redundant.

The sensitivity analysis of this model shows some interesting results. Schools built in the 80s and 90s have by far the lowest vacancy rates. Strikingly, the school buildings built after 2008 are most likely to have the highest vacancy rates. This unexpected result might be caused by a tendency to built new school buildings with the expectation of growth.

Furthermore, it becomes clear that schools built in 1960-1984 have the second highest vacancy rates, followed by schools built in the fifties. This was expected, since these school buildings do not meet the standards of this time in terms of climate, facilities, quality and floor space.

Furthermore it becomes clear that public schools are positively related to vacancy. Other (often religious) denominations are related with less vacancy.

Based on the results of the regression analysis as shown in Table 40, the following equation can be determined which expresses the predicted relationship between vacancy and the independent variables:

Vacancy$_i$ = 352,*08*$_{10}$ *-193,10*[Building year = 1600-1944]$_i$ *-186,17*[Building year = 1945-1959]$_i$ *-169,40*[Building year = 1960-1984]$_i$ *-334,72*[Building year = 1985-1996]$_i$ *-272,88*[Building year = 1998-2007]$_i$ + 0$_a$[Building year = post 2008]$_i$ +83,32[Denomination = public]$_i$ + 0$_a$[Denomination = Private]$_I$ −0,*061*[number of children in the postal code area]$_I$ + ε_i

(a) this parameter is set to zero because it is redundant

4.6.1.1 BAG with Cito-scores

The final model (N = 5611) of the BAG including the Cito-scores (ACI = 88036) contains the building year of the schools, the denomination, the number of children in the postal code area and of course the Cito-score (see Table 41).

The question remains to what extent the various factors affect the vacancy among school.

Table 41; Fixed effects for BAG (N= 5611, with Cito-score).

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	5329,689	110,368	,000
Building year	5	5323,893	8,392	,000
Denomination	1	5313,495	3,334	,068
Children in vicinity	1	3482,976	19,204	,000
Cito-score 2013	1	5329,587	107,820	,000

a. Dependent Variable: VACANCY_2013.

The impact of the various factors, differentiated for their categories is displayed in Table 42.

Table 42; Estimates of fixed effects of the various factors for BAG (N= 5611, without Cito-score).

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	17713,028	1669,121	5329,507	10,612	,000	14440,868	20985,188
[1600-1944]	-196,724	61,513	5328,624	-3,198	,001	-317,315	-76,133
[1945-1959]	-216,522	59,313	5320,156	-3,651	,000	-332,800	-100,245
[1960-1984]	-212,605	47,680	5329,539	-4,459	,000	-306,076	-119,133
[1985-1996]	-345,078	56,833	5326,185	-6,072	,000	-456,494	-233,662
[1997-2007]	-293,239	55,590	5329,900	-5,275	,000	-402,217	-184,260
[post 2008]	0b	0	.	.	.	.	.
[Public]	51,224	28,052	5313,495	1,826	,068	-3,769	106,216
[Private]	0b	0	.	.	.	.	.
Children in vicinity	-,073	,017	3482,976	-4,382	,000	-,105	-,040
Cito-score 2013	-32,373	3,1182	5329,587	-10,384	,000	-38,485	-26,261

a. Dependent Variable: VACANCY_2013.
b. This parameter is set to zero because it is redundant.

The sensitivity analysis of the model after adding the average Cito test results of the school in 2013 showed roughly the same ranking of correlations of the independent variables to vacancy, as discussed with regard to the model without the Cito-scores.

However, it becomes clear that there is a significant ($p < 0,000$) negative effect of the Cito-scores on vacancy, as was predicted.

Furthermore, the intercept of this model is strikingly higher[68]. This effect is caused by the addition of the Cito-scores as variable, which is by definition never lower than 500. T-test analysis (see Table 43) shows that there is no significant variance of the means, nor the distribution between schools with or without Cito-tests. Based on this, it can be concluded that the two sets are not significantly different, regarding the vacancy levels.

[68] About 40 times higher (18103/437 = 41,4).

Table 43; T-test for the means of Vacancy_2013 of BAG and the schools with a Cito-test.

Independent Samples Test							
	Levene's Test for Equality of Variances	t-test for Equality of Means					
	Sig.	t	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
VACANCY_2013	,391	,012	,991	,358	30,113	-58,673	59,390
		,011	,991	,358	31,188	-60,809	61,526

Based on the results of the regression analysis as shown in Table 42, the following equation can be determined which expresses the predicted relationship between vacancy and the independent variables:

Vacancy$_i$ = *176713,03*$_{10}$ *-196,72*[Building year = 1600-1944]$_i$ *-216,52*[Building year = 1945-1959]$_i$ *-212,61*[Building year = 1960-1984]$_i$ *-345,08*[Building year = 1985-1996]$_i$ *-293,24*[Building year = 1998-2007]$_i$ + 0$_a$[Building year = post 2008]$_i$ *+51,22*[Denomination = public]$_i$ + 0$_a$[Denomination = private]$_I$ *−0,07*[number of children in the postal code area]$_I$ −32,38[Cito-score 2013]$_I$ + ε_i

(a) this parameter is set to zero because it is redundant

4.6.2 Correlations according to the VMD

The final model (N = 1560) of the Verified municipal data (ACI = 24781) contains the building year of the schools, the denomination and the number of children in the postal code area and the Cito-score (see Table 44). In addition to the overall BAG, in this dataset the rejuvenation of the municipality is significantly correlated as well.

Table 44; Fixed effects for VMD (N= 1560, without Cito-score).

Type III Tests of Fixed Effects[a]				
Source	Numerator df	Denominator df	F	Sig.
Intercept	1	159,697	19,609	,000
Building year	5	1518,330	4,252	,001
Denomination	1	1520,110	8,319	,004
Children in vicinity	1	1366,026	5,975	,015
Rejuvenation	1	61,700	6,540	,013

a. Dependent Variable: VACANCY_2013.

The question remains to what extent the various factors affect the vacancy among schools. The impact of the various factors, differentiated for their categories is displayed in Table 45.

Table 45; Estimates of fixed effects of the various factors for VMD (N= 1560, without Cito-score).

Estimates of Fixed Effects[a]							
Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	200,654	106,191	205,788	1,890	,060	-8,708	410,017
[1600-1944]	-40,979	95,034	1522,340	-,431	,666	-227,392	145,433
[1945-1959]	-108,312	101,641	1521,445	-1,066	,287	-307,685	91,059
[1960-1984]	-69,663	74,169	1524,000	-,939	,348	-215,147	75,821
[1985-1996]	-265,882	85,073	1523,910	-3,125	,002	-432,756	-99,008
[1997-2007]	-268,869	85,667	1519,966	-3,139	,002	-436,909	-100,829
[post 2008]	0b	0	.	.	.	.	.
[Public]	128,008	44,382	1520,110	2,884	,004	40,951	215,065
[Private]	0b	0	.	.	.	.	.
Children in vicinity	-,056	,023245	1366,026	-2,444	,015	-,102	-,011
No rejuvenation	224,918	87,951	61,700	2,557	,013	49,088	400,748
Rejuvenation	0b	0	.	.	.	.	.

a. Dependent Variable: VACANCY_2013.
b. This parameter is set to zero because it is redundant.

The findings regarding the building years in relation to vacancy match the analysis of the BAG: very old and very new buildings have the highest vacancy rates.

Moreover, in line with the conclusions of the previous two models, it is concluded that public schools are most likely to have the highest vacancy rates. Also, protestant schools are expected to hold the lowest vacancy rates (p = 0,004).

The rejuvenation of the municipality has a significant (p = 0,013) negative correlation with vacancy.

Based on the results of the regression analysis as shown in Table 45, the following equation can be determined, which expresses the predicted relationship between vacancy and the independent variables:

$$\textbf{Vacancy}_i = 200{,}65_{10} - 40{,}98[\text{Building year} = \text{1600-1944}]_i - 108{,}31[\text{Building year} = \text{1945-1959}]_i - 69{,}66[\text{Building year} = \text{1960-1984}]_i - 265{,}88[\text{Building year} = \text{1985-1996}]_i - 268{,}87[\text{Building year} = \text{1998-2007}]_i + 0_a[\text{Building year} = \text{post 2008}]_i + 128{,}01[\text{Denomination} = \text{public}]_i + 0_a[\text{Denomination} = \text{private}]_I - 0{,}06[\text{number of children in the postal code area}]_I + 224{,}92\ [\text{rejuvenation} = \text{negative}]_I + 0_a[\text{rejuvenation} = \text{positive}] + \varepsilon_i$$

(a) this parameter is set to zero because it is redundant

4.6.2.1 Verified municipal data with Cito-scores

The final model (N = 1156) of the Verified municipal data and the Cito-scores (ACI = 18224) contains the building year of the schools, the denomination, the number of children in the postal code area and the Cito-score as significantly correlated with vacancy (see Table 46).

The question remains to what extent the various factors affect the vacancy among school.

Table 46; Fixed effects for VMD (N= 1156, with Cito-score).

Type III Tests of Fixed Effects[a]				
Source	Numerator df	Denominator df	F	Sig.
Intercept	1	1134,926	49,381	,000
Building year	5	1130,186	2,524	,028
Cito Score 2013	1	1134,791	48,283	,000
Children in vicinity	1	897,859	5,458	,020
Rejuvenation	1	51,680	3,911	,053

a. Dependent Variable: VACANCY_2013.

The impact of the various factors, differentiated for their categories is displayed in Table 47.

Table 47; Estimates of fixed effects of the various factors for BAG (N= 1156, with Cito-score).

Estimates of Fixed Effects[a]							
Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	18711,213	2663,301	1134,969	7,026	,000	13485,665	23936,762
[1600-1944]	-39,788	95,299	1134,673	-,418	,676	-226,771	147,194
[1945-1959]	-53,101	102,415	1134,746	-,518	,604	-254,046	147,844
[1960-1984]	-59,291	74,315	1130,489	-,798	,425	-205,102	86,519
[1985-1996]	-175,488	88,082	1134,056	-1,992	,047	-348,310	-2,666
[1997-2007]	-247,766	87,031	1134,455	-2,847	,004	-418,527	-77,005
[post 2008]	0b	0	.	.	.	.	.
Cito Score 2013	-34,528	4,969	1134,791	-6,949	,000	-44,277	-24,778
Children in vicinity	-,055	,023	897,859	-2,336	,020	-,101	-,008
No rejuvenation	160,701	81,260	51,680	1,978	,053	-2,382	323,786
Rejuvenation	0b	0	.	.	.	.	.

a. Dependent Variable: VACANCY_2013.
b. This parameter is set to zero because it is redundant.

Based on the results of the model (see Table 47), the ranking and interpretation of the correlations of the factors is quite similar to the conclusions based on the model without the Cito-scores. Furthermore, the effect of the Cito-score on vacancy (-34,528) found in this database, matches the effect as found in the BAG as a whole (-32,373).

However, it should be noted that the denomination of the school no longer had a significant effect on the dependent variable. This variable is therefore left out of the analysis.

Vacancy$_i$ = 18711,21$_{10}$ *-39,79*[Building year = 1600-1944]$_i$ *-53,10*[Building year = 1945-1959]$_i$ *-59,29*[Building year = 1960-1984]$_i$ *-175,49*[Building year = 1985-1996]$_i$ *-247,77*[Building year = 1998-2007]$_i$ + 0$_a$[Building year = post 2008]$_i$ *–34,53*[Cito-score 2013]$_I$ –0,*06*[number of children in the postal code area]$_I$ –160,70[rejuvenation = negative]$_I$ + 0$_a$[rejuvenation = positive]$_i$ + ε_i

(a) this parameter is set to zero because it is redundant

4.6.3 Correlations according to the Verified sample

The final model of the Verified sample (AIC: 383) contains seven factors of the school. Table 48 contains an overview of the fixed effects of the model.

The dependent variable (Vancancy_2013) of this model is the vacancy as calculated based on the government standard.

Interestingly, contrary to the expectations, social aspects like bullying and the expected growth of the number of students turned out to be not significant.

Furthermore, aspects related to the internal climate –except for adequate heating- like light, cooling and ventilation were also not significantly correlated with vacancy.

Table 49 gives an overview of the various relationships of the factors with the dependent variable.

Table 48; Fixed effects for the Verified sample (N= 31).

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	28	2,076	,161
Clear view corridor	1	28	3,369	,077
Principal's office	1	28	22,625	,000
Harmonious height	1	28	3,522	,071
Alignment	1	28	8,284	,008
Type	2	28	7,057	,003
Clustering functions	1	28	5,441	,027
Heating	1	28	4,815	,037

a. Dependent Variable: VACANCY_2013.

Table 49; Estimates of fixed effects of the various factors for the Verified sample (N= 31).

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	65,365	98,999	28	,660	,514	-137,426	268,155
No clear view corridor	186,722	101,736	28	1,835	,077	-21,675	395,119
Clear view corridor	0b	0	.	.	.	.	.
No principal's office	-818,236	172,021	28	-4,757	,000	-1170,605	-465,866
Principals office	0b	0	.	.	.	.	.
No harmonious height	174,869	93,178	28	1,877	,071	-15,998	365,736
Harmonious height	0b	0	.	.	.	.	.
No alignment	254,451	88,406	28	2,878	,008	73,360	435,542
Alignment	0b	0	.	.	.	.	.
Corridor	-97,212	79,455	28	-1,223	,231	-259,969	65,544
Hall	-396,403	105,551	28	-3,756	,001	-612,616	-180,191
Pavilion	0b	0	.	.	.	.	.
No clustering functions	-159,363	68,320	28	-2,333	,027	-299,309	-19,416
Clustering functions	0b	0	.	.	.	.	.
No heating	234,476	106,852	28	2,194	,037	15,599	453,353
Heating	0b	0	.	.	.	.	.

a. Dependent Variable: VACANCY_2013.

b. This parameter is set to zero because it is redundant.

Based on the results as displayed in Table 49, the following equation can be determined which expresses the predicted relationship between vacancy and the independent variables:

$$\textbf{Vacancy}_i = 65{,}36_{10} + \textit{186,72}[\text{no clear view corridor}]_i + 0_a\,[\text{clear view corridors}]_i - \textit{818,23}[\text{no principal's office}]_i + 0_a[\text{principal's office}]_i + \textit{174,87}[\text{no harmonious height}]_i + 0_a\,[\text{harmonious height}]_i + \textit{254,45}[\text{no alignment to buildings}]_i + 0_a[\text{alignment to buildings}]_i - \textit{97,21}[\text{type = corridor}]_i - \textit{396,40}[\text{type = hall}]_i + 0_a\,[\text{type = pavilion}]_i - \textit{159,36}[\text{no clustering functions}]_I + 0_a\,[\text{clustering functions}]_i + \textit{234,48}[\text{heating is not sufficient}]_i + 0_a\,[\text{heating is sufficient}]_i + \varepsilon_i$$

(a) this parameter is set to zero because it is redundant

The various predictive factors found to have a significant correlation with vacancy will be discussed below.

First, as expected (Martens, Walraven & Lucassen, 2013), the presence of a clear view between the classrooms and the corridor is a significant (p = 0,077) predictor for vacancy. It should be noted that this significance level is marginally significant (0,10 < p > 0,05). Therefore, this effect should be considered with a certain amount of caution.

Absence of a visual relationship can be caused by the absence of windows, the windows are too high to look through (Fig. 64), or because the windows are taped with paper (Fig. 63). Based on the model, it could be stated that the absence of such windows is related to higher vacancy. As a result of the absence of such windows, the corridors in the school tend to be very dark. Furthermore, there is no transparency regarding the activities in the classrooms, which might cause an uncomfortable impression of the social atmosphere with visiting parents.

Fig. 63; Taped windows.

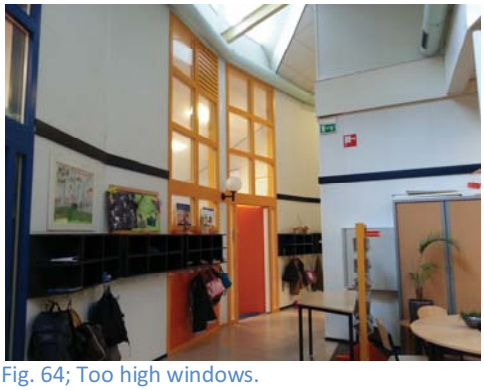


Fig. 64; Too high windows.

Second, the absence of a principal's office is related to less vacancy (p = 0,000). This outcome is caused by a single observation of two schools[69] in the same building with the same principal. Consequently, there is only one principal's office. Therefore it is concluded that this outcome is not an important predictor for vacancy among primary schools.

Third, it was found that schools with a height that was not harmonious with the surrounding buildings [70] (see Fig. 65 and Fig. 66) tend to have more vacancy. This was the case in seven schools. There was no reason based on literature to expect this outcome. Nor was there an explanation found for this outcome.

Fig. 65; Difference in height.

Fig. 66; No difference in height.

Fourth, school buildings that are not aligned with the surrounding buildings (see Fig. 67 - Fig. 68) tend to have more vacancy that schools which are aligned with the surrounding buildings. Often

[69] De Smitse and De Ploegschaar in Purmerend.

[70] i.e.: higher of lower than the surrounding buildings.

schools that are aligned are schools in more densely populated areas like the town centre. This might cause this effect.

Fig. 67; Aligned to surrounding buildings.

Fig. 68; Not aligned to surrounding buildings.

Fifth, the type of school is a significant predictor. In chapter 2.6 three types of school buildings were distinguished: corridor, hall and pavilion schools (see Fig. 69 - Fig. 70). It was concluded that these types of buildings were closely related to periods in time. Corridor schools were common in the years prior to circa 1969 and hall and pavilion schools were built primarily after 1969.

Pavilion schools tend to have the most vacancy, while hall schools have the least (p = 0,001). This is in line with the findings of the analysis of the BAG and VMD. It was found that schools built between 1984 and 2008 have the least vacancy. Schools built previously to 1984 tend to have the most vacancy. This would be pavilion schools.

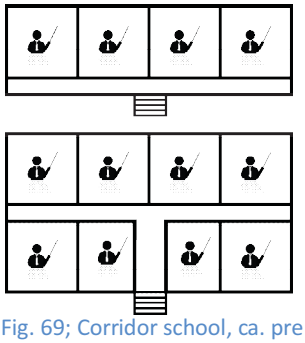


Fig. 69; Corridor school, ca. pre 1969.

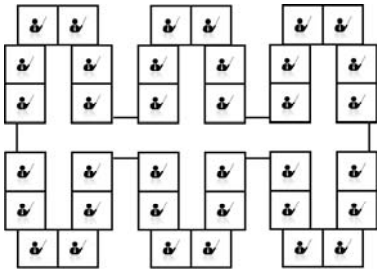


Fig. 70; Pavilion school, ca. 1950-1980.

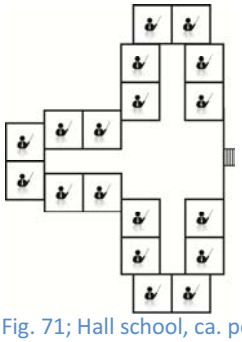


Fig. 71; Hall school, ca. post 1980.

Fig. 72; Corridor of Onder de Linde (1930).

Fig. 73; A pavilion of Klimop (1976).

Fig. 74; Central hall of De Kameleon (2014).

Sixth, contrary to literature (Karsten et al. 2004) the clustering of functions within the school building is significantly (p = 0,027) related to vacancy (see for examples Fig. 75 - Fig. 77). The model states that a clustering of functions predicts more vacancy. It was expected that more functions would attract more students. However, the opposite seems true. The study of supply and demand of the verified sample showed that many schools rent floor space to other parties (see paragraph

4.4.3.1). Therefore this effect can be explained as follows: clustering of functions do not prevent vacancy, but they are a consequence of it. As a result of vacancy, many schools rent floor space to other functions like child care.

Fig. 75; Library at school.


Fig. 76; Child care at school.


Fig. 77; Community centre at school.

Seventh, the absence of adequate heating is significantly (p = 0,037) related to more vacancy. this was as expected (Martens, Walraven & Lucassen, 2013; Karsten et al., 2001). Schools that are unable to provide good internal climate were expected to have higher vacancy rates.

4.6.4 Correlations according with vacancy according to the principals

The final model of the Verified sample (AIC: 239) contains four factors of the school. Table 50 contains an overview of the fixed effects of the model.

The dependent variable of this model (Vancancy_PRINCIPALS) is the vacancy as stated by the principals in the survey.

Interestingly, contrary to the expectations, there is little similarity with the outcome of the model of the vacancy as calculated by the government standard.

Table 50; Fixed effects for the Verified sample (N= 31).

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	29	,244	,625
Harmonious height	1	29	4,342	,046
Special archicture	1	29	6,313	,018
Size playing ground	1	29	20,918	,000
Number of groups	1	29	8,283	,007

a. Dependent Variable: VACANCY_PRINCIPALS.

Table 51 gives an overview of the various relationships of the factors with the dependent variable.

Table 51; Estimates of fixed effects of the various factors for the Verified sample (N= 31).

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-19,186565	19,203263	29	-,999	,326	-58,461647	20,088517
No harmonious height	26,244758	12,595219	29	2,084	,046	,484642	52,004874
Harmonious height	0b	0	.	.	.	.	.
No special archicture	28,101122	11,184180	29	2,513	,018	5,226906	50,975338
Special archicture	0b	0	.	.	.	.	.
Size playing ground	,044518	,009734	29	4,574	,000	,024610	,064425
Number of groups	-3,898259	1,354481	29	-2,878	,007	-6,668483	-1,128035

a. Dependent Variable: VACANCY_PRINCIPALS.
b. This parameter is set to zero because it is redundant.

Based on the results as displayed in Table 51, the following equation can be determined which expresses the predicted relationship between vacancy and the independent variables:

Vacancy$_i$ = -19,17$_{10}$ + *186,72*[no clear view corridor]$_i$ + 0$_a$ [clear view corridors]$_i$ – *818,23*[no principal's office]$_i$ + 0$_a$[principal's office]$_i$ + *26,24*[height = 0]$_i$ + 0$_a$ [height = 1]$_i$ + *28,10*[no special architecture]$_i$ + 0$_a$[special architecture]$_i$ + *0,04*[size playing ground]$_i$ – *3,89*[number of groups]$_i$ + ε_i

(a) this parameter is set to zero because it is redundant

As was found in the model of the calculated vacancy, no harmonious height of the school building with the surrounding buildings was found (p = 0,046) to be related to more vacancy.

Second the presence of special architecture seems to significantly (p = 0,007) decrease vacancy. Schools with special architecture can be divided in three groups: very old buildings (ca. 100 years), brand new buildings and schools with a special entrance (see Fig. 78 - Fig. 84). Therefore, the factor special architecture can be regarded as a proxy for building years. The findings fit the conclusion of the previous analyses that very old school buildings tend to have the least vacancy. The finding that new school buildings (post 2008) are related to most vacancy as concluded based on the BAG and the VMD is not supported by this analysis.

Old school building
Schools built at circa 1900-1930 with a charming, well maintained old building.

Fig. 78; 't Geuzenschip.
Building year:1930

Fig. 81; Onder de Linde.
Building year: ca.1930 + new part 2001

Fig. 84; St. Annaschool.
Building year: ca.1900 + new part 1960

New buildings
Brand new school buildings with state of the art functions.

Fig. 79; De Kameleon.
Building year: 2014

Fig. 82; Het Baken.
Building year: 2014

Special entrance
Schools with a very special entrance. In combination with the school name of to draw attention to the building.

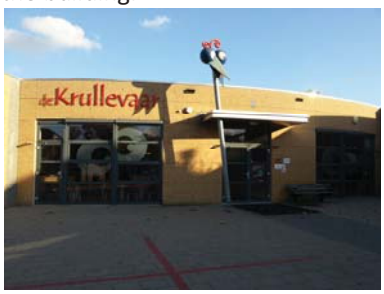


Fig. 80; Krullevaar.
Building year: 2006

Fig. 83; Koempoelan.
Building year: 1998

Furthermore, based on the model it is concluded that the size of the playing ground positively affects vacancy (p = 0,000). The larger the playing ground, the higher the vacancy. This might by caused by the fact that a larger playing ground absorbs larger budget for maintenance, leaving little for maintenance of the building and educational purposes. However, this effect needs more exploration for final conclusions.

Last, the number of groups of the school is significantly (p= 0,007) related to vacancy. The model states that the more groups, the lower the vacancy. This is a sequacious finding: principals will only regard floor space vacant when they cannot fill the room with a group. Consequently, a decrease of groups will increase the perception of vacancy among principals.

This finding shows an important difference between the way in with vacancy is perceive among principals and policy makers. It becomes clear that policy makers regard school buildings in terms of meters gross floor area, while principals look at the school building in terms of classrooms and groups it can house.

4.7 Subconclusion

Based on the analysis of the BAG and the verified municipal data it becomes clear that demographic trends only affect the vacancy of primary schools as far as the growth and amount of children are concerned. Both growth and size of the municipality are not significant factors.

Also, contrary to the expectations based on the literature study, a population decline region[71] is not a significant predictor for vacancy. This leads to the conclusion that vacancy among primary schools is a very local phenomenon. This is supported by the significance of the random effect parameter for municipalities and the significance of the number of children in the postal code area. According to many authors, (Noailly & Koning, 2009; Van der Houwen et al., 2004; Ter Avest et al., 2006: 246-247; Bosetti, 2004: 397; Boterman, 2013: 1137; Gilsing & Tierolf, 2010: 76-77) the service area of a school is very small (1,5 km). The significance of the number of children in the postal code area is in line with these claims.

Notwithstanding some account from larger cities (Van den Bogaerdt, 2012; DoZ, 2014), other authors mention the problem of vacancy primarily in relation to rural areas (KIMV, 2014; deStentor, 2012; De Cock, 2014). However, the insignificance of municipal size and the decline regions shows that vacancy is not only a problem of the rural areas or villages.

Furthermore, it becomes clear that there is a significant correlation between vacancy and denomination. This is in line with claims in literature regarding the importance of the denomination on the school choice of parents (Van der Houwen et al., 2004: 38; Karsten, et al., -2002: 40; Bosetti, 2004: 397). However, these researches did not reveal whether parents preferred Protestant, Roman Catholic or public schools. Based on this research there is a significant correlation between vacancy and denomination. It is concluded that public schools are more likely to face vacancy than other denominations.

Moreover, the analysis of the BAG and the Verified municipal data showed a significant negative correlation between vacancy and Cito-scores. The Cito-scores were used as a measure of educational quality. Based on literature it was expected that schools with higher Cito-scores, as indicator for the school's educational quality, would have a lower average vacancy (Van der Houwen et al., 2004: 38; Karsten, et al., 2002: 40; Noailly & Koning, 2009; Gilsing & Tierolf, 2010: 76; Dijkstra & Witziers, 2001: 143; Boterman, 2013). This is supported by the findings of this research.

And additionally, also a significant correlation was found between vacancy and building year.

[71] A list of the municipalities in the population decline regions as stated by the central government van be found in Appendix K.

The statistical analyses of the various databases can be used to calculate a predicted vacancy. Fig. 85 shows the results of the predicted vacancy per dataset[72]. It becomes clear that schools built between 1985 and 2007 are predicted to have the least vacancy.

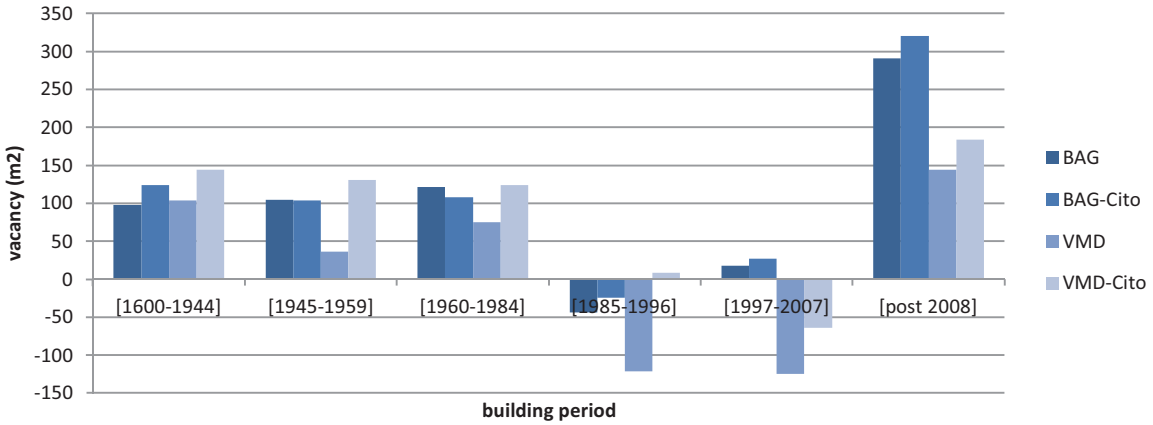


Fig. 85; Overview of the various analyses on building year.

Schools built before 1984 tend to have higher vacancy rates. Based on literature no relationship was predicted. However, it was assumed that older schools would have less quality, leading to a less attractive building which might lead to less children. The findings of this research support this thesis.

Moreover, new schools, built after 2008 are also predicted to have more vacancy. This finding was not expected.

Furthermore, the analysis of the Verified Sample focused on the building characteristics of the schools in relationship to vacancy. In this sample, building year, Cito-score and general demographics turned out to be not significant. This might be caused by the small size of the sample. However, whatever the cause might be, it makes it impossible to explore the interdependence and the weight of demographic variables, Cito-scores and building characteristics in relation to each other.

Notwithstanding the insignificance of the building year of the schools of the Verified Sample, the analysis showed some clear factors pointing at the importance of the building year. Both the type of building and special architecture were significantly correlated to vacancy. In line with the findings of the BAG and the VMD, the pavilion schools from the 50s had most vacancy, while hall schools built from the 80s have the least vacancy. On the other hand, schools with special architecture (i.e.: very old or very new schools) tend to have less vacancy.

Furthermore, high vacancy rates were found in relation to no windows in the classrooms, resulting in dark corridors, and lack of adequate heating. Additionally, it turns out that clustering of functions in the building is a good predictor for vacancy. This in line with the claim of Kennis Instituut Maatschappelijk Vastgoed (KIMV, 2014) that vacancy is partially caused by the clustering of functions.

Also, the size of the playing ground, harmonious height and alignment with the surrounding buildings play a role. However, this role is more ambiguous.

Last, it was found that the principals perceive the school building primarily in terms of classrooms and groups, while policy makers view the school buildings in terms of meters gross floor area.

[72] Cito-score = 535 (national average (NRC, 2014)); children in postal code area = 1.000; Private school; no rejuvenation.

In conclusion, the significant factors correlated with vacancy, can be added to the conceptual model, showing an overview of the correlations as found in this research (see Fig. 86). Table 52 gives an example of a school with high vacancy and a school with low vacancy.

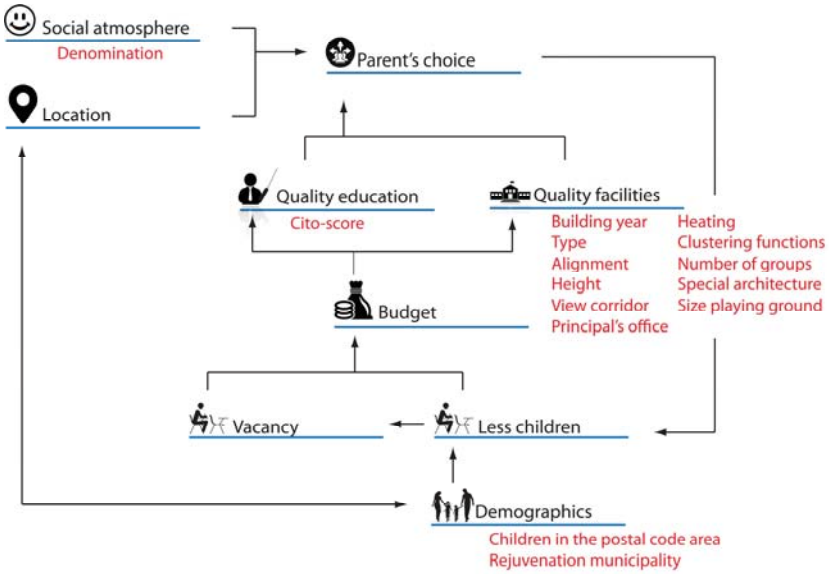


Fig. 86; Conceptual model with predictive factors.

Based on this framework a stereotypical high vacancy and low vacancy school can be distinguished. An high vacancy school is a public school, built in the sixties or seventies, (or a very new school), with a pavilion building. The school houses another function as well, due to its vacancy. Furthermore, it has dark corridors and classrooms, no adequate heating and ventilation. Last, the playing ground is very large, which makes it hard to maintain. As an illustration, Table 52 on the following page shows an example of a high and a low vacancy school.

Table 52; High and low vacancy example.

High vacancy	Low vacancy
OBS Ranonkel; Purmerend	**'t Geuzenschip; Brielle**
	
GFA: 2450 m^2 Standard: 1694 m^2 Vacancy: 31%	GFA: 597 m^2 Standard: 758 m^2 Vacancy: -27%
Building year: 1978 Type: Pavilion Denomination: Public Clustering of functions: other school in part of the building	Building year: 1930 Type: Corridor Denomination: Protestant No clustering of functions
Dark corridors	Light corridors
	
Dark classrooms	Light classrooms
	
No clear view	Windows classroom-corridor
	
No adequate heating No adequate cooling	Adequate heating Adequate cooling
Playing ground: ca. 2080 m^2	Playing ground: ca. 374 m^2
Cito- score 2013: No Cito-test Cildren in postal code area: 1765 Rejuvenation: -1,8%	Cito- score 2013: 541,80 Cildren in postal code area: 460 Rejuvenation: -1,3%

4.8 Survey parents

In order to cross-check the results of the analysis, a survey among the parents of group one has been performed. The results of this survey will be discussed in this chapter. A total overview of the results of the survey among the parents of group one can be found in Appendix H.

4.8.1 Respondents

In total 193 (16,4%) of the parents of the children of group one in the three municipalities filled in the online survey. Most of the respondents were women (84%). The respondents had an average age of 37,7 years. Almost all parents (94,1%) were born in the Netherlands. The majority of the parents (77%) states that they have no connection with a religion. 15% states that they are Roman Catholic and 4% are Protestant. This is more than the national average of 11% of the people.

The families are quite traditional. The large majority (92%) of the families consists of a man and a woman, living together. In 90,2% of the families, these are the parents of the child in group one. Only small percentages of the families are a single parent (6,7%) or foster parents (1%).

The families are rather small. 48,8% of the children of the survey has no siblings, 39,1% has one brother or sister, while only 12,5% has two or more siblings.

4.8.2 Choosing a school

Almost all parents (91%) bring their children to the school of their first choice. If the school was not their first choice, they indicate that they chose this school for mainly two reasons: the social atmosphere on the school, the fact that the school is close to their home. Only a few parents mention the denomination of the school and a continuous schedule[73].

In reaction to the question how parents obtain their information (see Fig. 87), most parents (91,2%) indicate that they have visited the school[74]. Furthermore, conversations with the principal (57,5%) and other parents (46,1%) are important sources of information. Only one-third of the parents indicates that they have visited the website of the school. 17,6% indicated other sources. This was primarily their own childhood experience on the school. This indicates that a school can leave a good impression that lasts for generations, notwithstanding the fact that circumstances, pedagogic ideas, teachers and the students change over time.

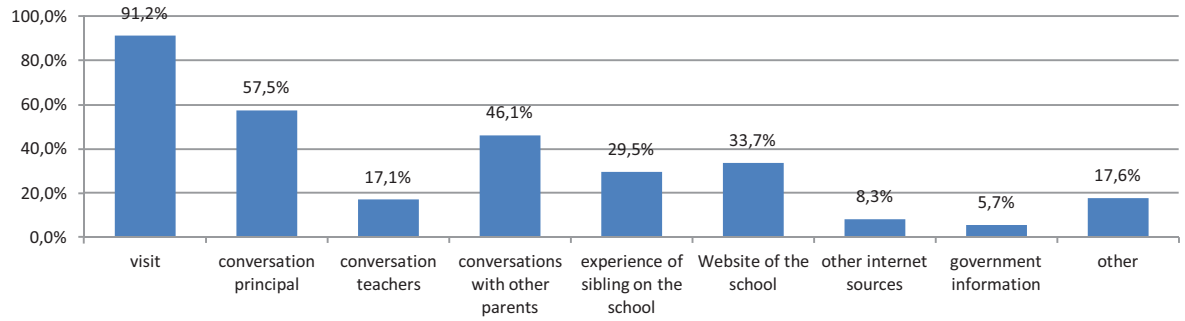


Fig. 87; Information sources for choosing the school.

[73] With a continuous schedule the lunch break is part of the school time. Instead of going home, the children stay at school under supervision of their teachers. Apparently, this is appealing to parents.

[74] It is more surprising that 8,8% of the parents sent their children to a school they have not visited in advance.

4.8.3 Quality of education

The survey reveals that parents value the educational quality of the school (see Fig. 88). This is in line with findings from literature.

Regarding other factors of educational quality, especially the anti-bullying policy of the school, number of students per group and extra activities are of importance to the parents during the process of choosing a school (see Fig. 89).

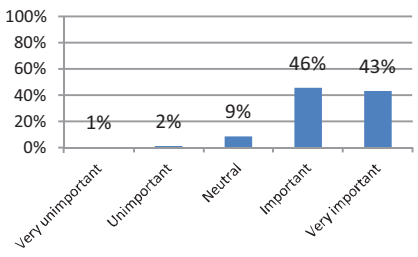


Fig. 88; The educational quality of the school.

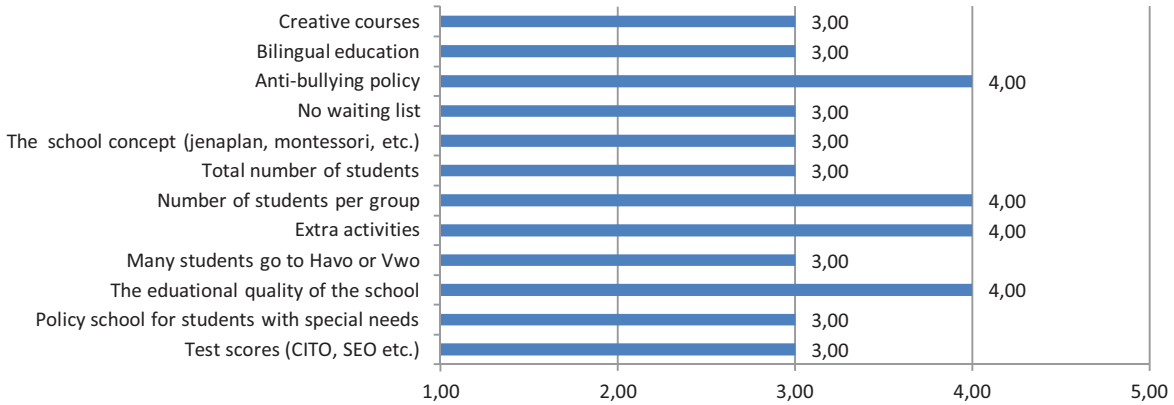


Fig. 89; Means of the scores educational quality aspects (1= very unimportant – 5 = very important).

Parents are well aware of the disastrous impact bullying could have on their child. It is in their utmost interest to prevent this from happening. Therefore they want schools that take care of this problem. One respondent even indicated that they switched schools due to bullying.

Furthermore, the survey showed that parents indicate that the number of students per group of important. However, this survey gives no insight in the ideal group size regarding to the parents. The same holds true for the extra activities of the school.

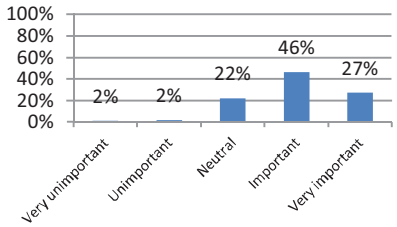


Fig. 90; Anti-bullying policy.

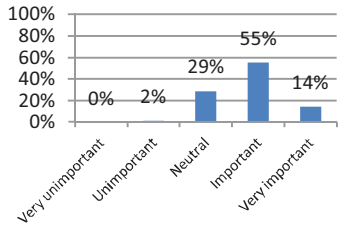


Fig. 91; Number of students per group.

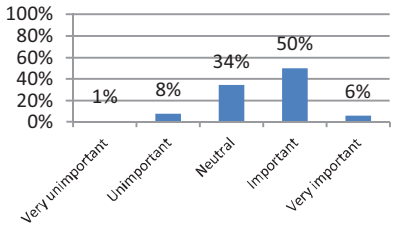


Fig. 92; Extra activities.

Parents are devided on the importance of test-scores and the percentage of children going to Havo or VWO. Perhaps the parents value a more personal approach in the form of special arrangements for children with special needs (f.e.: gifted children).

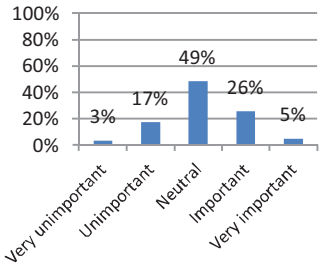


Fig. 93. Students going to Havo / Vwo.

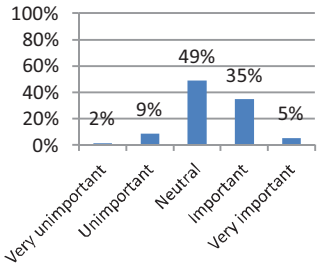


Fig. 94; Test scores (f.e. Cito).

4.8.4 Social atmosphere

Fig. 95 shows the various factors related to the social atmosphere and their scores. Since bullying is also an important aspect of the social atmosphere of the school, again this turns out to be an important aspect to the parents. Also the safety in and around the school is important. Furthermore the good name and the way in which the teachers treat the children is important in the decision making process.

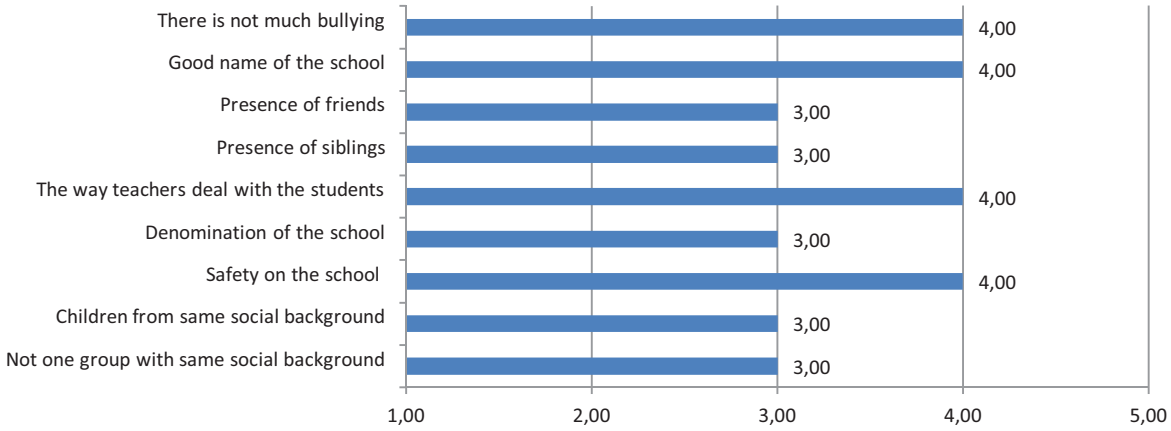


Fig. 95; Means of the scores of the social atmosphere aspects (1= very unimportant – 5 = very important).

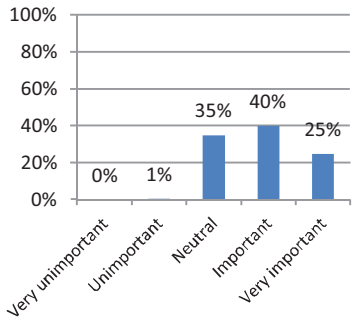


Fig. 96; Not much bullying.

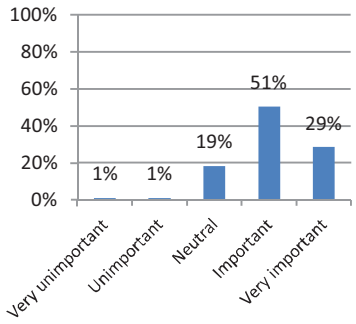


Fig. 97; Safety on the school.

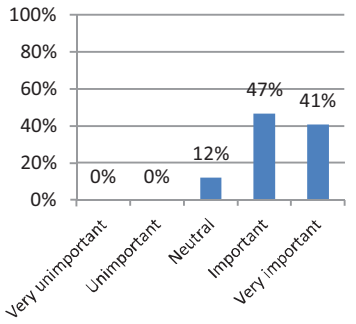


Fig. 98; Way teachers deal with students.

Interestingly, the parents are divided in their opinion on the importance of the social background of the school, denomination and presence of friends (Fig. 99 - Fig. 101). Some parents find these aspects important while others do not. This seems logical, since for example some parents value a Christian denomination very high, while others have no affinity with the Christian faith and therefore do not care on this issue.

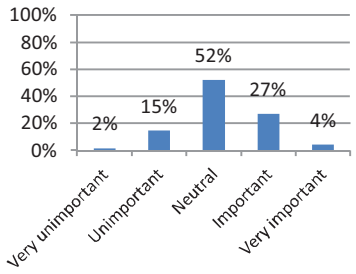


Fig. 99; Not one group with the same background.

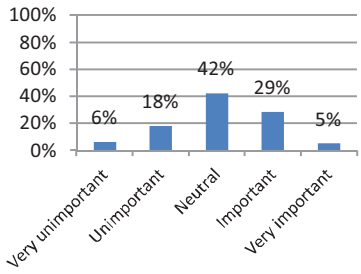


Fig. 100; Denomination.

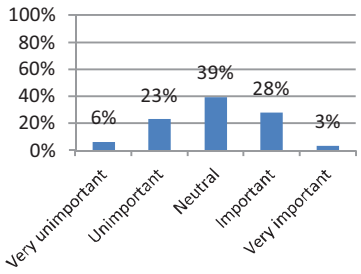


Fig. 101; Presence of friends of child.

4.8.5 Quality of facilities

Fig. 102 shows the means of the aspects related to the quality of the facilities. Regarding the social atmosphere and the educational quality, the majority of the aspects the mean of the parents was neutral, while some aspects were important. While on the quality of the facilities, many aspects are very important, and other factors are clearly unimportant.

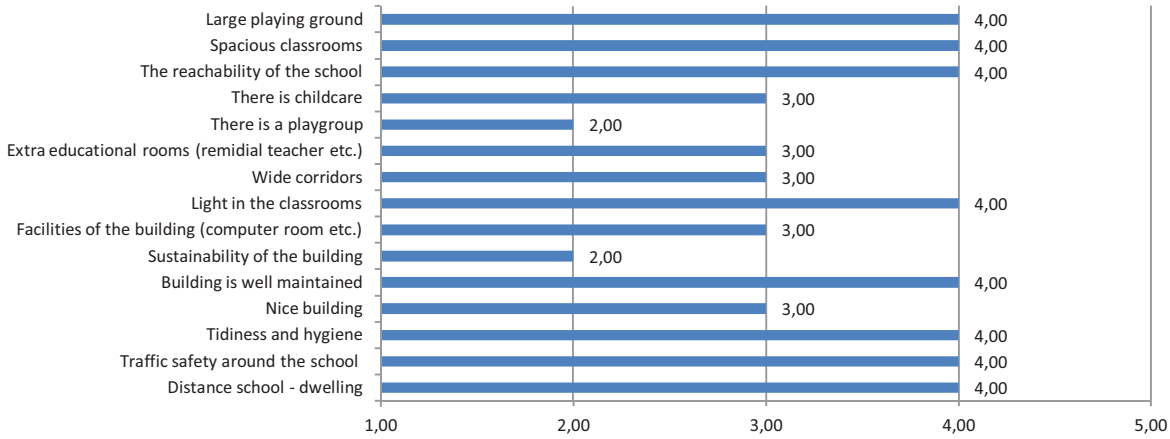


Fig. 102; Means of the scores of the aspects of the quality of the facilities (1= very unimportant – 5 = very important).

A large playing ground, spacious and light classrooms, the accessibility of the school, maintenance, tidiness and hygiene of the school, traffic safety and the distance from the dwelling to the school are very important factors according to the parents (Fig. 103 - Fig. 110).

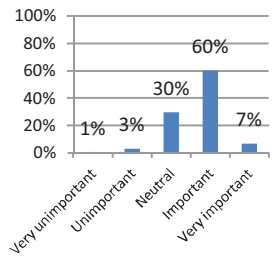


Fig. 103; Large playing ground.

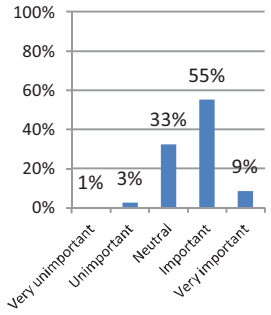


Fig. 104; Spacious classrooms.

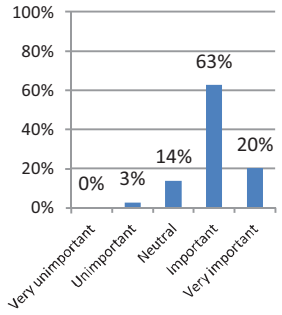


Fig. 105; Accessibility school.

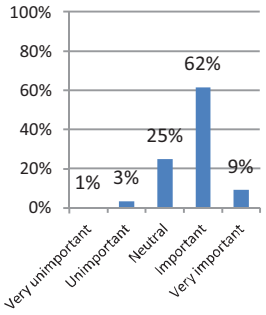


Fig. 106; Light in classrooms.

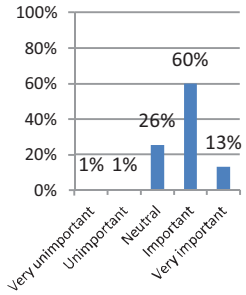


Fig. 107; Maintenance.

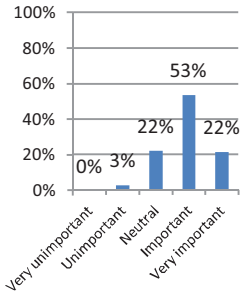


Fig. 108; Tidiness/hygiene.

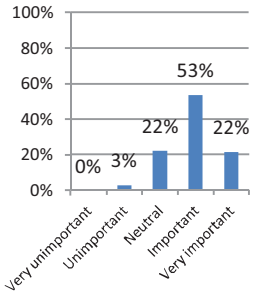


Fig. 109; Traffic safety.

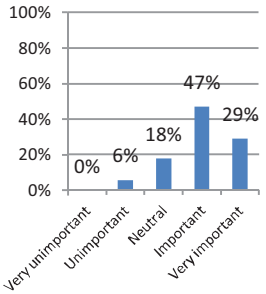


Fig. 110; Distance to school.

Two factors are clearly unimportant to the parents: the sustainability of the school building and the presence of a playgroup[75]. The first was expected, but not the latter.

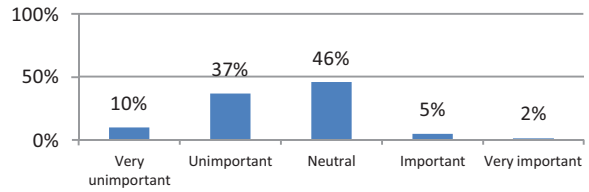


Fig. 111; Sustainable building.

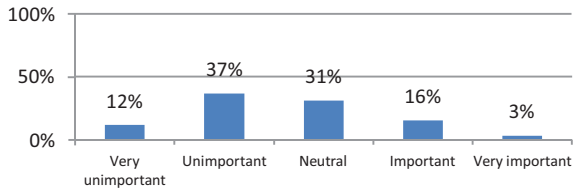


Fig. 112; Playgroup near the school.

4.8.6 Interrelationship

The parents were not only asked to indicate the importance of separate factors of the four aspects, but also to rank the aspects in relation to each other. The location of the school (i.e.: the distance from the school to the dwelling) is made a separate aspect. Literature indicated the importance of this aspect, so it had to isolated to observe the importance of the building itself to the parents.

The response of the parents is unambiguously: the quality of education is deemed the most important aspect in the decision making process, followed by the social atmosphere.

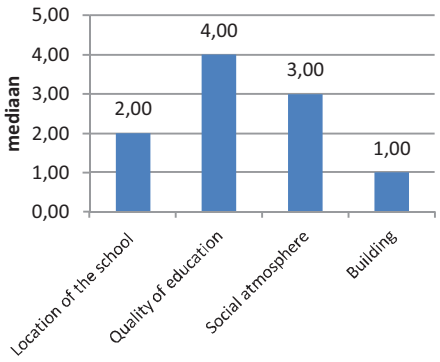


Fig. 113; Interrelationship aspects.

Third aspect is the location (i.e.: distance) of the school. The building and the quality of the facilities is undoubtedly the last aspect of importance to the parents. By making a distinction between the location of the school and the building, it becomes clear that parents find the distance of the school more important than the building. They prefer a school close to home, instead of a nice building or good facilities.

4.8.7 Subconclusion

The literature suggests that parents get their information about the school in particular from unwritten sources (Gilsing & Tierolf, 2010; Bosetti, 2004; Boterman, 2013). This research supports that: the most important information from parents when choosing a visit to the school and discussions with director, teachers and fellow parents. In this survey it was found that almost all (91,2%) parents visit the school during their decision making process. It was assumed that the impression the building leaves is assumed to matter to the parents consciously or unconsciously.

Contrary to much research (Ter Avest et al.,2006; Bosetti, 2004; Boterman, 2013) this survey shows that the distance to the school according to the respondents is less important than the quality of education and the social atmosphere.

The ambiguity concerning the denomination as found in literature (Gilsing & Tierolf, 2010) is supported by this survey.

[75] Peuterspeelzaal in Dutch.

Karsten (et al. 2002) suggested that parents consider the concept (jenaplan / montessori etc.) of the school important. This study indicates a divided opinion among parents about this, some parents consider this is important, others indicate this aspect as unimportant.

Almost all the literature on this topic suggests that quality is one of the main criteria for parents to choose a school (Van der Houwen et al., 2004; Karsten et al. 2002; Noailly & King, 2009; Gilsing & Tierolf, 2010; Dijkstra & Witziers, 2001; Boterman, 2013). This survey supports these previous findings.

International research indicates the importance of test scores (Jacobs, 2013). In Dutch studies this factor was not claimed as of importance. This survey showed that parents are divided regarding the importance of test scores, while many parents hold a neutral stance towards the test results of the school, other parents find them important.

International researches (Bosetti, 2004; Jacobs, 2013) claimed the importance of class size, while this was not found in Dutch studies. However, this survey shows that parents in the Netherlands also deem this factor as important.

The social-cultural uniformity of the children on the school was not seen as important by the respondents of this research. Nor did the analysis of the verified sample show a significant correlation between the percentage of children from a non-Western immigrant background and the vacancy on the school. The importance of the social-cultural background of the children on the school was stated in literature (Karsten et al.,2004; Dijkstra & Witziers, 2001; Jacobs, 2013; Boterman, 2013), is therefore not supported by this study. This may partly be because only 13% of the schools in this research had more than 20% of non-Western immigrant children. In other words, this research lacked the necessary amount of schools with immigrant children to make a proper analysis.

The importance of friends who go to the same school, as found (Van der Houwen et al., 2004; Karsten et al., 2002: 40; Jacobs, 2013) is partially supported by this research. In part, because a portion of the parents indicates this as important, while another part indicates this not important.

Furthermore, traffic safety around the school is found as an important aspect in the decision making process of the parents, by various authors (Van der Houwen et al., 2004; Karsten et al., 2002). This study supports these claims.

In the literature study, only one author mentions the importance of bullying in the decision making process of the parents (Karsten et al. 2002). However, this survey indicates that parents attribute great importance to this factor.

Concluding can be stated that the findings of this survey are, with some comments, quite in line with the existing literature. However, it was noted that there is little to no literature regarding the importace of the school building and it's facilities in relation to the school choice of the parents. The explorative research of Martens, Walraven and Lucassen (2013) mentioned the importance of tidiness, safety, space and light. Furthermore, Karsten (et al., 2002) mentioned mentioned the importance of tidiness as well.

According to this survey, parents find a large playing ground, spacious and light classrooms, the reachability of the school, maintenance, tidiness and hygiene of the school, traffic safety and the distance from the dwelling to the school important in their school choice. These findings can be regarded specifications of the findings of Martens, Walraven and Lucassen (2013).

Additionally, they stated that distance, quality and the atmosphere in the school are far more important to the parents than the building and its facilities. The findings of this survey are in line with this claim.

Fig. 114 shows the most important factors and the hierarchy of the aspects for school choice according to the parents.

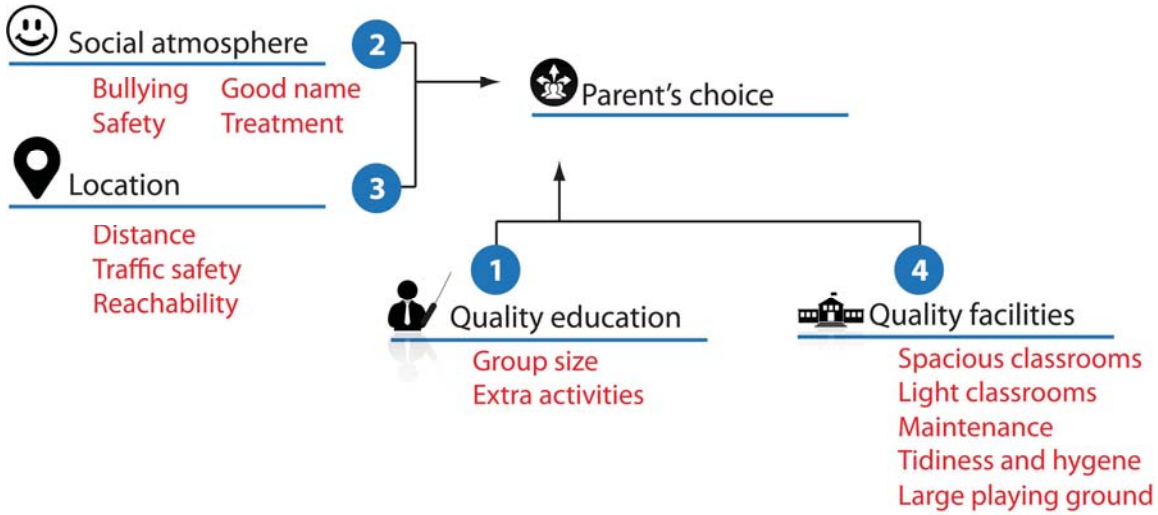


Fig. 114; Findings survey among parents.

4.9 Future vacancy

With the information of the previous chapters, an estimation can be obtained regarding future developments. In this chapter, the future demand will be estimated and statements will be made regarding the heading of future developments.

4.9.1 Future demand

As discussed in chapter 3.3.1.1, the demand can be calculated based on the student numbers. The CBS holds predictions regarding the developments of the total amount of children in the Netherlands. These estimations will be used for a prediction regarding the future demand. As displayed in Table 53, the number of children between 4 and 12 years is slowly declining the coming ten years.

Table 53; Number of children 4-12 years old (source: CBS Statline 2014).

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
11983825	11871111	11746634	11606489	11471294	11389904	11332959	11316464	11288171	11284124
-1,000%	-0,941%	-1,049%	-1,193%	-1,165%	-0,710%	-0,500%	-0,146%	-0,250%	-0,036%

As discussed in chapter 2.7.1.2, estimations regarding future developments of a population contain many uncertainties. Dealing with such uncertainty results in bandwidths within which the most likely results are expected. Therefore the forecast intervals used by the CBS (Van Duin & Stoeldraijer, 2012: 13) are used as well in the calculations of the current demand. Based on the information of the CBS, the amount of students could be estimated (see Fig. 115). As shown the uncertainty levels are greater in the future. Therefore it was decided to limit the estimations within a ten year timeframe as a longer period is deemed to be too uncertain for realistic estimations.

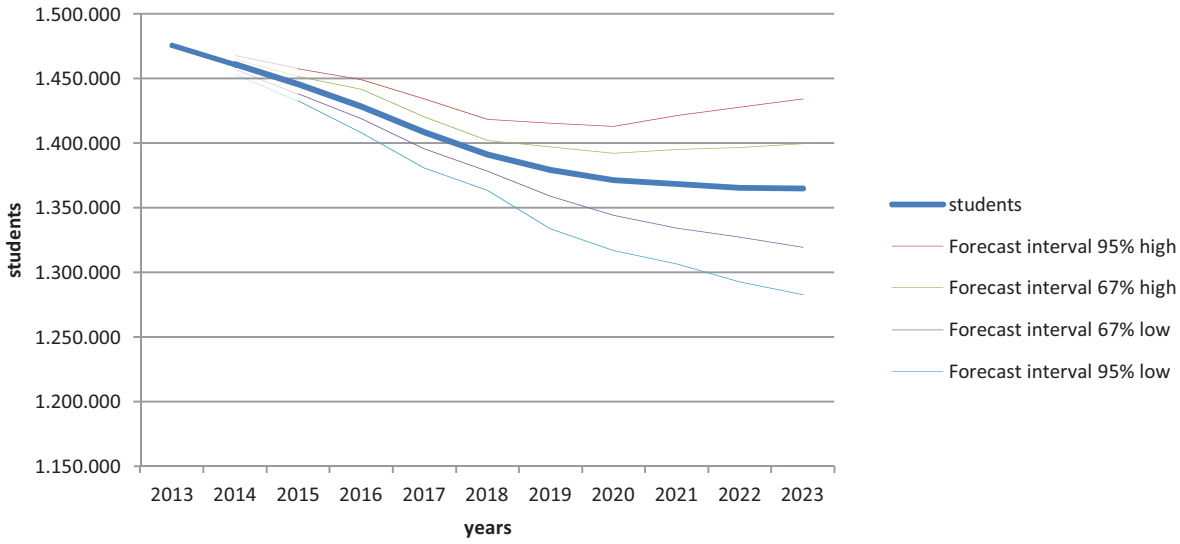


Fig. 115; Estimation of the amount of children 4-12 years old (2013-2023) (source: CBS Statline).

These amounts of children lead to a floor space demand as displayed in Fig. 116. It becomes clear that the floor space demand will decline in the coming ten years with an average of 0,7%. However, within the 95% forecast interval, this average annual decline can vary from 0,1% to 1,3%.

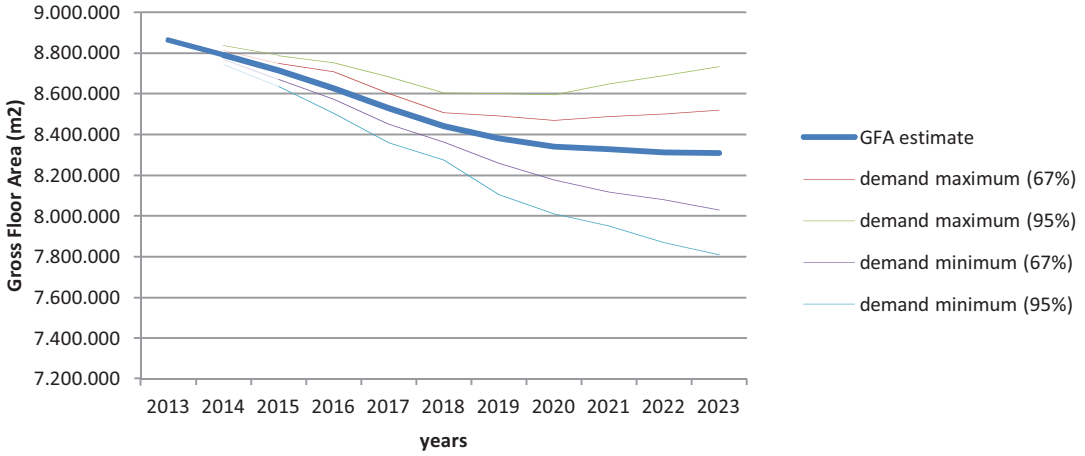


Fig. 116; Estimation of future floor space demand (2013-2023).

Consequently, the demand is expected to decrease in the coming ten years with an 67% confidence interval between circa 345.000 m^2 and 835.000 m^2.

4.9.2 Future supply

Since this research is the first to present a reliable estimate of the total amount of GFA per regular primary school in the Netherlands, there is no information available regarding past developments in this stock, let alone future developments. But it is absolutely clear that the current supply is constantly changing. The number of schools has decreased with circa 2,4% since 2011. Furthermore, schools move to new buildings adapted to their current demand. With the current information, it is thus impossible to estimate the future supply and thus the future mismatch.

4.9.3 Subconclusion

Based on information of the CBS, it becomes clear that the amount of children that would attend primary schools in the Netherlands is declining with an average of 0,7% per year in the coming ten years. As a result the total floor space demand for primary schools is declining as well. Molmans (2014) mentions a decline 160.000 students in 2022, which would result in a vacancy of circa 624.000 m^2.

The findings of this research are less drastic: a decline of circa 110.000 students and an increase of the vacancy of 550.000 m^2 in 2022. However, this research does not take the schools for children with special needs into account, while Molmans does. Adding them might result in confirmation of the findings of Molmans.

Furthermore, the findings of Molmans are within bandwidth taking the 67% confidence interval of the CBS into account.

As a consequence of the decline of children, the demand is estimated to decline with a total of between 1,50% and 11,93% in 2023.

Therefore it is concluded that the problem of vacancy is currently not as high as some alarming articles state (see chapter 4.5). Nevertheless, based on this research it can be stated that vacancy among primary schools is a growing problem that needs to be addressed.

5. Conclusions

In this research, three sub questions were addressed regarding vacancy in regular primary schools in the Netherlands. This chapter contains a brief summary of the main findings. Furthermore, these findings will be related to the financial consequences.

Additionally, this chapter contains a discussion in which the findings will be related to the existing literature. And last recommendations for further research will be stated.

5.1 How much vacancy is there?

Based on the Cadastral data of the BAG, supplemented with data from 18% of the Dutch municipalities, it was found that there is currently 7,87% vacancy among the regular primary schools.

Based on literature, it was concluded that the friction vacancy rate is 4%. Therefore it is concluded that there is 3,87% too much primary school floor space in the Netherlands.

By means of a Verified sample of three municipalities, it was concluded that on average 30% of the vacant floor space as calculated with the government standard, was rented to third parties like childcare. Although such a construction does not guarantee that the floor space is optimally used, it can be considered no longer vacant. When the rent of floor space is taken into account the vacancy

rates drop down to 5,51%. Subtraction of a friction vacancy rate of 4% leads to the conclusion that, when the schools indeed successfully rents circa 30% of the floor space officially registered as vacant, the actual unused floor space is 5,51%. See Fig. 117 for an overview of the findings.

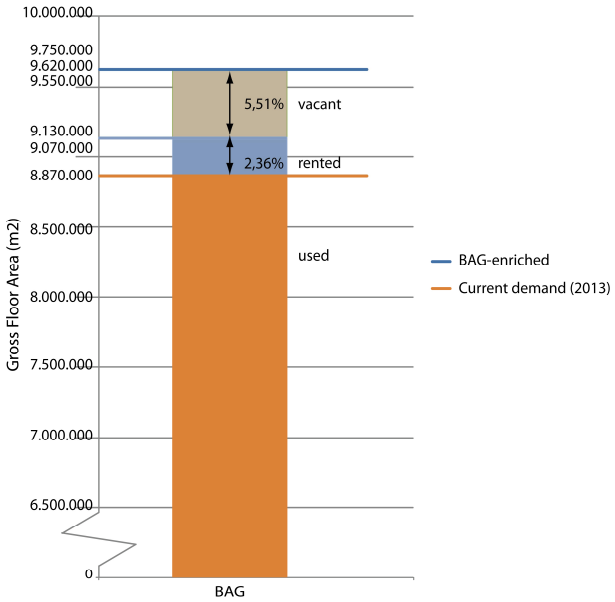


Fig. 117; Current mismatch according to the BAG (2013).

Furthermore, it becomes clear that the vacancy rates are on average much higher in the provinces of Friesland, Groningen, Noord-Brabant en Limburg. This is according to the expectations as these provinces hold regions of population decline as discussed in chapter 2.7.1.

And last it was concluded that there is a large discrepancy between the vacancy as concluded based on the BAG or municipal data and the situation as perceived by the principals of the schools.

5.1.1 Relationship to the existing knowledge

As discussed in chapter 2.2 the measurement of public real estate is quite hard. In chapter 2.3 two authors (Van der Wal, 2011 and Van Elp & Zuidema, 2013), that did attempts to estimate the amount of primary school space in the Netherlands, have been discussed.

Table 54 gives an overview of the researches mentioned above, as well as the data derived in the various steps of the data collection process.

Table 54; Overview of the various estimations of the total mismatch.

	Van der Wal, 2011	Van Elp & Zuidema, 2013	BAG raw	BAG error check	BAG added	BAG enriched	Verified Municipal Data
source	annual turnover institutions	BAG	BAG	BAG	BAG	BAG	data muni.
year	2011	2012	2013	2013	2013	2013	2013
type of schools	regular & special	regular & special	regular	regular	regular	regular	regular
number of schools	7.291	7.215	6.371	6.359	6.802	6.802	1.560
missing	N.A.	N.A.	431	443	0	0	0
supply GFA (m2)	10.100.000	15.800.000	21.246.331	9.246.343	9.714.652	9.622.977	2.658.447
demand GFA (m2)	9.131.829	9.011.288	8.866.892	8.866.892	8.866.892	8.865.589	2.341.428
vacancy (m2)	968.171	6.788.712	12.379.439	379.451	909.449	757.388	317.019
percentage vacancy	9,59%	42,97%	58,27%	4,10%	9,20%	7,87%	11,92%
average school size	**1.385**	**2.190**	**3.335**	**1.454**	**1.437**	**1.415**	**1.704**

Van der Wal (2011) estimated the total size of the primary school space in the Netherlands based on the annual turnover of the institutions. It was concluded that there is approximately 10.1 million m^2 GFA of primary schools. The calculations can be found in Appendix A. As shown in Table 54, in 2011 there was a total demand regular primary school space of 9,1 million m^2. This estimation led to the conclusion that there was a total vacancy percentage of 9,59%. The total floor space supply in 2011 cannot be checked based on the BAG.

It should be noted that the calculations of Van der Wal includes the special schools. In 2011 there were 326 special schools which is 4,47% of the total amount of schools (see table Table 55). This could account for the difference of the total supply between Van der Wal and this research.

Table 55; Amount and percentage of regular and special schools (2011-2013).

	2011	2012	2013
Special schools	326	314	308
Regular schools	6965	6901	6807
Total	7291	7215	7115
Special schools	4,47%	4,35%	4,33%
Regular schools	95,53%	95,65%	95,67%
Total	100,00%	100,00%	100,00%

As discussed in chapter 2.2.1, the authors based their calculations on two important assumptions (housing costs as percentage of the annual turnover of the organization and the annual costs per m^2 GFA). With this in mind it should be noted that the calculations of Van der Wal where rather close to the findings of this research.

Van Elp and Zuidema (2013) estimated the total size of the primary school space in the Netherlands by means of the BAG. It seems that their estimations are based on the total sum of all assets registered with 'educational purposes'. Additionally, an adaptation of the raw data of the BAG is mentioned (Van Elp & Zuidema 2013: 36). However, the true nature of this adaptation remains unknown, leaving room for guessing how this data is derived.

Nevertheless, the current demand is easily calculated[76] as is described in chapter 3.3.1. This leads to the conclusion that there is, based the calculations of Van Elp and Zuidema, a current vacancy of 42,97% (see Table 54). That is rather high. Furthermore, there were 7.215 regular and special primary schools in the Netherlands in 2012. Based on the calculations of Van Elp and Zuidema this would lead to an average school size of 2190 m^2. That is approximately 55% larger than the average school size of this research and the research of Van der Wal. Therefore it seems safe to conclude that this is rather high as well. Based on the average school size and the vacancy percentage it is therefore concluded that the calculations of Van Elp and Zuidema are incorrect.

Moreover, their analysis regarding the distribution of the building years of the schools states that *"21% of the primary education stock dates back from the 70s."* (Van Elp & Zuidema, 2013: 35). In this research it was found that even 25% was built between 1970 and 1980. However their average building year (1975) matches the average building year found in this research (1974).

5.2 What correlates with vacancy?

To establish knowledge regarding correlating factors with vacancy, in order to create a predictive model regarding the vacancy in a school, multilevel linear model analysis is used on the BAG as a whole, Verified municipal data and the Verified sample of 31 schools.

Based on the analysis of the BAG and the verified municipal data it was concluded that there is a significant correlation between vacancy and municipalities. Therefore a random effect parameter for municipalities was used.

Furthermore, it became clear that that demographic trends only affect the vacancy of primary schools as far as the children are concerned. Both growth and size of the municipality are not significant factors. Also, contrary to the expectations based on the literature study (deStentor, 2012; De Cock, 2014), being in a population decline region is not a significant predictor for vacancy. This leads to the conclusion that vacancy among primary schools is a national phenomenon with local dynamics. This is supported by the significance of the random effect parameter for municipalities and the significance of the number of children in the postal code area. Moreover, it is not only a problem of the rural areas or villages; because the size of the municipality is not a significant predictor.

Additionally, it was concluded that both the denomination of the school as well as the Cito-scores and building year of the school are significantly correlated with vacancy. It is concluded that public schools are more likely to face vacancy than other denominations. This result can be explained in two ways:

1. The private schools tend to face the financial consequences of vacancy earlier and decide to join or close schools with a vacancy problem. This raises the question why public schools make these decisions later.

[76] For this demand regular and special schools are taken into account, since these are both included in the calculations of Van Elp and Zuidema.

2. The private schools could draw more students than public schools. This raises the question why they would be more successful in attracting new students. Both questions require further investigation.

Another predictive factor for vacancy is the Cito-score. This outcome encourages schools to increase their educational quality. The results of this research show that schools with higher test scores tend to have less vacancy.

This research also showed the importance of the building year to vacancy. Older schools (pre 1984) tend to have more vacancy. However, new schools (post 2008) have more vacancy as well. This is an interesting outcome, which can be caused by two factors:

1. New schools are built larger than is prescribed according to the government standard. This raises the question why this would happen. It could be that new schools are more often combined school buildings with two or more schools and additional functions, which results in an above standard floor space.
2. Otherwise it could also be the case that new schools are built with population growth in mind. It would take several years to reach their full capacity. It is concluded that this issue requires further research.

In conclusion, Fig. 118 shows the conceptual model with all significant factors correlated with vacancy, as found in this research (see Fig. 118).

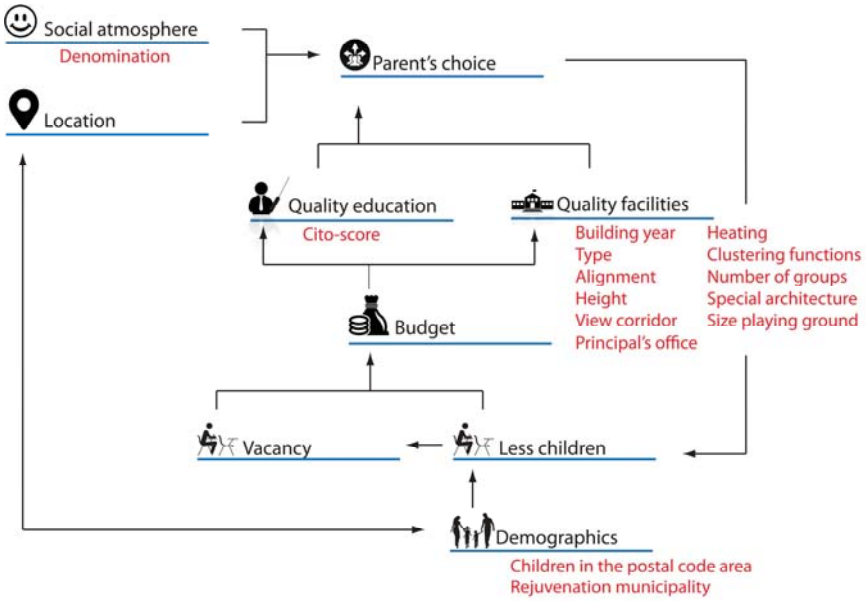


Fig. 118; Conceptual model with predictive factors.

5.2.1 Parent's choice

The survey among the parents of the children of group one in the three municipalities of the Verified Sample confirmed some of the findings of the database analysis. In addition, this survey sheds some light on the interrelations of the four aspects of parent's choice.

First of all the survey stressed the importance of the educational quality of the school. Parents indicate that they obtain information on the educational quality of the school mainly through

personal communication. Allthough they attribute not much importance to test scores of the school, these seem to be a suitable proxy of the educational quality nevertheless.

Furthermore, some of the findings of the survey are also in line with results of the analysis of the Verified sample. The size of the playing ground was a significant predictor for vacancy. It was found that there was a negative correlation between the two. The survey among the parents shows that parents find a large playing ground of importance.

Based on the analysis of the Verified Sample it is concluded that parents do not want a too big playing ground, while the survey among the parents indicates the opposite. This difference remains unexplained. It might be that the costs of maintenance of a large playing ground outweight the benefits: the financial resources can be invested better in the quality of education.

The analysis of the Verified Sample showed the significance of windows that allow sight from the corridors to the classrooms. Clearly this contributes to a sense of space and lightness in the classrooms and the corridors, which is in line with the findings of this survey: parents find spacious and light classrooms important.

The survey among the parents revealed the importance of maintenance, tidiness and hygiene at the schools. It is assumed that parents want a basic level of maintenance, tidiness and hygiene at the school: if these aspects are above the level of basis acceptability, they are no longer an issue at the school choice[77]. However, the factors related to these aspects were all insignificant in the analysis of the Verified Sample. The only related significant factor is the presence of adequate heating. The lack of adequate heating it most likely a symptom of a bad maintained old building: the façade is lacking isolation capacity or the heating system is outdated, in bad repair or otherwise insufficient. These things are examples which bring the schools performance under the basic acceptability level of the parents.

The database analysis could not provide an hierarchy among the four aspects affecting parent's choice. Fortunately, the survey among the parents provides an indication for the interrelationship of these aspects. It became clear that the most important aspect is the educational quality, respectively followed by the social atmosphere, location and building.

The insights obtained through the survey among the parents can supplement the results of the database analyses.

[77] i.e.: parents visit the school, check whether the schools meets the level of basic acceptability. When it does, they focus on other aspects like the quality of the school.

5.3 Conclusion

Not all factors were found trough all research methods, conclusions must be drawn carefully. Table 56 gives an overview of all the factors and the way in which they were confirmed.

Table 56; Overview of the factors found.

Research method		Statistical database analysis						Survey	Literature	
		BAG	BAG-Cito	VMD	VMD-Cito	Verified Sample	Verified Sample	Parents group 1		Certainty level
	dependent variable	Vacancy 2013	Vacancy 2013	Vacancy 2013	Vacancy 2013	Vacancy 2013	Vacancy Principals			
aspect	**factor**									
Demographics										
	Children in vicinity									***
	Rejuvenation									***
Social atmosphere	Denomination									***
	Bullying									*
	Good name									**
	Treatment students									**
	Safety									**
Location	Reachability									**
	Distance									***
	Traffic safety									**
Educational quality	Cito-score									***
	Group size									**
	Extra activities									**
Building characteristics										
Building year	Building periods									**
	Type									*
	special architecture									*
Light	Clear view corridor									*
	Spacious classrooms									**
	Light classrooms									**
Facilities	Principal's office									*
	Clustering functions									*
	Size playing ground									**
	Number of groups									
Performance	Heating									**
	Maintenance									**
	Tidiness and hygiene									**
Visuals	Harmonious height									**
	Alignment									*

The aspects regarding location, educational quality and social atmosphere of influence on the school choice of parents are well covered in literature. It is thus regarded safe to include these findings in the final model.

However, since this research is one of the very first, exploring the impact of building characteristics on vacancy. Therefore is it good to indicate the certainty level of the factors found. If a factors is found to relate with vacancy in only one dataset or only the survey, it is marked *. If the factor is confirmed in two or more ways in this research, it is marked **. If this factors is also in line with literature, it is marked ***.

Fig. 119 gives an overview of all factors, including their certainty level in the conceptual framework.

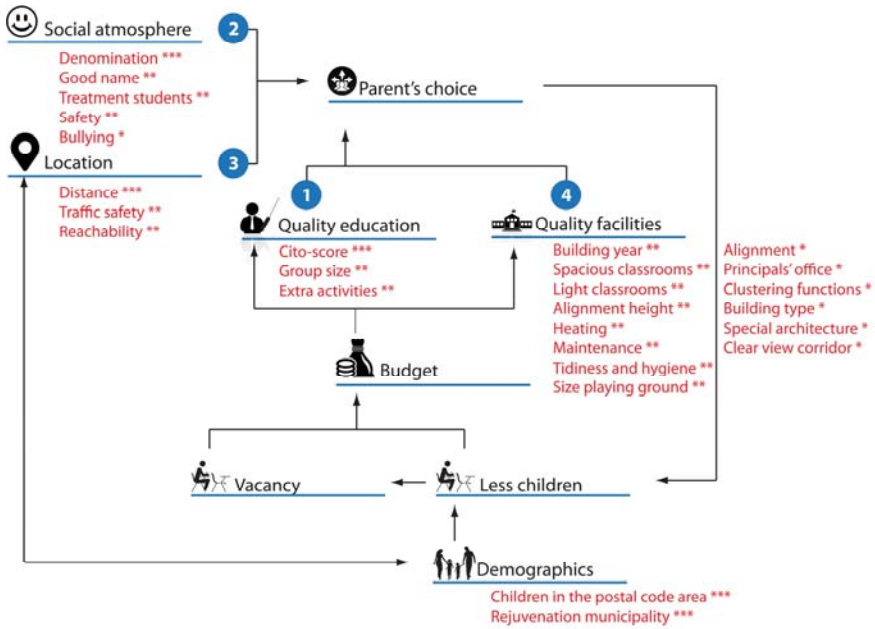


Fig. 119; Conceptual model with factors found in this research, influencing vacancy.

5.4 Future vacancy

The future supply in impossible to estimate, since there is no information regarding the past developments of the primary real estate stock. Moreover, research on the predictive factors for future developments of this stock are lacking. This lack of information makes it impossible to state estimations regarding a future mismatch. Taking the decline of the number of schools in the past years into account, and the fact that schools move to new buildings, one this is certain: the future supply will not be equal to the current supply.

However, the future demand is based on the number of children. The CBS holds serious estimations regarding the future developments of the populations. These numbers were used for an estimation of the future developments of the demand for floor space.

The estimations of the CBS, clearly show a decline of the number of students in the coming decade with an annual average of 0,7%. It was concluded that this would lead to a decline of the demand of a total of between 1,50% and 11,93% in 2023. This would result in a decline of the floor space demand of between 133.182 m^2 1.057.659 m^2.

Molmans (2014) mentions a decline 160.000 students in 2022, which would result in a decline of demand of circa 624.000 m^2.

The findings of this research are in line with the findings of Molmans. Concluding can be stated that the issue of vacancy is a growing problem. Municipalities and school foundations must take proactive steps to prevent that vacancy will pose a costly problem in their schools.

5.5 Financial consequences

As discussed in chapter 2.5.2.4, schools are faced with operational costs. Since they receive budget, primarily based on the total amount of children on the school, less children not only results in vacancy, but also in decreased budgets. To put it in other words, vacant floor space is space that costs operation costs, while the school does not receive budget for it.

A school has various ways of dealing with this problem. In some cases the vacancy can be covered by the existing budget. In such cases, the vacant space is usually still used. Many schools appreciate this 'extra' space, since it offers room for groups, remedial teaching etcetera. This is often the case when the vacancy relatively small or the school is relatively large.

On other hand the school can cut expenses by permanently closing unused classrooms and cutting cleaning, electricity and heating costs. Of course, many aspects of maintenance are still performed[78].

Based on the benchmarks of Heijnders (2014) and Grontmij, it can be concluded that the annual operational costs of vacant floor space among primary school are between € 18,- per m^2 and 47,- per m^2 (see Table 57). Molmans (2014) estimated the total annual costs of vacant school building of €30,- per m^2 GFA. This is within the bandwidth of the amounts used in this research.

Table 57; Annual operating costs (per m^2).

	maximal	minimal
building maintenance	€ 15,44	€ 15,44
yard maintenance	€ 0,49	€ 0,49
cleaning	€ 18,91	
electricity	€ 1,60	
heating	€ 6,37	
water	€ 0,47	
taxes	€ 2,30	€ 2,30
total (rounded)	€ 47,00	€ 18,00

The investment costs are carried by the municipality. However, since the average age of school buildings in the Netherlands is 40 year and vacancy is significantly higher among primary schools built before 1984, this is left out of the analysis.

Furthermore, it was concluded that circa 4% friction vacancy can be assumed. This is the vacancy necessary to allow for fluctuations in demand. Since this is necessary, it is left out of the excessive cost analysis, since this would create the expectation that these costs could be cut, while they cannot.

[78] F.e.: when the school needs new painting, it would be very unwise to exclude this room from the paintjob of the windows. The relative price reduction is very low since the job is already performed on the rest of the building and the windows of this classroom would continue to degrade, leaving them as future trouble.

Since the current mismatch has a bandwidth, and the following matrix indicates the operational costs (see Table 58). Thus it becomes clear that the annual operating costs of the current vacancy lies between circa € 6,7 million and € 17,5 million euro.

Table 58; Annual operational costs current vacancy (2013).

year: 2013	Source		maximum	minimum
operating costs	Heijnders/Grontmij		€ 47,00	€ 18,00
supply GFA (m2)	BAG	9.622.977		
-4% friction vacancy		9.238.058		
demand GFA (m2)	DUO	8.865.589		
vacancy GFA (m2)	BAG	372.469	€ 17.506.039,24	€ 6.704.440,56

Since there is little known regarding the scale of renting of floor space among primary schools and this research did not address the income generated by this rent, this is left out of the analysis.

It was concluded that the total demand will be decreasing in the coming decade. Thus it can be concluded that there is currently and in the future much room for cost reduction when the total number of vacant floor space among primary schools in the Netherlands is reduced.

5.6 Discussion

This research took a whole other approach than Van der Wal (2011). Nevertheless, the findings of this research confirmed the results of Van der Wal (2011). On the other hand, the results of the research of Van Elp and and Zuidema (2013) were not confirmed by this research. It was presumed that they have used a rather raw version of the BAG, with many errors in it.

The results of the statistical analysis of this research were in line with the findings of many authors. First, the importance of the local situation, including the service area of the school as stated by Noailly and Koning (2009), Van der Houwen et al. (2004), Ter Avest et al. (2006), Bosetti (2004), Boterman (2013) and Gilsing and Tierolf (2010) was confirmed.

However, contrary to some authors, (deStentor, 2012; De Cock, 2014), it was found that vacancy is not only a problem of the rural areas.

Second, Van der Houwen et al. (2004), Karsten, et al., (2002) and Bosetti (2004) mention the importance of denomination in the decision making process of parents. However, it was unknown what denomination prevailed. This research confirms the importance of denomination and states that public schools are more often faced with vacancy.

Additionally, many authors mentioned the importance of the quality of a school in general (Van der Houwen et al., 2004: 38; Karsten, et al., 2002: 40; Noailly & Koning, 2009; Gilsing & Tierolf, 2010: 76; Dijkstra & Witziers, 2001: 143; Boterman, 2013). This research used two factors as measures for the quality of the school: Cito-scores and the percentage of children going to VWO. The first was significantly correlated to vacancy, the latter is not. It might be that parents pay more attention to test-scores than currently assumed. This might be caused by their availability on the internet since 2013 (Dronkers, 2013). Their importance is in line with foreign findings (Bosetti, 2004: 397; Jacobs, 2013: 463).

Futhermore, various building characteristics were found to be significantly related to vacancy. Most of these factors point at outdated buildings. Not much attention has been spent at the importance of the school building in the decisionmaking process of parents. However, this research indicates the importance of the quality of the building and its facilities.

Last, the findings of this research regarding the future developments of the vacancy among primary schools in the Netherlands are slightly lower than the estimations by Molmans (2014). However, this might be caused by the fact that this research does not take special schools into account, while Molmans does. Furthermore, the findings of this research point at the same decline of children and rise of vacant floor space.

5.6.1 Quality of the data

Last, some words must be spent on the quality of the data used. For visual inspection of the BAG revealed various cases of obvious inaccuracies. Therefore 18% of the Dutch municipalities were contacted in order check these values and in many case obtain the right values.

However, the presence of obvious inaccuracies raises doubts regarding the remainder of the data. It can be questioned whether the rest of the database is accurate.

In addition, one can also question the factuality of the data used by the municipality's education department. Measurements of the floor space of a building are ideally carried out according to NEN-2580. However, it is uncontrollable whether this is actually done by the municipalities. Moreover, the national scale of the study makes it hard to guard the accuracy of the data. Since it is impossible within the timeframe available to measure circa 7.000 school buildings, there can only be relied on data from third parties.

Nevertheless, it must be noted that this truly is the only way in which the size of the Dutch primary education per building is mapped within the time constraints inherent to this research. With the visual inspection and enrichment of the data retrieved from the municipalities it is tried to remove the largest outliers from the dataset. With the above mentioned caveats in mind, it can be stated that this remains the most accurate estimate of the Dutch primary education property of the moment.

5.7 Recommendations

This research delivers useful insights for policy makers, schools and academics. The following paragraphs contain recommendations for the future.

5.7.1 Recommendations for policy makers

The housing of schools is the responsibility of municipalities. However, the search for the accurate GFA's of the schools in the Netherlands showed that many municipalities had a hard time delivering the right information. This research showed that the future demand for floor space will decline. The availability of accurate information is crucial in anticipating this trend. Municipalities must ensure that they hold the right information.

The significance of the random effect parameter for the municipalities indicates that the municipal policies with regard to vacancy in the schools matters. Municipalities should therefore learn from each others' best practices.

Municipalities are indeed responsible, but they have to deal with a playing field of private actors. Municipalities should therefore play a coordinating role, in which they enable all actors to jointly solve the problem of vacancy. Public availability of information is necessary for success of this approach.

The BAG can be a very useful tool. However, it was found that the information of the BAG contained many errors. Since the BAG contains valuable information regarding the Dutch real estate stock, which is useful for scientific, social and business purposes, it is important that this information is reliable. As found in this research, there are researches based on wrong information from the BAG, leading to incorrect conclusions.

The information in the BAG is the responsibility of the municipalities. It is strongly recommended that the information in this dataset is checked and if necessary improved. The Cadastre could play a coordinating role in this process.

Furthermore, this research showed that public schools have more vacancy than private schools. Since public schools are often still within the sphere of influence of the municipalities, they are advised to take a close look at the stock of the public schools.

5.7.2 Recommendations for schools

This research is one of the first in the Netherlands to focus on the building characteristics in relation to the decision making process of parents for a school. This delivered useful insights for schools.

First of all, it turns out that parents find educational quality and social atmosphere more important than the school building. Since many schools are housed in old buildings this is an important encouragement to focus on the school's core business: providing excellent education in a friendly atmosphere.

Since the schools are financed per student, there is a competition for the decreasing amount of students among the primary schools. Result of this dynamic is a survival of the best primary schools. This research showed that there is a negative relationship between the Cito-test scores and vacancy. As a result, schools are advised to take these test-scores serious and regard them as an useful gauge for the educational performance of the school.

The transition the responsibility of the maintenance of the exterior of the school building from the municipality to the schools is a serious problem to schools. There are strong indications (De

Koster, 2013; Rekenkamer, 2013b) that the schools will inherit deferred maintenance. Especially for small school foundations without adequate financial reserves this poses a challenge. Schools will be tempted to postpone maintenance as long as possible. However, this research indicates that doing so can ultimately lead to a vicious circle in which deferred maintenance leads to reduction of students and consequently a reduction of funding. Based on this research, schools are therefore strongly advised to take their maintenance seriously and invest in an attractive, well maintained and tidy school building.

When a school faces an old school building and is struggling with the attraction of children, this research has led to the following suggestions:

- Take care of good maintenance of the playing ground. Remove deteriorated playing sets.
- Take care of good maintenance in the building.
- Remove taped pieces from the windows in order to create light in the classrooms and corridors.
- Take measures for adequate ventilation, cooling and heating.

If the school is planning a (small) redesign of the building, focus should be on:

- Light in the corridors
- Light and internal climate in the classrooms
- Distinctive architectural elements

5.7.3 Recommendations for further research

For the scientific world this research leaves interesting questions unanswered and useful recommendations. First, it turns out that the BAG should be used very carefully. It contains errors which might lead to huge mistakes. The information of this database should be checked.

Second, the findings of the Verified sample of this research are based on 31 schools. As valuable as these findings are, it is strongly recommended to expand this dataset in order to check these findings. This would significantly improve the reliability of the findings. Moreover, due to the small size of this sample, it was not possible to add a random effect parameter for the municipality. This becomes possible in case of a bigger sample.

Furthermore, the Cito-scores turned out to be significantly correlated to vacancy. This underscores the importance of these test results. They are available online since 2013. Prior research indicates that parents find these test results not very important. The survey among the parents of group one of this research indicated that parents are divided on the importance of these test results. It remains unknown whether the accessibility of these test results on internet has changed their importance to the parents. This is fruitful ground for further research.

Furthermore, it was found that the random effect parameter for the municipalities significantly improved the model. This indicates that the municipal policies matter in the reduction of local vacancy among the primary schools. However, this research does not go into detail regarding various municipal policies. This could be subject to further research.

Third, it was found that many schools rent floor space to third parties. However, many aspects of this phenomenon. It is important to know the national scale of renting floor space to third parties. Furthermore, it would be useful to know what the net rental income is, the schools earn. This would give insight in the financial consequences of vacancy among primary schools. If the net rental incomes and scale of the renting of GFA's is known, it can be calculated to what extent this dampens the financial consequences of vacancy among primary schools.

Fourth, the results of this research have led to some useful indications of vacancy: the type of school, building year, height, light classrooms, size of the playing ground, clustering of functions, principal's office, number of groups and heating. Further research could focus on low-cost high effect strategies to adapt such school buildings meet to future demand.

Most of these factors are related to out-dated school buildings. However, parents indicate that building characteristics are of minor concern during the school choice. It is presumed that parent hold a minimal level of acceptability regarding the status of the school building. It is recommended to perform qualitative research in order to check this presumption. Is there indeed a quality threshold for parents: when a school is too degraded, it starts to matter in their decision making process?

Sources

Akkoord. (2014). Home. Retrieved 5 November, 2014, from http://www.akkoord-po.nl/

Allison, G. T. (1992). Public and Private Management: Are they fundamentally alike in all unimportant respects? In G. M. Shaffritz & A. C. Hyde (Eds.), *Classics of Public Administration* (pp. 457-474). Belmont: C.A. Wordsworth.

Andeweg, R. B., & Galen, A. I. (2005). *Governance and politics of the Netherlands* (2th ed.). New York: Palgrave MacMillan.

Arkesteijn, M. H., Steijns, Y., & De Vries, J. (2009). *Het schoolgebouw centraal; Over normkosten en kwaliteit bij nieuwbouw van scholen voor het primair onderwijs*: SFA.

ASV. (2012). Amsterdamse schoolbesturen kampen met leegstand. Retrieved 31 March, 2014, from http://www.avs.nl/artikelen/kwaliteitschoolgebouwnietdoorslaggevendbijschoolkeuze

ASV. (2014). Kwaliteit schoolgebouw niet doorslaggevend bij schoolkeuze. Retrieved 31 March, 2014, from http://www.avs.nl/artikelen/kwaliteitschoolgebouwnietdoorslaggevendbijschoolkeuze

BBC-concultancy. (2014). Letterlijke wettekst van de onderwijswet uit 1806. http://100jaarorthopedagogiek.nl/100jaarPDF/PDF/Extra/1806%20wet%20iversie%201846.pdf

Born, C. (2014, 8 May 2014). Islamitische basisschool in pand De Kraal aan de Nijlstraat, *Dichtbij*. Retrieved from http://www.dichtbij.nl/waterland/regionaal-nieuws/artikel/3497060/islamitische-basisschool-in-pand-de-kraal-aan-de-nijlstraat-update.aspx

Bos, J. (Producer). (2012, 2 february 2014). Verhuur van ruimte in schoolgebouwen. [Presentation] Retrieved from http://www.bouwstenen.nl/fileswijkplaats/Presentatie%20beleidsregels%20Dordrecht%2020%20juni%202012.pdf

Bosetti, L. (2004). Determinants of school choice: understanding how parents choose elementary schools in Alberta. *Journal of Education Policy, 19*(4), 387-405.

Boterman, W. R. (2013). Dealing with Diversity: Middle-class Family Households and the Issue of 'Black' and 'White' Schools in Amsterdam. *Urban Studies, 50*(6), 1130-1147.

Bovens, M. A. P., 't Hart, P., & Van Twist, M. J. W. (2007). *Openbaar bestuur*. Alphen aan den Rijn: Wolters Kluwer.

BPR. (2014). *Tabel 33 Gemeententable*. Retrieved from www.bprbzk.nl/dsresource?objectid=4789&type=org.

Braster, S. (2011). *Passie en pragmatisme; De onderwijsinspectie en de opkomst en ondergang van het klassikaal onderwijs*. Utrecht: Inspectie van het Onderwijs.

Breeman, G. E., Van Noort, W. J., & Rutgers, M. R. (2008). *De bestuurlijke kaart van Nederland*. Bussum: Uitgeverij Coutinho.

Buitelaar, S. (2013). Geen oog voor leegstand maatschappelijk vastgoed. *Binnenlands Bestuur*. http://www.binnenlandsbestuur.nl/ruimte-en-milieu/nieuws/geen-oog-voor-leegstand-maatschappelijk-vastgoed.9172540.lynkx

BvS. (2011, 14 june). Verborgen leegstand scholen. Retrieved 6 january, 2014, from http://www.bouwstenenvoorsociaal.nl/?q=exploitatiekosten%20scholen

BvS (Producer). (2013, 3 february 2014). Gemeente Apeldoorn; huurbeleid voor schoolgebouwen. [Presentation] Retrieved from http://www.bouwstenenvoorsociaal.nl/fileswijkplaats/20130307%20presentatie%20huurbeleid%20Apeldoorn.pdf

BZK. (2014). *Factsheet krimpgebieden en anticipeergebieden*. Den Haag: Retrieved from http://www.rijksoverheid.nl/onderwerpen/bevolkingskrimp/documenten-en-publicaties/brochures/2012/05/29/factsheet-krimpgebieden-en-anticipeergebieden.html.

CBS. (2008). Weinig Nederlanders gaan regelmatig naar kerk of moskee. Retrieved 31 March, 2014, from http://www.cbs.nl/nl-NL/menu/themas/vrije-tijd-cultuur/publicaties/artikelen/archief/2008/2008-2476-wm.htm

CBS. (2009a). *Jaarboek onderwijs in cijfers* Retrieved from http://www.cbs.nl/NR/rdonlyres/8309B176-A48E-4493-A301-A80C2558B57E/0/20092f162pub.pdf

CBS. (2013a). Groeitempo bevolking neemt verder af. Den Haag: Centraal Bureau voor de Statistiek.

CBS. (2013b, 20 februari). Onderwijsinstellingen; financiën. Retrieved 7 january, 2014, from http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=81491NED&D1=0-10,14-17&D2=0-1,3-4,6-7&D3=l&HD=120216-1640&HDR=G2,G1&STB=T

CBS. (2013c). Statline. from Centraal Bureau voor de Statistiek http://statline.cbs.nl/

CBS. (2013d, 18 december). Zorgrekeningen; uitgaven (in lopende en constante prijzen) en financiering. Retrieved 7 january, 2014, from http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=71914NED&D1=0-23,37-45&D2=9-l&HD=101210-0925&HDR=G1&STB=T

CBS. (2013e). Overheid; uitgaven cultuur, sport en recreatie. Retrieved 7 january, 2014, from http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=70130NED&D1=a&D2=a&D3=l&HD=110830-1537&HDR=G2,G1&STB=T

CBS. (2013g). Onderwijsinstellingen; financiën. *2014*(7 january). http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=81491NED&D1=0-10,14-17&D2=0-1,3-4,6-7&D3=l&HD=120216-1640&HDR=G2,G1&STB=T

CBS. (2013h). *Jaarrapport 2013; Landelijke jeugdmonitor*. Den Haag: Centraal Bureau voor de Statistiek.

CBS. (2014a). In 2013 minder geboorten en minder huwelijken. Den Haag: Centraal Bureau voor de Statistiek.

CBS. (2014b). Begrippen; allochtoon. Retrieved 12 June, 2014, from http://www.cbs.nl/nl-NL/menu/methoden/begrippen/default.htm?ConceptID=37

CFI. (2006). Nieuwe gewichtenregeling basisonderwijs. Zoetermeer: CFI.

Cito. (2014). De geschiedenis van Cito Retrieved 24 june 2014, from http://www.cito.nl/over%20cito/dit_is_cito/geschiedenis

De Architect. (2014, 1 May 2014). Miljoenenverlies door leegstand scholen, *De Architect*. Retrieved from http://www.dearchitect.nl/nieuws/2014/05/01/miljoenenverlies-door-leegstand-scholen.html

De Cock, W. (2014). Hoe de muur valt in Achlum. *Elsevier, 70,* 24-25.

De Gids, W. F., Van Oel, C. J., Phaff, J. C., & Kalkman, A. (2007). Het effect van ventilatie op de cognitieve prestaties van leerlingen op een basisschool. Delft: TNO.

De Jonge, H., Arkesteijn, M., Den Heijer, A., Vande Putte, H., De Vries, J., & Van der Zwart, J. (2008). *DAS Framework Designing an Accommodation Strategy*. Delft: Technical University Delft.

De Koster, Y. (2013). Verloedering basisscholen dreigt. *Binnenlands Bestuur.* Retrieved 31 March, 2014, from http://www.binnenlandsbestuur.nl/financien/nieuws/verloedering-basisscholen-dreigt.9176708.lynkx

de Stentor. (2012). Stijging aantal lege lokalen. *De Stentor*.

Dekker, S. (2012). Regeling aanpassing van de stichtings- en opheffingsnormen voor het basisonderwijs in 2013. *Staatscourant*(Nr. 26469).

denederlandsegrondwet.nl. (2014). Artikel 6: Vrijheid van godsdienst en levensovertuiging. Retrieved 5 march, 2014, from http://www.denederlandsegrondwet.nl/9353000/1/j9vvihlf299q0sr/vgrnbhimm5zv

Dijkstra, A. B., & Witziers, B. (2001). *Kwaliteit van scholen en keuzeprocessen in het onderwijs* S. Karsten, R. Veenstra & A. J. Visscher (Eds.), *Het oog der natie: scholen op rapport*

DoZ. (2014, 16 february 2014). Voormalig schooldirecteur vreest voor vele verliezers bij verhuizing van scholen in Voorhof, *Delft op Zondag,* pp. 1-3. Retrieved from

http://www.delftopzondag.nl/algemeen/voormalig-schooldirecteur-vreest-voor-vele-verliezers-bij-verhuizing-van-scholen-voorhof

Dronkers, J. (2013). *Cito variabelen 2013b*. Retrieved from: http://www.schoolcijferlijst.nl/HOME_bo.html

DUO. (2010). *Leerlingen (speciaal) basisonderwijs per schoolvestiging naar leerjaar*. Retrieved from: http://data.duo.nl/organisatie/open_onderwijsdata/databestanden/po/Leerlingen/Leerlingen/leerjaar.asp

DUO. (2011). *Leerlingen (speciaal) basisonderwijs per schoolvestiging naar leerjaar*. Retrieved from: http://data.duo.nl/organisatie/open_onderwijsdata/databestanden/po/Leerlingen/Leerlingen/leerjaar.asp

DUO. (2012). *Leerlingen (speciaal) basisonderwijs per schoolvestiging naar leerjaar*. Retrieved from: http://data.duo.nl/organisatie/open_onderwijsdata/databestanden/po/Leerlingen/Leerlingen/leerjaar.asp

DUO. (2013). *Leerlingen (speciaal) basisonderwijs per schoolvestiging naar leerjaar*. Retrieved from: http://data.duo.nl/organisatie/open_onderwijsdata/databestanden/po/Leerlingen/Leerlingen/leerjaar.asp

Dynamiek. (2014). Home. Retrieved 5 November, 2014, from http://www.dynamiek.nu/index.php?id=3

E-overheid. (2013). Inzicht in maatschappelijk vastgoed dankzij basisregistraties. Retrieved 16 january, 2014, from http://www.e-overheid.nl/actueel/i-nup-toppers/intItem/inzicht-in-maatschappelijk-vastgoed-dankzij-basisregistraties/2049

Field, A. (2009). *Discovering statistics using SPSS Third Edition*. London: SAGE Publications Ltd.

Floréo. (2014). Home. Retrieved 5 november, 2014, from http://www.stichtingfloreo.nl/

Geltner, D. M., Miller, N. G., Clayton, J., & Eicholtz, P. (2007). *Commercial Real Estate; Analysis & Investments.* . Mason, USA: Thomson Higher Education.

Gemeente Horst aan de Maas. (2009). *Samen vooruit!* Horst: Gemeente Horst aan de Maas.

Gilsing, R., & Tierolf, B. (2010). Ouders nemen de wijk; In de eigen wijk naar school in gemengde wijken in Utrecht. Utrecht: Verwey-Jonker Instituut.

Goetheer, G. J. J. (2008). *Regelingen onderwijshuisvesting*. Den Haag: Sdu Uitgevers B.V.

Hattem. (2013). *Maatschappelijke visie Hattem; 2013-2025*. Hattem: Gemeente Hattem.

Heijnders, L. (2014). *Informatie Louk Heijnders*. TU-Delft.

Hordijk, J. C. (2001). *De democratie van het respect*. Delft: Uitgeverij Eburon.

Jacobs, N. (2013). Understanding School Choice: Location as a Determinant of Charter School Racial, Economic, and Linguistic Segregation. *Education and Urban Society, 45*(4), 459-482.

Jager, J., & Naus, M. (2012). Onderzoek Kadaster en Vitale stad; Inwoner Enschede bezit meeste maatschappelijk vastgoed. *Vitale Stad, 15*(January), 22-37.

Jenaplan. (2014). Jenaplanconcept. Retrieved 22 april, 2014, from http://www.jenaplan.nl/

Kahlenberg, R. D. (2001). *All together now: creating middle-class schools through public school choice*. Washington D.C.: Brookings Institution Press. .

Karsten, S., Dijkstra, A. B., Veenstra, R., Visscher, A., & Waslander, S. (2001). *Kwaliteit van scholen in de openbaarheid. Over publieke verantwoordelijkheid in het onderwijs.* S. Karsten, R. Veenstra & A. J. Visscher (Eds.), *Het oog der natie: scholen op rapport*

Karsten, S., Roeleveld, J., Ledoux, G., Felix, C., & Elshof, D. (2002). *Schoolkeuze in een multi-etnische samenleving*. Amsterdam: SCO-Kohnstamm Instituut van de Faculteit der Maatschappij- en Gedragswetenschappen, Universiteit van Amsterdam.

Klis, H. (2011, 13 june). Bezuinigingen op docenten 'pijnlijk en problematisch voor kabinet', *NCR Handelsblad*.

Koning, P., & Van der Wiel, K. (2010b). *Ranking the schools: How quality information affects school choice in the Netherlands*. Den Haag.

Koning, S., & Vos, E. (2011). Rapportage Marktontwikkelingen in het primair en voortgezet onderwijs CPS.

Kuhry, B., Jonker, J. J. J., & Van der Torre, A. G. J. (2010). Maten voor gemeenten 2010. Den Haag: Sociaal en Cultureel Planbureau.

Leenders, M., & Rensema, J. (2013). Gebruik school gebouwen door derden. *OSG nieuws, June*, 10-13.
http://www.osg.nl/docs/OSG%20Nieuws/juni%202013/OSG0144%20nieuws%20juni%202013_Gebruik%20schoolgebouwen%20door%20derden.pdf

Leerlingdaling.nl. (2014a). Handboek primair onderwijs; Financien > Leegstand. from http://www.leerlingendaling.nl/handboek-primair-onderwijs/financien/leegstand

Lokhorst, J., Remøy, H., & Koppels, P. (2013). Mismatch tussen vraag en aanbod; verborgen leegstand. *Real Estate Research Quarterly, 12*(3).

Lyotard, J. F. (1984). *The postmodern condition*. Manchester: Manchester University Press.

Martens, O., Walraven, G., & Lucassen, P. (2013). *Schoolgebouwen en schoolkeuze in amsterdam nieuw west*. Amsterdam: LKGMS.

Moerkamp, J. (2012, 9 january). 20 miljard aan onbenut gemeentelijk vastgoed. *Binnenlands Bestuur.* from http://www.binnenlandsbestuur.nl/financien/nieuws/20-miljard-aan-onbenut-gemeentelijk-vastgoed.8504448.lynkx

Molmans, P. (2014). Vrije val onderwijshuisvesting. *Bouwstenen voor Sociaal, april*.

Mullink, B. (2013). Maatschappelijk vastgoed loopt leeg, *CoBouw*. Retrieved from http://www.cobouw.nl/nieuws-kort/algemeen/2013/12/05/maatschappelijk-vastgoed-loopt-leeg

Noailly, J., & Koning, P. (2009). Schoolkeuze, concurrentie en kwaliteit in het basisonderwijs. *ESB, 94*(4554), 118-120.

OCW. (2014). Passend onderwijs. Retrieved 24 April, 2014, from http://www.passendonderwijs.nl/hoe-werkt-passend-onderwijs/wat-is-passend-onderwijs/situatie-voor-passend-onderwijs/knelpunten-huidige-systeem/

parlement.com. (2014). Artikel 23 Grondwet. Retrieved 5 march, 2014, from http://www.parlement.com/id/vh8lnhrouwy3/artikel_23_grondwet

Paulle, B. (2006). Voorbij de oude debatten: Een voorstel voor 'economische' desegregatie van het onderwijs. Retrieved 17 April, 2014, from http://www.rkdiaconie.nl/uploadedDocs/SA-IntegratieEssayPaulle%281%29.pdf

Peeman, A., Peters, H., Verhoef, J., & Bakhuizen, R. (2013). Onderwijsvastgoed Gemeente Pijnacker-Nootdorp; een strategisch huisvestingsplan voor het basisonderwijs in Pijnacker. Tilburg: TiasNimbas.

Peschar, J., & Van der Wal, M. (2001). *Waarom alleen rapportcijfers of diploma's?* S. Karsten, R. Veenstra & A. J. Visscher (Eds.), *Het oog der natie: scholen op rapport*

PO Raad. (2014). Stichtings- en opheffingsnormen per 1 augustus 2013. Retrieved 9 july, 2014, from http://www.poraad.nl/content/stichtings-en-opheffingsnormen-1-augustus-2013

Priemus, H. (2010). The credit crunch: impacts on the housing market and policy responses in the Netherlands. *Journal for Housing and the Built Environment, 25*, 95-116.

Primo VPR. (2014). Welkom. Retrieved 5 november, 2014, from http://www.primovpr.nl/page.cfm?id=490924

PropertyNL. (2013, 4 july 2014). Exploitatiekosten gemeentelijk vastgoed gestegen. *ProperyNL.* Retrieved 6 january, 2014, from http://www.propertynl.com/index-newsletter/exploitatiekosten-gemeentelijk-vastgoed-gestegen

Purmerend. (2012). *Integraal Huisvestingsplan 2011-2012*. Purmerend: Gemeente Purmerend.

Purmerend in Cijfers. (2014). Purmerend in cijfers. Retrieved 18 October, 2014, from https://purmerend.buurtmonitor.nl/

Raadschelders, J. C. N., Toonen, T. A. J., & Van der Meer, F. M. (2007). *The Civil Service in the 21st Century*. Houndmills, Basingstroke, Hampshire: Palgrave Macmillan.

Rademaker, L. (2007). *Schets van de Nederlandse samenleving; Ontwikkelingen en actualiteit*. Den Haag: Boom Onderwijs.

Rath, J., Penninx, R., Groenendijk, K., & Meijer, A. (1996). *Nederland en zijn Islam. Een ontzuilde samenleving reageert op het ontstaan van een geloofsgemeenschap* Amsterdam: Het Spinhuis.

Rekenkamer. (2013a, 12 december 2013). Risico's bij overheveling geld voor onderhoud basisscholen.

Rekenkamer. (2013b). *Brief aan de Tweede Kamer Aandachtspunten overheveling buitenonderhoud en aanpassing schoolgebouwen*. rekenkamer.nl: Algemene Rekenkamer Retrieved from www.rekenkamer.nl/dsresource?objectid=2550&type=org.

Rijksbouwmeester. (2009). *Gezond en goed; Scholenbouw in topconditie*. Den Haag: Atelier Rijksbouwmeester Retrieved from http://www.rgd.nl/fileadmin/redactie/Onderwerpen/Themas/Architectuurbeleid/Scholenbouwadvies_01.pdf.

Rijksoverheid. (2013a). Ontstaan kredietcrisis. Retrieved 6 january, 2014, from http://www.rijksoverheid.nl/onderwerpen/kredietcrisis/ontstaan-kredietcrisis

Rijksoverheid. (2013b). Basisscholen zelf verantwoordelijk voor onderhoud gebouw. Retrieved 31 March, 2014, from http://www.rijksoverheid.nl/nieuws/2013/02/08/basisscholen-zelf-verantwoordelijk-voor-onderhoud-gebouw.html

Rijksoverheid. (2013c, 8 february 2013). Basisscholen zelf verantwoordelijk voor onderhoud gebouw, *Rijksoverheid.nl*. Retrieved from http://www.rijksoverheid.nl/nieuws/2013/02/08/basisscholen-zelf-verantwoordelijk-voor-onderhoud-gebouw.html

Rijksoverheid. (2014a). Taken van een gemeente. from http://www.rijksoverheid.nl/onderwerpen/gemeenten/taken-gemeente

Rijksoverheid. (2014b). Leerachterstand. Retrieved 28 march, 20014, from http://www.rijksoverheid.nl/onderwerpen/leerachterstand/vraag-en-antwoord/wat-is-de-gewichtenregeling-in-het-basisonderwijs.html

Rijksoverheid. (2014c). Financiering onderwijks. Retrieved 31 March, 2014, from www.rijksoverheid.nl/onderwerpen/financiering-onderwijs/vraag-en-antwoord/wie-is-verantwoordelijk-voor-de-huisvesting-van-scholen-en-aan-welke-eisen-moet-een-schoolgebouw-voldoen.html

Rijksoverheid. (2014d). Financiering primair onderwijs. Retrieved 31 March, 2014, from http://www.rijksoverheid.nl/onderwerpen/financiering-onderwijs/financiering-primair-onderwijs

Rijksoverheid. (2014e). Passend onderwijs. Retrieved 24 April, 2014, from http://www.rijksoverheid.nl/onderwerpen/passend-onderwijs

Rijksoverheid. (2014f). Bevolkingskrimp. Retrieved 3 december, 2014, from http://www.rijksoverheid.nl/onderwerpen/bevolkingskrimp/oorzaken-en-gevolgen-bevolkingskrimp

Ritsema van Eck, J., Van Dam, F., De Groot, C., & De Jong, A. (2013). Demografische ontwikkelingen 2010-2040; ruimtelijke effecten en regionale diversiteit. Den Haag: Planbureau voor de Leefomgeving (PBL).

Regeling, houdende de vaststelling van de bedragen voor de materiële instandhouding van het basisonderwijs. (2010).

RTVNH. (2014, 9 July). Burgemeester Don Bijl heeft woensdag een open brief geschreven, omdat hij zich zorgen maakt over de houding rondom de komst van een islamitische school in Purmerend. , *RTV Noord-Holland*. Retrieved from http://www.rtvnh.nl/nieuws/146899/Burgemeester+Purmerend+uit+zorgen+over+houding+komst+islamitische+school

Rutgers, M. (2004). *Grondslagen van de bestuurskunde; Historie, begripsvorming en kennisintegratie*. Bussum: uitgeverij Coutinho.

Schelle, T. (2013). Rendement op Rijksvastgoed: Op naar de nieuwe normaal. http://www.rgd.nl/fileadmin/redactie/Onderwerpen/Themas/Prijsvraag_2013__Rendement_op_vastgoed/Schelle_essay.pdf

Schmeets, H. (2014). *De religieuze kaart van Nederland, 2010–2013*. Den Haag: Centraal Bureau voor de Statistiek.

Uitvoeringsbesluit voorzieningen in de huisvesting PO/VO, nr. 97000450/3702 C.F.R. (1997).

Steijns, Y., & Koutamanis, A. (2004). *Onderwijsvisie & schoolgebouw*. Amsterdam: Uitgeverij Sun.

Stel, J., & Hofstee, C. (2007). Integraal Huisvestingsplan (IHP); Onderwijshuisvesting Gemeente Blaricum. Haren: Grontmij.

Stiglitz, J. E. (2010). *Freefall*. London: W. W. Norton & Company Ltd.

Ter Avest, I., Bakker, C., Bertram-Troost, G., & Miedema, S. (Eds.). (2006). *Religion and education in the Dutch post-pillarized education system: historical background and current debates*. Hamburg: Redco.

Teuben, B. J. J., Waldmann, M., & Hordijk, A. C. (2007). *An Inventory of Municipal Real Estate; The case of The Netherlands*. Paper presented at the ERES 2007 conference.

Van Buggenum, S. W. H. (2003). *Het binnenmilieu van basisscholen en de leerprestatie van leerlingen.* Universiteit van Maastricht, Maastricht.

Van den Bogaerdt, M. (2012, 17 December). Veel besturen in Amsterdam kampen met leegstand, *Het Parool*. Retrieved from http://www.vosabb.nl/amsterdamse-besturen-kampen-met-leegstand/

Van der Horst, V. (2014, 4 July). Purmerendse politicus bedreigd wegens kritiek islamitische school, *Dichtbij*. Retrieved from http://www.dichtbij.nl/waterland/regio/artikel/3606295/purmerendse-politicus-bedreigd-wegens-kritiek-islamitische-school.aspx

Van der Houwen, K., Goossen, J., & Veling, I. (2004). *Reisgedrag kinderen basisscholen*. Veenendaal: Traffic Test B.V.

Van der Wal, R. (2011). *Cijfers Maatschappelijk Vastgoed*. Amersfoort: Bouwstenen voor Sociaal.

Van Duin, C., & Stoeldraijer, L. (2012). Bevolkingsprognose 2012–2060; langer leven, langer werken. Den Haag: Centraal Bureau voor de Statistiek.

Van Elp, M., & Zuidema, M. V. (2013). Bouwen voor het onderwijs; perspectief voor de Nederlandse bouw. Amsterdam: Economisch Instituut voor de Bouw.

Van Gelder, X. (1995, 14 november). De ideale basisschool is nog een droom, *De Volkskrant*.

Van Leent, M. (2012). *Publiek vastgoed*. Culemborg: Trancity - Valiz.

Vastgoedmarkt. (2013a). Publiek vastgoed loopt leeg, *Vastgoedmarkt,* p. 8.

Vastgoedmarkt. (2013b, 28 february 2014). Publiek vastgoed wacht miljardenverliezen. *Vastgoedmarkt.* Retrieved 9 january, 2014, from http://www.vastgoedmarkt.nl/nieuws/2013/02/28/Publiek-vastgoed-wacht-miljardenverliezen-binnenland

VCO De Kring. (2014). Home. Retrieved 5 november, 2014, from http://www.vcodekring.nl/

Venray. (2011). *Bijlage bij Adviesnota 'Beleidsregels medegebruik en verhuur huisvesting basisonderwijs gemeente Venray 2011'; Toelichting tarieven voor verhuur.* Venray: Gemeente Venray.

Verhage, J. J. (1985). Vergoedingsstelsel basisonderwijs per 1 augustus 1985. *Digibron*.

Veuger, J. (2009). Onderzoek voor maatschappelijk vastgoed noodzakelijk. *TiasNimbas,* 11-13.

VNG. (2008). *Bijlage 1 bij VNG-brief BAOZW/U200800406*.

VNG. (2008b). Bouwbesluit; wijziging 2005. Retrieved 19 june, 2014, from http://www.vng.nl/onderwerpenindex/onderwijs/onderwijshuisvesting/bouwbesluit-wijziging-2005

VNG. (2012). Plan voor overhevelen onderhoud basisscholen onvoldoende doordacht. Retrieved 31 March, 2014, from http://www.vng.nl/onderwerpenindex/onderwijs/nieuws/plan-voor-overhevelen-onderhoud-basisscholen-onvoldoende-doordacht

VNG. (2013). Wat gebeurt er met onderwijshuisvesting in 2015? Retrieved 31 March, 2014, from http://www.vng.nl/onderwerpenindex/onderwijs/onderwijshuisvesting/nieuws/wat-gebeurt-er-met-onderwijshuisvesting-in-2015

VNG. (2014a). Ontwikkelingen onderwijshuisvesting in 2015 Retrieved 31 March, 2014, from http://www.vng.nl/onderwerpenindex/onderwijs/onderwijshuisvesting/ontwikkelingen-onderwijshuisvesting-in-2015

Figures and tables

Figures

Tables

Appendix A

Results of the research of Van der Wal (2011)

2011	Van der Wal	turnover	source	housing costs	source	housing costs	source	costs /m2	space	percentage
				% of turnover		total per year		per year	m2 GFA	% of total
education										
primary education (incl. special educat	€	10.000.000.000	3	11,1%	3	€ 1.110.000.000	12	€ 110,00	10.100.000 m2	12%
secondary education (incl. special educ	€	7.000.000.000	3	11,1%	3	€ 780.000.000	12	€ 121,00	6.400.000 m2	8%
secondary vocational education	€	4.500.000.000	3	14,6%	3	€ 660.000.000	12	€ 121,00	5.400.000 m2	6%
higher vocational education	€	3.300.000.000	3	13,4%	3	€ 440.000.000	12	€ 140,00	3.100.000 m2	4%
universities	€	5.700.000.000	3	13,6%	3	€ 780.000.000	12	€ 155,00	5.000.000 m2	6%
						€ 3.770.000.000			30.000.000 m2	36%
childcare										
childcare	€	4.300.000.000	18	12,4%	22	€ 530.000.000	12	€ 138,00	3.900.000 m2	5%
culture										
libraries	€	640.000.000	16,17	14,5%	16	€ 90.000.000	12	€ 191,00	500.000 m2	1%
museums	€	830.000.000	10,17	19,2%	10	€ 160.000.000	12	€ 262,00	600.000 m2	1%
art accomodations	€	410.000.000	17	100,0%	17	€ 410.000.000	12	€ 262,00	1.600.000 m2	2%
						€ 660.000.000			2.700.000 m2	3%
sports										
sport accomodations	€	1.260.000.000	17,20	100,0%	17,2	€ 1.260.000.000	12	€ 223,00	5.700.000 m2	7%
care										
hospitals and specialist practices	€	22.390.000.000	18,26	6,5%	26	€ 1.460.000.000	6,12	€ 254,00	5.700.000 m2	7%
remainder support services	€	4.600.000.000	18	12,5%	4,27	€ 580.000.000	6,12	€ 183,00	3.200.000 m2	4%
general practitioners, dentists and para	€	6.700.000.000	18,19	14,5%	19	€ 970.000.000	12	€ 183,00	5.300.000 m2	6%
mental health	€	5.400.000.000	4,18	9,1%	4,27	€ 490.000.000	6,12	€ 186,00	2.600.000 m2	3%
eldery care	€	16.000.000.000	18	9,3%	4	€ 1.490.000.000	6,12	€ 179,00	8.300.000 m2	10%
handicapped care	€	7.900.000.000	4,18	9,7%	4,27	€ 770.000.000	6,12	€ 186,00	4.100.000 m2	5%
youth care	€	1.800.000.000	18	7,7%	8,25	€ 140.000.000	6,12	€ 190,00	700.000 m2	1%
						€ 5.900.000.000			29.900.000 m2	36%

welfare												
social work	€	3.000.000.000	18	12,2%	12	€	360.000.000	12	€	139,00	2.600.000 m2	3%
remaining sociatal real estate												
sheltered workshops	€	2.500.000.000	5	4,0%	13	€	100.000.000	12	€	108,00	900.000 m2	1%
townhalls and provincehalls	€	4.830.000.000	12	20,0%	12	€	970.000.000	12	€	241,00	4.000.000 m2	5%
firebrigades	€	1.100.000.000	1	21,0%	12	€	230.000.000	12	€	192,00	1.200.000 m2	1%
police stations	€	4.900.000.000	9	11,2%	12	€	550.000.000	12	€	222,00	2.500.000 m2	3%
						€	1.850.000.000				8.600.000 m2	10%
Total						€	14.330.000.000				83.400.000 m2	100%
offices in use by the central government											4500000 m2	5%
Total public real estate (incl. Offices central government)											87.900.000 m2	105%
references											46.800.000 m2	
Total Dutch office stock											34.600.000 m2	
Total Dutch retail stock (incl. warehouses and distribution centers)											81.400.000 m2	98%

Sources

1 Brandweerstatistiek 2009, Centraal Bureau voor de Statistiek
2 Factsheet kantorenmarkt 2011, DTZ Zadelhoff
3 Financiële gegevens onderwijsinstellingen 2009, Centraal Bureau voor de Statistiek
4 Financiën zorginstellingen 2008, Centraal Bureau voor de Statistiek
5 Huishoudboekje van Nederland; uitgaven sociale zaken en werkgelegenheid, 2010, Ministerie van Financiën
6 Jaarbeeld Bouwkosten Zorginstellingen 2010, TNO
7 Jaarboek onderwijs in cijfers 2010, Centraal Bureau voor de Statistiek
8 Jaarboek onderwijs in cijfers 2010, Centraal Bureau voor de Statistiek
9 Jaarverslag 2010, Jeugdzorg Noord-Brabant
10 Jaarverslag en slotwet Ministerie van Binnenlandse Zaken 2009, Ministerie van Binnenlandse Zaken
11 Jaarverslagen verschillende musea
12 Jaarrapportage Bedrijfsvoering Rijk 2010, Ministerie van Binnenlandse Zaken
13 Kennis exploitatiekosten bbn adviseurs
14 Kostenonderzoek per SW plaats 2005, SEOR
15 Modelverordening voorzieningen huisvesting onderwijs gemeente 2009, Vereniging van Nederlandse Gemeente
16 Monitor decentralisatie onderwijshuisvesting PO/VO, 2006, Research voor beleid bv
17 Nederlandse Openbare Bibliotheekstatistieken 2007, Vereniging Openbare Bibliotheken
18 Overheidsuitgave cultuur, sport en recreatie 2009, Centraal Bureau voor de Statistiek
19 Persbericht ‘uitgaven aan zorg groeien minder snel’, 2011, Centraal Bureau voor de Statistiek
20 Praktijken van zorgondernemers; verlies- en winstrekeningen 2009, Centraal Bureau voor de Statistiek
21 Rapportage sport, 2006, Centraal Bureau voor de Statistiek
22 Retail facts 2010, Locatus
23 Sectorrapport kinderopvang 2008, Waarborgfonds kinderopvang
24 Stand van zaken Nederlandse kantorenmarkt 2011, NVM
25 Werk aan de winkel, 1998, ir. W. van der Toorn Vrijthoff, Technische Universiteit Delft
26 Uitvoeringsprogramma jeugdzorg 2007, Provincie Groningen
27 Ziekenhuizen; exploitatie, personeel en productie 2009, Centraal Bureau voor de Statistiek
28 Zorgvastgoedmonitor 2008, Twynstra Gudde & TU Delft

Appendix B

Description how the data was obtained

1. **BAG-extract**

   The basis of the data used for this research is obtained at the Cadastre. It holds a database of address-specific building information (BAG). This information concerns Gross Floor Area (GFA), building year, function, and status of the building.

   Dutch municipalities are responsible for the information in this database. The information is accessible in two ways:

   a. By means of a web-viewer (http://bagviewer.pdok.nl/index.html). This web-viewer allows the user to view building specific information by clicking on a certain object on a map or enter an address.
   b. Through an extract from the database.

   First step in the research was the obtaining of an extract of the BAG, holding all the buildings in the Netherlands.

2. **Transformation of the data**

   Since this extract holds an XML-structure, it is not directly ready for use in statistical software like SPSS or Excel. The data consists of 30Gb divided over seven main folders and numerous separate files. By means of an XML-script, the information was bundled. After that, a selection was made on all buildings holding an educational function.

3. **Matching BAG and addresses**

   All addresses of all primary schools[79] in the Netherlands are obtained from the website of the ministry of Education, Culture and Science. The bundled information from the BAG-extract were matched with the addresses of the primary schools.

   Not all primary school buildings are marked as such in the BAG. Through this match the building years and GFA's of 6.371 of the 6.802 primary schools were obtained.

   Information on 431 schools remained missing since their address did not match the addresses in the BAG.

   Moreover, twelve cases were removed from the database since they carried the error code '99999' as their GFA. As a result, information 443 schools was missing.

   To solve this, information of 382 of the missing 443 schools was obtained manually by means the web-viewer of the BAG. The remaining 61 schools were added as part of the process of enriching, as described below.

4. **Visual inspection**

   The municipalities are responsible for the delivery of the right information to the BAG. Nevertheless, visual inspection revealed several excessive results of unrealistic small or large

[79] For reasons of limitations, the special schools for children with special needs are left out of this research.

schools. For example: 48 of the 210 primary schools in the municipality of Amsterdam are registered with 1m^2 GFA. Phone contact with the municipality confirmed the logic conclusion that the municipality had not yet delivered all information to the BAG.

On the other hand the municipality of Almere seems to hold 17 of the 73 schools in het municipality with more than 7.000 m^2 GFA. Considering the fact the average school hold only circa 1.400 m^2 GFA, these data seems rather unrealistic. Again, phone contact with the municipality confirmed this thought.

5. Enriching of the dataset

Since the visual inspection indicated some irregularities, the municipalities were contacted by email for additional information.

In a first round in week 21, the following 55 municipalities were contacted for additional information:

Horst aan de Maas	Zaanstad	Deventer	Deurne
Hoofddorp	Utrecht	Borger-Odoorn	Rucphen
s Hertogenbosch	Haarlemmermeer	Eersel	Roerdalen
Zeist	Amsterdam	Boxtel	Oss
Vaals	s-Gravenhage	Hoorn	Stichtse Vecht
Hendrik-Ido-	Doesburg	Groningen	Oisterwijk
Ambacht	Heerlen	Doetinchem	Harderwijk
Goes	Leusden	Bernheze	Bergen (NH.)
Heemskerk	Alphen-Chaam	Tilburg	Maastricht
Castricum	Roermond	Hardenberg	Epe
Zwolle	Simpelveld	Schiedam	Almere
Geldrop-Mierlo	Gennep	Apeldoorn	Eijsden-Margraten
Den Helder	Enschede	Eindhoven	Beuningen

At the 26th of June, 34 (58%) of these municipalities had reacted. 31 (53%) could provide additional data. 3 (5%) municipalities indicated that the inventory of the right data would consume too much time. Therefore the refused to provide the correct gross floor areas of the schools.

The remaining 25 municipalities that had not reacted, were sent a reminder by email.

Additionally, all 45 municipalities with more than 40% vacancy or 40% floor space demand (i.e.: shortage of floor space) were contacted by email on the 26th of June, in request for additional data. The following municipalities were contacted:

Millingen aan de Rijn	Zoetermeer	Marum	Ridderkerk
Ouder-Amstel	Bussum	Rijswijk ZH	Hillegom
Voorschoten	Gouda	Asten	Heerde
Vught	Steenbergen	Valkenburg aan de Geul	
Albrandswaard	Brielle	Terneuzen	
Heumen	Voerendaal	Sittard-Geleen	
Diemen	Muiden	Menameradiel	
Leidschendam-Voorburg	Amstelveen	De Ronde Venen	
Oegstgeest	Velsen	Zutphen	
Renswoude	Venlo	Barendrecht	
Barneveld	Zevenaar	Zandvoort	
Spijkenisse	Schermer	Gorinchem	
Rozendaal	Mill en Sint Hubert	Beemster	
Boekel	Vlist	Capelle aan de Ijssel	

In week 34 a total of 68 of the 100 (68%) municipalities had reacted. 60 municipalities had given useful information, while 8 municipalities could not give the data requested. On the 20th of August, all 34 remaining municipalities were sent another reminder by email.

As a result of this reminder, on the 21th of October, 80 municipalities (80%) had reacted. In total, 74 (74%) of the municipalities delivered useful information regarding the size of their primary schools.

Therefore it can be concluded that 18% of all Dutch municipalities[80] have delivered useful information for this research.

The table below shows the mutations during the process of data obtaining.

	BAG raw	BAG error check	BAG added	BAG enriched
number of schools	6.371	6.359	6.802	6.802
missing	431	443	0	0
supply GFA (m2)	21.24	9.246.34	9.714.65	9.622.977
	6.331	3	2	

6. Difference datasets

In order to check the significance of the differences between the two datasets, a t-test[81] is performed. The significance level used is >0,05.

The variability of the growth of the municipality and vacancy in the two datasets is not significantly different, but there is a statistically significant difference between the means of the two datasets, which exceed chance.

Furthermore, it is concluded that variability of the building years of the schools in the two datasets is significantly different, but there is no statistically significant difference between the means of the two datasets.

And last, the number of children in the postcode area, the regions of population decline, average size of the municipalities and rejuvenation in the municipalities are all significantly different. The table below gives an overview of the results of this analysis.

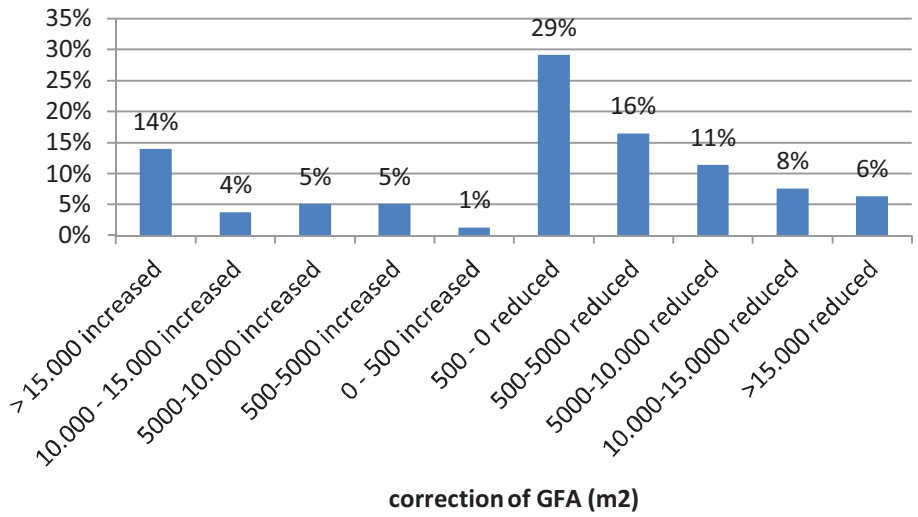
[80] There were 403 municipalities in 2013 in the Netherlands.

[81] Independent samples t-test.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
VACANCY_2013	Equal variances assumed	2,570	,109	-4,250	6800	,000	-119,20946	28,05100	-174,19819	-64,22072
	Equal variances not assumed			-4,647	2969,235	,000	-119,20946	25,65175	-169,50646	-68,91246
BUILDING_YEAR	Equal variances assumed	11,991	,001	,792	6768	,428	1,38491	1,74807	-2,04186	4,81167
	Equal variances not assumed			,561	1777,696	,575	1,38491	2,47042	-3,46032	6,23013
krimpregio	Equal variances assumed	235,975	,000	-6,919	6800	,000	-,08865	,01281	-,11377	-,06354
	Equal variances not assumed			-7,383	2841,442	,000	-,08865	,01201	-,11220	-,06511
GROWTH_MUN	Equal variances assumed	,906	,341	-5,818	6800	,000	-,00258	,00044	-,00344	-,00171
	Equal variances not assumed			-6,560	3147,879	,000	-,00258	,00039	-,00335	-,00181
POSTCODE	Equal variances assumed	44,162	,000	-12,877	6800	,000	-330,71167	25,68206	-381,05655	-280,36679
	Equal variances not assumed			-11,436	2187,663	,000	-330,71167	28,91808	-387,42144	-274,00190
AV_SIZE_MUNICIPALITY_2012	Equal variances assumed	533,115	,000	-20,746	6800	,000	-100277,11816	4833,63264	-109752,55063	-90801,68569
	Equal variances not assumed			-15,387	1847,452	,000	-100277,11816	6516,83481	-113058,25319	-87495,98313
REJUVENATION	Equal variances assumed	20,458	,000	-2,391	6800	,017	-,00246	,00103	-,00447	-,00044
	Equal variances not assumed			-3,820	6754,971	,000	-,00246	,00064	-,00372	-,00120

Furthermore it is noted that the municipalities note on average a reduction of 1.088m^2 or 6,28% of their current supply when compared to the error-checked version of the BAG. On average the amount floor space was increased by the municipalities is 6.643 m^2 GFA and on average the municipalities that reduced their stock stated a reduction of 19.910 m^2 GFA. As displayed below, most (48%) municipalities increased their total stock with 500 m^2 GFA at max.



Appendix C

Survey parents

Start page

Geachte heer, mevrouw,

In de afgelopen twee jaar heeft u tenminste één kind aangemeld voor een basisschool.

De omvang en kwaliteit van de Nederlandse basisscholen staat regelmatig in de media ter discussie.
Voor mijn afstuderen van de opleiding Bouwkunde aan de Technische Universiteit Delft doe ik onderzoek naar leegstand in het Nederlands basisonderwijs.

De keuze van ouders speelt daarin een belangrijke rol.
Want als ouders hun kinderen niet meer aanmelden op een school, komt die leeg te staan.
Daarom zou ik graag meer van de redenen van ouders om een school te kiezen willen weten.

Deze enquête gaat dus over uw beweegredenen om voor de school te kiezen.
Uw bijdrage wordt vergeleken met gegevens over de school.
Met uw deelname werkt u mee aan belangrijke kennis voor goede basisscholen!

Omdat uw tijd ongetwijfeld beperkt is, is de enquête kort gehouden.
Het invullen van de enquête kost ongeveer 10 minuten.
Ik stel het zeer op prijs als u deze zo goed mogelijk wilt invullen!

Vanzelfsprekend blijft uw bijdrage volledig anoniem!

Bij voorbaat hartelijk dank,

Daniël Vos

Questionnaire

1. In de afgelopen 2 jaar heeft u een kind aangemeld op de basisschool.

   Het kind dat u heeft aangemeld op de basischool is een:

- ○ Meisje
- ○ Jongen

2. Gaan er ook broertjes en/of zusjes naar de school?
   Zo ja: hoeveel?

   Ja

- ○ _____

- ○ Nee

3. Eerst volgen enkele vragen over uw persoonlijke situatie.

   U bent een:

- ○ Vrouw
- ○ Man

4. Wat is uw leeftijd?

_____

5. Wat is uw postcode?

_____

6. Wat is uw gezinssituatie?

- ○ Vader en moeder
  ➡ Continue with question 7.
- ○ Vader alleen
  ➡ Continue with question 10.
- ○ Vader en partner
  ➡ Continue with question 13.
- ○ Moeder alleen
  ➡ Continue with question 10.
- ○ Moeder en partner
  ➡ Continue with question 16.
- ○ Anders, namelijk:

  _____
  ➡ Continue with question 7.

7. In welk land bent u geboren?

- ☐ Moeder _____
- ☐ Vader _____

8. Wat is uw het hoogst genoten opleidingsniveau?

	Niet van toepassing	Basisschool	MAVO	VBO	VMBO	HAVO	VWO	MBO	HBO	WO	Anders, namelijk:
Moeder	○	○	○	○	○	○	○	○	○	○	
Vader	○	○	○	○	○	○	○	○	○	○	

9. Wat is het jaarlijks netto verzamelinkomen van het hoogste inkomen in uw huishouden?

- ○ Tot € 10.000,-
  ➡ Continue with question 19.
- ○ € 10.000,- tot € 20.000,- ➡ Continue with question 19.
- ○ € 20.000,- tot € 30.000,- ➡ Continue with question 19.
- ○ € 30.000,- tot € 40.000,- ➡ Continue with question 19.
- ○ € 40.000,- tot € 50.000,- ➡ Continue with question 19.
- ○ € 50.000,- tot € 100.000,- ➡ Continue with question 19.
- ○ Meer dan € 100.000,- ➡ Continue with question 19.
- ○ Ik geef hierop liever geen antwoord (vraag overslaan).

10. In welk land bent u geboren?

- ☐ Geboorteland: _____

11. Wat is uw het hoogst genoten opleidingsniveau?

	Niet van toepassing	Basisschool	MAVO	VBO	VMBO	HAVO	VWO	MBO	HBO	WO	Anders, namelijk:
Opleidingsniveau:	○	○	○	○	○	○	○	○	○	○	

12. Wat is het jaarlijks netto verzamelinkomen inkomen in uw huishouden?

- ○ Tot € 10.000,- → Continue with question 19.
- ○ € 10.000,- tot € 20.000,- → Continue with question 19.
- ○ € 20.000,- tot € 30.000,- → Continue with question 19.
- ○ € 30.000,- tot € 40.000,- → Continue with question 19.
- ○ € 40.000,- tot € 50.000,- → Continue with question 19.
- ○ € 50.000,- tot € 100.000,- → Continue with question 19.
- ○ Meer dan € 100.000,- → Continue with question 19.
- ○ Ik geef hierop liever geen antwoord (vraag overslaan).

13. In welk land bent u geboren?

- ☐ Vader
- ☐ Partner

14. Wat is uw het hoogst genoten opleidingsniveau?

	Niet van toepassing	Basisschool	MAVO	VBO	VMBO	HAVO	VWO	MBO	HBO	WO	Anders, namelijk:
Vader	○	○	○	○	○	○	○	○	○	○	
Partner	○	○	○	○	○	○	○	○	○	○	

15. Wat is het jaarlijks netto verzamelinkomen van het hoogste inkomen in uw huishouden?

- ○ Tot € 10.000,- → Continue with question 19.
- ○ € 10.000,- tot € 20.000,- → Continue with question 19.
- ○ € 20.000,- tot € 30.000,- → Continue with question 19.
- ○ € 30.000,- tot € 40.000,- → Continue with question 19.
- ○ € 40.000,- tot € 50.000,- → Continue with question 19.
- ○ € 50.000,- tot € 100.000,- → Continue with question 19.
- ○ Meer dan € 100.000,- → Continue with question 19.
- ○ Ik geef hierop liever geen antwoord (vraag overslaan).

16. In welk land bent u geboren?

- ☐ Moeder
- ☐ Partner

17. Wat is uw het hoogst genoten opleidingsniveau?

	Niet van toepassing	Basisschool	MAVO	VBO	VMBO	HAVO	VWO	MBO	HBO	WO	Anders, namelijk:
Moeder	○	○	○	○	○	○	○	○	○	○	
Partner	○	○	○	○	○	○	○	○	○	○	

18. Wat is het jaarlijks netto verzamelinkomen van het hoogste inkomen in uw huishouden?

- ○ Tot € 10.000,- → Continue with question 19.
- ○ € 10.000,- tot € 20.000,- → Continue with question 19.
- ○ € 20.000,- tot € 30.000,- → Continue with question 19.
- ○ € 30.000,- tot € 40.000,- → Continue with question 19.
- ○ € 40.000,- tot € 50.000,- → Continue with question 19.
- ○ € 50.000,- tot € 100.000,- → Continue with question 19.
- ○ Meer dan € 100.000,- → Continue with question 19.
- ○ Ik geef hierop liever geen antwoord (vraag overslaan).

19. Beschouwt u zichzelf als behorend tot een geloofsgenootschap?

- ○ Ja → Continue with question 20.
- ○ Nee → Continue with question 21.

20. U heeft aangegeven dat u zichzelf beschouwt als behorend bij een geloofsgenootschap.
Welke?

- Rooms-Katholiek
- Protestantse Kerk in Nederland
- Gereformeerd
- Evangelisch
- Islamitisch
- Hindoe
- Boeddhist
- Ander geloofsgenootschap

21. Onlangs heeft u uw kind aangemeld op een basisschool.
De volgende vragen zijn allen van toepassing op deze school.

Wat is de naam van de school?

22. Was deze school uw eerste keuze?

- Ja
- Nee (waarom heeft u toch voor deze school gekozen?)

23. Heeft u de school bezocht voordat u uw kind aanmeldde?

- Ja
- Nee

24. Hoe bent u aan informatie gekomen over de school die u gekozen heeft?

- Kennismakingsgesprek met de directie
- Kennismakingsgesprek met docent(en)
- Gesprekken met andere ouders
- Ervaring met broertjes of zusjes op dezelfde school
- Website van de school
- Andere internet-bronnnen
- Informatie verstrekt door de gemeente

Anders, namelijk:

25. Hoe belangrijk waren de onderstaande aspecten bij uw schoolkeuze?

	Zeer onbelangrijk	Onbelangrijk	Neutraal	Belangrijk	Zeer belangrijk
De eindtoetsscores (CITO, SEO e.d.)					
Het beleid van de school voor leerlingen met speciale behoeften (hoogbegaafden, ADHD, autisme etc.)					
De onderwijskwaliteit van de school					
Van de school gaan veel kinderen naar de Havo of het VWO					
Extra activiteiten van de school					
Het aantal leerlingen per klas					
Het totaal aantal leerlingen op de school					
Het schoolconcept (jenaplan, montessori, ed.)					
De school heeft geen wachtlijst					
Het antipest-beleid van de school					
Er wordt tweetalig onderwijs gegeven op de school					
Er worden creatieve vakken gegeven op de school					

26. Hoe belangrijk waren de onderstaande aspecten bij uw schoolkeuze?

	Zeer onbelangrijk	Onbelangrijk	Neutraal	Belangrijk	Zeer belangrijk
Er is niet één groep met dezelfde culturele achtergrond op de school					
Op de school zitten veel kinderen uit hetzelfde milieu					
De veiligheid op en rond de school					
De denominatie (Openbaar, Rooms Katholiek, Protestants-Christelijk e.d.) van de school					
De manier waarop de docenten met de kinderen omgaan					
De aanwezigheid van broertjes of zusjes op de school					
De aanwezigheid van vriendjes mijn kind al kende van voor de aanmelding					

Mond-tot-mond reclame	○	○	○	○	○
Op de school wordt weinig gepest	○	○	○	○	○

27. Hoe belangrijk waren de onderstaande aspecten bij uw schoolkeuze?

	Zeer onbelangrijk	Onbelangrijk	Neutraal	Belangrijk	Zeer belangrijk
Afstand van de school tot de woning	○	○	○	○	○
De verkeersveiligheid rond de school	○	○	○	○	○
De netheid en hygiëne van de school (de school is niet rommelig of vies)	○	○	○	○	○
Het is een mooi schoolgebouw	○	○	○	○	○
Het schoolgebouw is goed onderhouden	○	○	○	○	○
Het schoolgebouw heeft duurzame elementen zoals bijvoorbeeld zonnepanelen of een grasdak	○	○	○	○	○
De faciliteiten van de school zoals een computerruimte, speellokaal of techniekokaal	○	○	○	○	○
De school heeft lichte lokalen	○	○	○	○	○
De school heeft brede gangen	○	○	○	○	○
De school heeft naast de klaslokalen extra ruimten voor onderwijs	○	○	○	○	○
Er is een peuterspeelzaal in of bij de school	○	○	○	○	○
Er is een buitenschoolse opvang in of bij de school	○	○	○	○	○
De bereikbaarheid van de school	○	○	○	○	○
De school heeft ruime lokalen	○	○	○	○	○
De school heeft een groot speelplein	○	○	○	○	○

28. Kunt u de onderstaande categoriën rangschikken naar belangrijkheid voor uw schoolkeuze.
(sleep de tekst in het vak)

Nummer 1 is het belangrijkst

	Nummer 1 (het belangrijkst)	Nummer 2	Nummer 3	Nummer 4	Nummer 5	Nummer 6	Nummer 7	Nummer 8	Nummer 9	Nummer 10
De locatie van de school	○	○	○	○	○	○	○	○	○	○
De kwaliteit van de school	○	○	○	○	○	○	○	○	○	○
De sfeer op de school	○	○	○	○	○	○	○	○	○	○
Het schoolgebouw	○	○	○	○	○	○	○	○	○	○

29. Heeft u nog vragen of opmerkingen naar aanleiding van deze enquête?

30. U bent aan het einde gekomen van deze enquête.
Ik ben erg blij met uw medewerking!
Eind dit jaar hoop ik klaar te zijn met het onderzoek.

Wellicht bent u geinteresseerd in de resultaten van het onderzoek.
Vul dan hieronder uw emailadres in, dan zal ik u een samenvatting toesturen.

Appendix D

Survey schools

Start page

Geachte heer, mevrouw,

De omvang en kwaliteit van de Nederlandse basisscholen staan regelmatig in de media ter discussie.

Voor mijn afstuderen van de opleiding Bouwkunde aan de Technische Universiteit Delft doe ik onderzoek naar de ruimtebehoefte van het Nederlands basisonderwijs.
Met deze enquête hoop ik hier meer inzicht in te krijgen.

Omdat uw tijd ongetwijfeld beperkt is, is de enquête kort gehouden.
Het invullen van de enquête kost ongeveer 10 minuten.
Ik stel het zeer op prijs als u deze zo goed mogelijk wilt invullen!

Bij voorbaat hartelijk dank,

Daniël Vos

Main section

1. Wat is de naam van de school?

2. Wat is het BRIN-nummer van de school?
   (graag zorgvuldig invullen in verband met de verwerking van dit onderzoek)

3. Over hoeveel groepen zijn de leerlingen van de school verdeeld?

4. Hoeveel permanente klaslokalen heeft de school?

5. Hoeveel tijdelijke lokalen heeft de school?
   Hiermee worden lokalen bedoeld die een vergunning hebben voor maximaal 5 jaar, waarbij verlenging mogelijk is.

6. Welke van de onderstaande ruimten heeft de school in aanvulling op de klaslokalen?
   (bij dubbelgebruik de ruimte slechts aanvinken voor de hoofdfunctie)

- ☐ Lerarenkamer
- ☐ Directiekamer
- ☐ Ruimte voor een remedial teacher
- ☐ Computerruimte
- ☐ Bibliotheek
- ☐ Techniekokaal
- ☐ Aula
- ☐ Keuken
- ☐ Handvaardigheidsruimte
- ☐ Middenruimte
- ☐ Atelierruimte

Anders, namelijk:

- ☐ _____

7. Is er een peuterspeelzaal aanwezig bij de school?

- ○ Ja, in of direct naast de school
- ○ Ja op loopafstand van de school (ca. < 500 meter)
- ○ Ja, op langere afstand van de school (ca. >500 meter)
- ○ Nee

8. Is er een Buitenschoolse Opvang (BSO) in (de nabijheid van) de school waar de leerlingen heen gaan?

- ○ Ja, in of direct naast de school
- ○ Ja, op loopafstand van de school (ca.
- ○ Ja, op langere afstand van de school (ca. > 500 meter)

Anders, namelijk:

- ○ _____

9. Is er in de school sprake van leegstand?
   Zoja, kunt u aangeven hoeveel vierkante meter dat ongeveer is?

Ja (hoeveel ongeveer?)

Nee

10. Wordt het schoolgebouw gebruikt voor andere activiteiten?
(meerdere antwoorden mogelijk)

	ca. 1 keer per jaar	ca. 1 keer per half jaar	ca. 1 keer per maand	ca. 1 keer per week	dagelijks
Bij verkiezingen als stemlokaal					
Door één vereniging					
Door meerdere verenigingen					
Als buurthuis					
Voor kinderdagopvang					
Voor religieuze samenkomsten					
Voor andere onderwijsactiviteiten (b.v. door een andere (basis)school)					
Anders, namelijk:					
Anders, namelijk:					
Anders, namelijk:					
Nee (willekeurig vak aanvinken)					

11. Worden delen van het schoolgebouw verhuurd en/of permanent gebruikt door andere gebruikers dan de basisschool
(B.V.: één van de lokalen is in gebruik als peuterspeelzaal of bibliotheek)

ja

nee Continue with question 14.

12. U heeft aangegeven dat delen van het schoolgebouw verhuurd en/of permanent gebruikt woorden door andere gebruikers dan de basisschool.

Zijn dit hele lokalen?
Kunt u daarbij een indicatie geven van de hoeveelheid lokalen?

Ja (hoeveel lokalen?)

Nee

13. Kunt u een inschatting geven van het totaal aantal vierkante meters dat door andere gebruikers permanent wordt gehuurd en/of gebruikt?

14. Er volgen enkele vragen over de toestand van het gebouw:

	Niet van toepassing	Helemaal oneens	Oneens	Neutraal	Eens	Helemaal eens
De gangen zijn ruimschoots verlicht met daglicht						

Er staan geen spullen in de gangen (excl. jassen en tassen)	○	○	○	○	○	○
De lokalen zijn ruimschoots verlicht met daglicht	○	○	○	○	○	○
In de winter zijn de lokalen goed warm te krijgen	○	○	○	○	○	○
In de zomer zijn de lokalen goed koel te krijgen	○	○	○	○	○	○
De lokalen zijn goed geventileerd	○	○	○	○	○	○

15. Kunt u aangeven hoevaak de onderstaande ruimten worden schoongemaakt?

	Ten minste 1 keer per dag	Ten minste 1 keer per week	Ten minste 1 keer per twee weken	Ten minste 1 keer per maand	Ten minste 1 keer per drie maanden	Ten minste 1 keer per half jaar	Ten minste 1 keer per jaar
De klaslokalen	○	○	○	○	○	○	○
De gangen	○	○	○	○	○	○	○
De sanitaire voorzieningen	○	○	○	○	○	○	○
Overige ruimten	○	○	○	○	○	○	○

16. Wat zou volgens u een wenselijke schoonmaakfrequentie zijn van de onderstaande ruimten?

	Ten minste 1 keer per dag	Ten minste 1 keer per week	Ten minste 1 keer per twee weken	Ten minste 1 keer per maand	Ten minste 1 keer per drie maanden	Ten minste 1 keer per half jaar	Ten minste 1 keer per jaar
De klaslokalen	○	○	○	○	○	○	○
De gangen	○	○	○	○	○	○	○
De sanitaire voorzieningen	○	○	○	○	○	○	○
Overige ruimten	○	○	○	○	○	○	○

17. Wanneer is de school voor het laatst grootschalig gerenoveerd?

- ○ Nooit
- ○ Korter dan 5 jaar geleden
  ➡ Continue with question 19.
- ○ 5-10 jaar geleden
  ➡ Continue with question 19.
- ○ Langer dan 10 jaar geleden

18. U heeft aangegeven dat de school niet recent grootschalig onderhoud heeft gehad. Kunt u aangeven wat hiervan de oorzaak is?
(meerdere antwoorden mogelijk)

- ☐ De school is recent gebouwd (te nieuw voor grootschalig onderhoud)
- ☐ Geldgebrek van de school
- ☐ Geldgebrek van de gemeente
- ☐ Nalatigheid van de school
- ☐ Nalatigheid van de gemeente
- ☐ Anders, namelijk:

_____

19. Er volgen enkele vragen over sociale veiligheid in de omgeving van de school:
Neem hierbij een straal van circa 500 meter aan.

	Helemaal oneens	Oneens	Neutraal	Eens	Helemaal eens
Er wordt ingebroken in de school	○	○	○	○	○
Er hangen jongeren (die niet op de school zitten) rond de school	○	○	○	○	○
Er wordt op straat alcohol gedronken rond de school	○	○	○	○	○
Er wordt op straat drugs gebruikt rond de school	○	○	○	○	○
Er worden op straat vernielingen aangericht zoals aan auto's, straatmeubilair of panden.	○	○	○	○	○
Er is op straat veel graffiti	○	○	○	○	○
Er is op straat sprake van wildplassen rond de school	○	○	○	○	○

20. Wat is de verwachting van de leerlingenaantallen in de komende 3 jaar:

- ○ Sterke daling (meer dan -10%)
- ○ Daling (-5% tot -10%)
- ○ Stabiel (-5% tot 5%)
- ○ Stijging (5% tot 10%)
- ○ Sterke stijging (meer dan 10%)

21. Kunt u aangeven welk globaal percentage van de leerlingen er doorgaans naar Havo en Vwo gaat?

- ☐ HAVO _____
- ☐ VWO _____

22. Heeft de school een wachtlijst?

- ○ Ja
- ○ Nee

23. Wat is het percentage allochtone kinderen op de school?
(kind van wie ten minste één ouder in het buitenland is geboren.)

Uitleg: Deze vraag wordt gesteld omdat volgens de literatuur het aantal allochtone kinderen in een school verband houdt met de keuze van ouders. Middels deze vraag kan dit geverifieerd worden.

- ○ 0 - 10%
- ○ 10 - 20%
- ○ 20 - 30%
- ○ 30 - 40%
- ○ 40 - 50%
- ○ 50 - 60%
- ○ 60 - 70%
- ○ 70 - 80%
- ○ 80 - 90%
- ○ 90 - 100%

24. Kunt u aangeven in hoeverre er op uw school sprake is van pesten?

Uitleg: Deze vraag wordt gesteld omdat volgens de literatuur pesten op een school een belangrijke factor in de keuze van ouders is. Met deze vraag kan dit geverifieerd worden. Uw antwoord blijft absoluut anoniem, de scholen zullen niet met naam genoemd worden!

- Er wordt niet gepest
- Er wordt in 1 klas gepest
- Er wordt in meerdere klassen gepest
- Er wordt ongeveer 1 kind per klas gepest
- Er worden meerdere kinderen per klas gepest

25. Kunt u aangeven welke stelling voor u van toepassing is?

- Er vindt geen structureel pesten plaats.
- Het pesten komt voor maar is heel snel verholpen (binnen een maand).
- Het pesten komt voor maar is na enige moeite verholpen (binnen een half jaar).
- Het pesten is lastig te bestrijden maar is binnen een schooljaar verholpen.
- Het pesten is hartnekkig en duurt voort.

26. U bent aan het einde van de enquête gekomen.

Heeft u nog vragen of opmerkingen naar aanleiding van deze enquête?

Appendix E

Observation checklist schools

Naam school:

BRIN-nummer:

						Commentaar
omgeving	is er een doorgaande autoweg bij de school?	nee	ja			
	is er een fietspad bij de school?	nee	fietsstrook	apart fietspad		
	bereikbaar met het OV					
	aantal parkeerplekken					
	staan alle fietsen in het rek?	nee	ja			
	is er een schoolzone	nee	ja			
	wat is de ligging van de school?	rand	midden			
gebouw buiten	sluit het gebouw aan bij de omgeving in hoogte?	nee	ja			
	sluit het gebouw aan bij de omgeving in rooilijn?	nee	ja			
	is het gebouw in harmonie met de omgeving in stijl?	niet	enigszins	een beetje	veel	
	is het gebouw in harmonie met de omgeving in kleur?	harmonie	contrast			
	is het gebouw in harmonie met de omgeving in materiaal?	harmonie	contrast			
	wat is het type school	gang	hal	paviljoen		
	heeft de school opvallende architectonische kenmerken?	nee	ja			
	is het gebouw een architectonische eenheid of bestaat het uit verschillende ontwerpen?	eenheid	diffuus			
	is er clustering van functies	nee	ja			
	wat is het bouwmateriaal van de gevel?					
	wat is het bouwmateriaal van de constructie?					
	aantal etages					
	oogt de school groot of klein?	zeer klein	klein	groot	zeer groot	
ingang	is er vrij zicht vanaf de openbare weg op de ingang?	niet	enigszins	een beetje	veel	
	hoeveel ingangen zijn er?	# ingangen				
	is er toezicht op de ingang?	nee	ja	deur zit op slot		
	omvang entree	L:	B:			
gebouw binnen	aantal lokalen					
	zijn er aanvullende ruimten?	enquête				
	omvang aula	L:	B:			
	past het aantal leerlingen in het schoolgebouw?	enquête				
	is de school toegangelijk voor invaliden?	nee	krukken	rolstoelen		
	is er vrij zicht op de gangen vanuit de lokalen?	nee	ja			
	wat is de ganghoogte?					
	wat is de lokaalhoogte?					
	welke kleuren zijn primair gebruikt in de school?					
	wordt het gebouw goed schoongehouden?	niet	enigszins	een beetje	veel	
	wat is de algehele onderhoudsstaat van de school?	zeer slecht	slecht	goed	zeer goed	
	is er daglicht in de lokalen?	% (ca.) van het geveloppervlak:				
	is er daglicht in de gangen?	% (ca.) van het geveloppervlak:				
	is er zonwering aanwezig?	nee	ja	type:		
	zijn de lokalen goed te ventileren?	type:				
	zijn de lokalen goed te koelen?	type:				
	zijn de lokalen goed warm te houden?	type:				
speelplein	is er een ruim schoolplein aanwezig?	meten google maps				
	aantal speeltoestellen:					
	is het schoolplein sociaal veilig?	enquête				
	is er zicht op het schoolplein vanuit de school?	nee	ja			
	is er zicht op het schoolplein vanaf de openbare weg?	nee	ja			
	zijn er tekenen van verloedering op of rond de school?	zwerfvuil	graffitti	kapot straatmeubilair	slecht onderhouden groen	

Appendix F

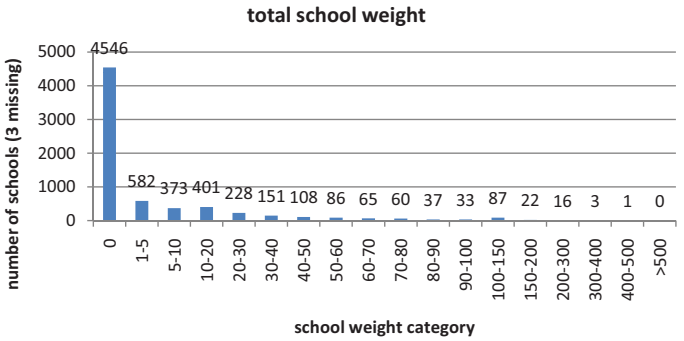
Overview of the results of the current match

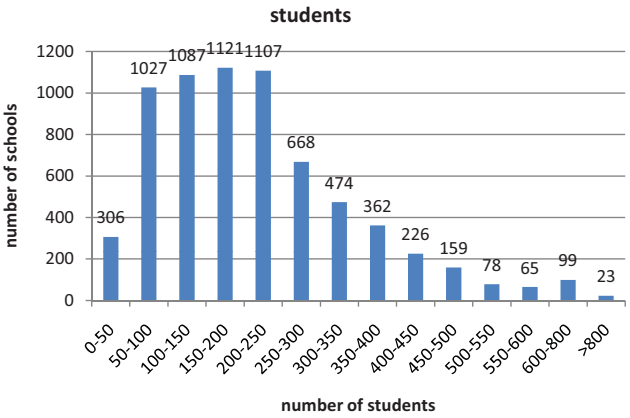
Real estate stock of primary schools in the Netherlands

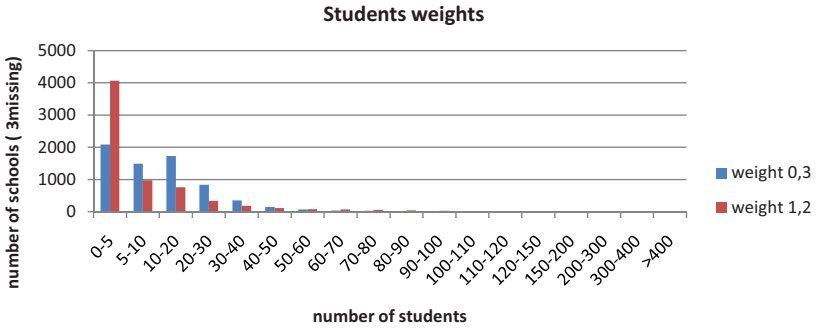
Sources: DUO, 2013; BAG; various municipalities; CBS Statline; Dronkers, 2013

Current demand

year	2010	2011	2012	2013
total number of students	1531932	1519631	1506437	1475634
growth		-0,80%	-0,87%	-2,04%
total demand (GFA)	9140678	9081293	9017097	8865589
growth	0,00%	-0,65%	-0,71%	-1,68%
average school demand (GFA)	1351	1340	1329	1303
growth		-0,80%	-0,87%	-1,90%
average number of students per school		217		

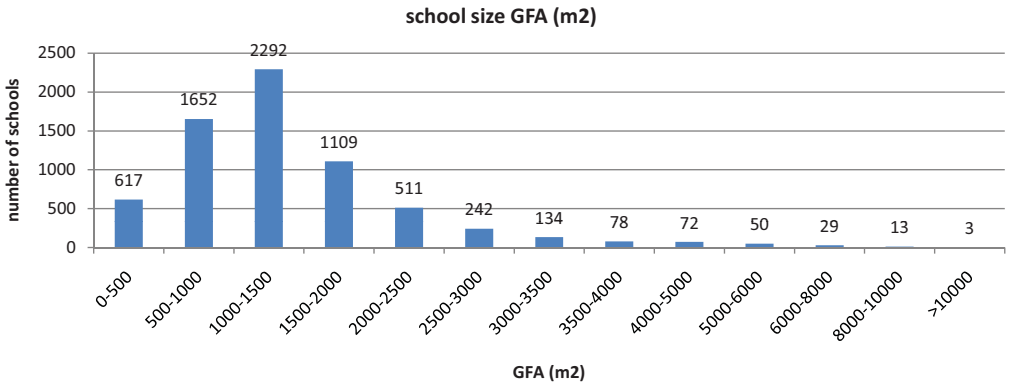


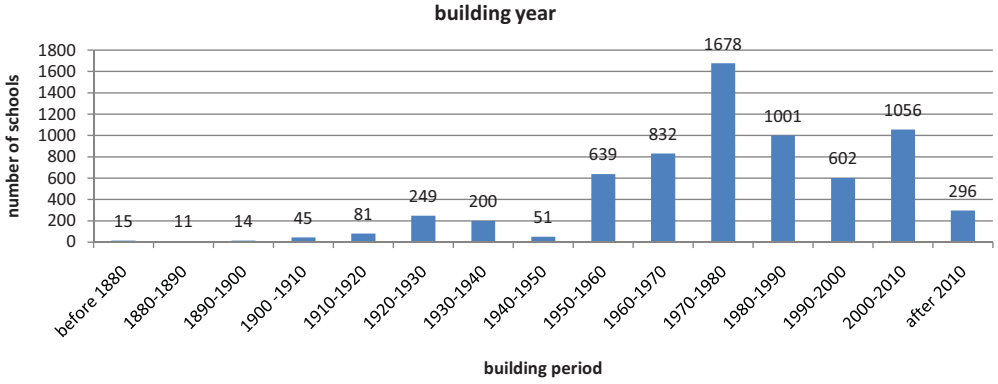




Current supply

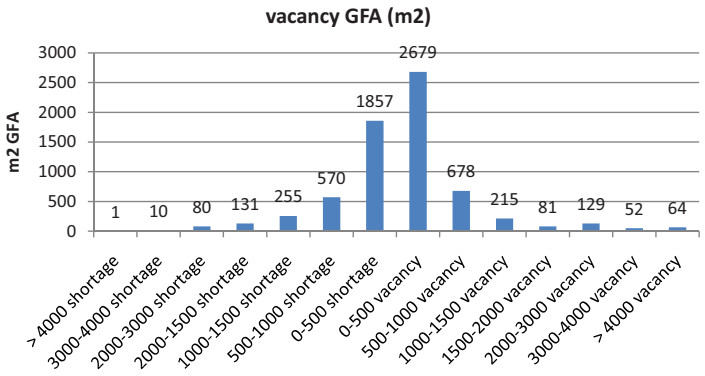
year	2013
total number of schools	6802
total floor space supply	9622977
average GFA per school	1415
average building year	1974



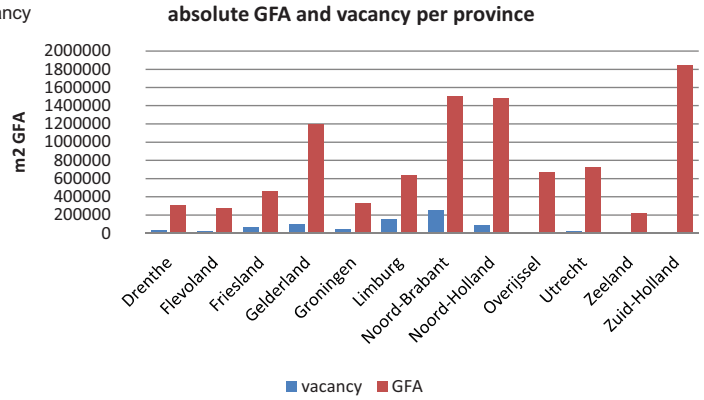


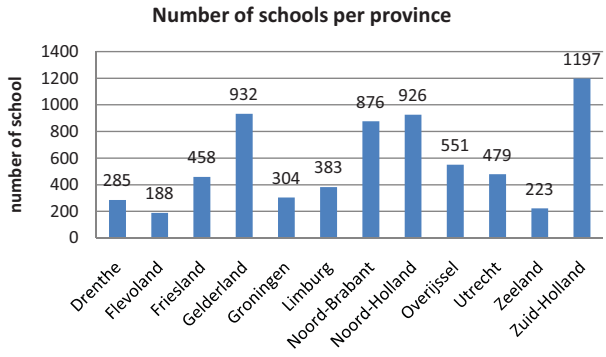
Current mismatch

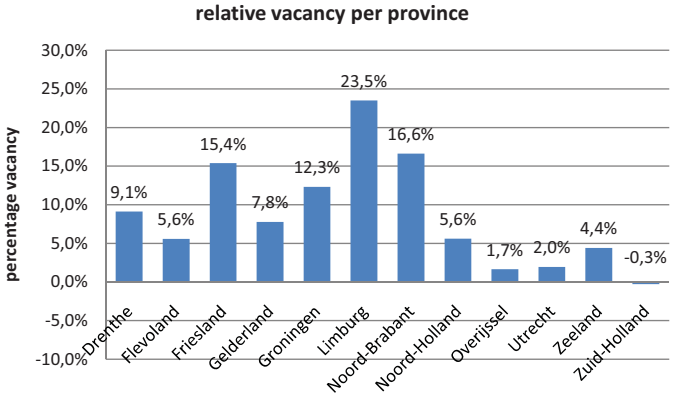
year	2013	
	total	average per school
demand GFA (m2)	8865589	1303
supply GFA (m2)	9622977	1415
vacancy	757388	111
percentage of supply	7,87%	7,87%
total vacant GFA	2270543	
percentage of supply	23,60%	
total GFA shortage	-1513155	
percentage of supply	15,72%	

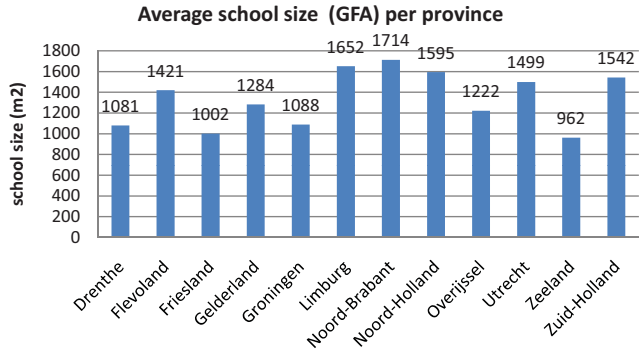


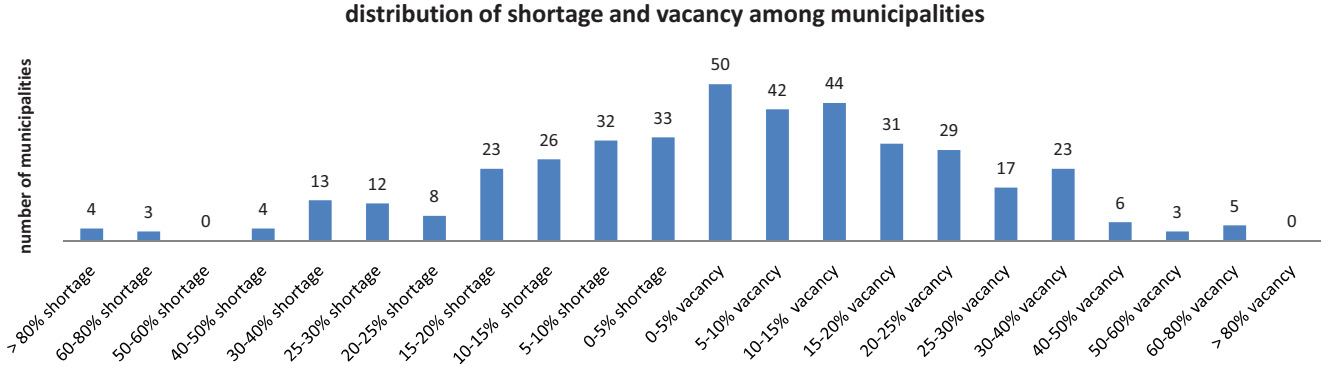
	Vacancy (m2)	GFA (m2)	Percentage vacancy
Drenthe	28101	308033	9,1%
Flevoland	14901	267193	5,6%
Friesland	70645	459130	15,4%
Gelderland	92862	1196678	7,8%
Groningen	40749	330762	12,3%
Limburg	148627	632704	23,5%
Noord-Brabant	249298	1501072	16,6%
Noord-Holland	82824	1476616	5,6%
Overijssel	11132	673051	1,7%
Utrecht	14043	718059	2,0%
Zeeland	9476	214419	4,4%
Zuid-Holland	-5271	1845260	-0,3%





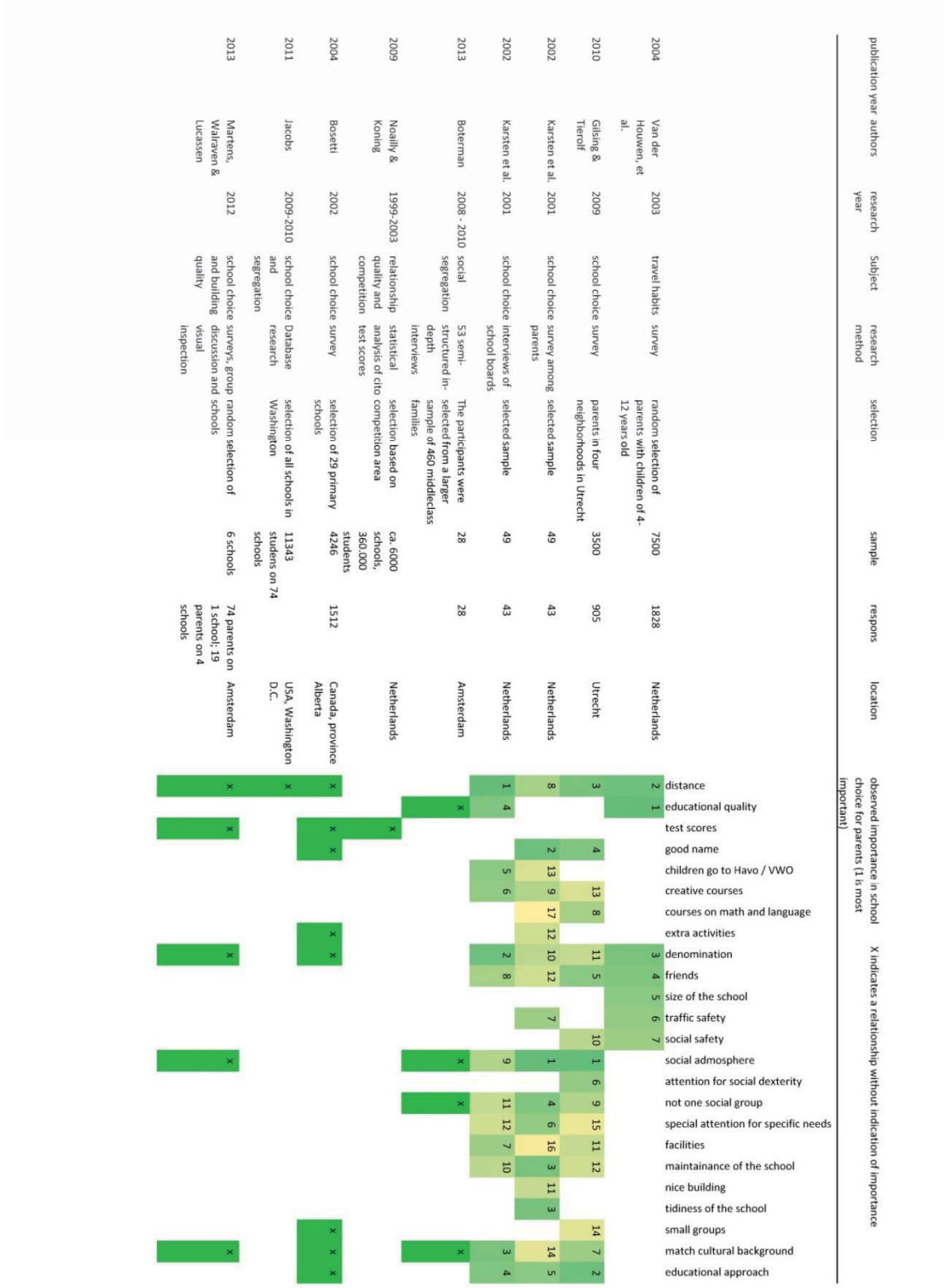






Appendix G

Overview of results of the literature study



Appendix H

Overview of results of survey among parents

Horst aan de Maas
Purmerend
Brielle

Uitslag Enquête onder de ouders van groep 1

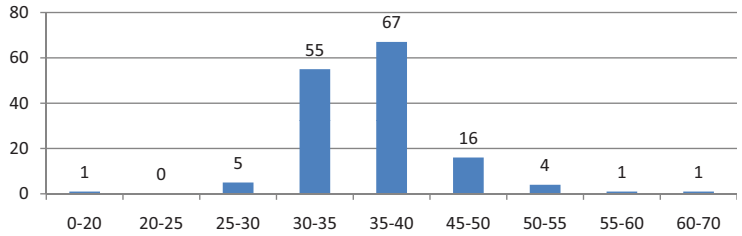
aantal respondenten: 193

respons: 16,4%

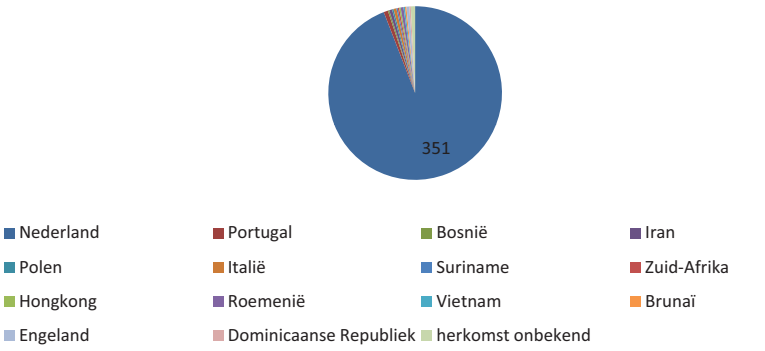
Respondenten

gemiddelde leeftijd	37,68	jaar	
Geslacht respondent	163	vrouw	84%
	30	man	16%
aantal respondenten:	193		
aantal ouders:	373		

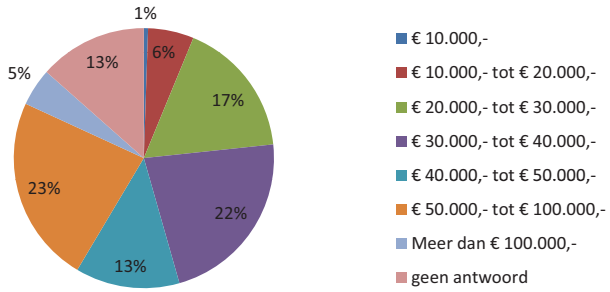
verdeling ouders in leeftijdsgroepen



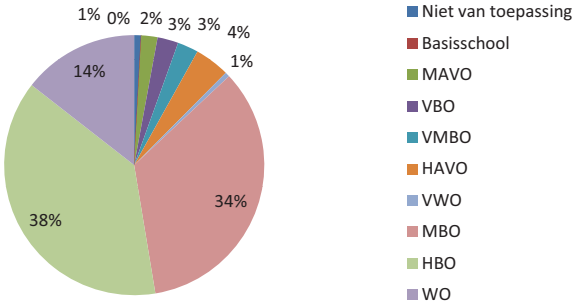
Land van afkomst ouders	aantal	percentage
Nederland	351	94,10%
Portugal	3	0,80%
Bosnië	1	0,27%
Iran	2	0,54%
Polen	1	0,27%
Italië	2	0,54%
Suriname	1	0,27%
Zuid-Afrika	1	0,27%
Hongkong	1	0,27%
Roemenië	2	0,54%
Vietnam	1	0,27%
Brunaï	1	0,27%
Engeland	2	0,54%
Dominicaanse Republiek	1	0,27%
herkomst onbekend	3	0,80%



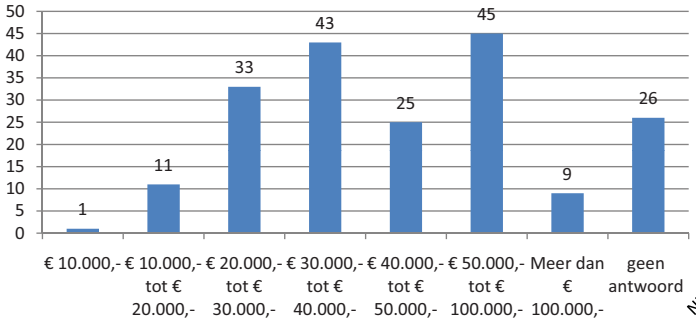
Netto verzamel jaarinkomen gezin



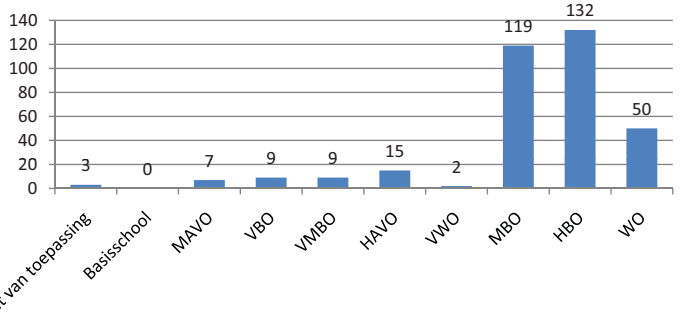
Opleidingniveau ouders

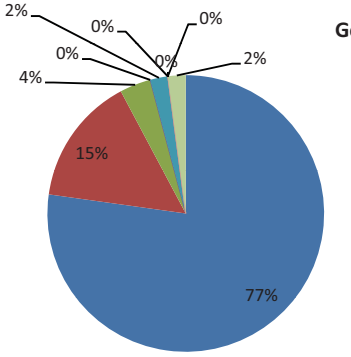


Netto verzamel jaarinkomen gezin



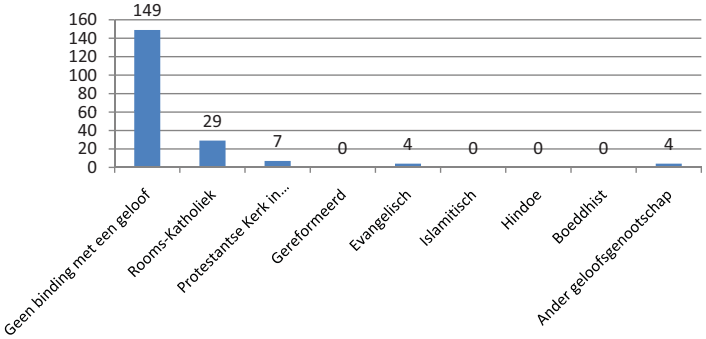
Opleidingniveau ouders





Geloofsovertuiging respondent

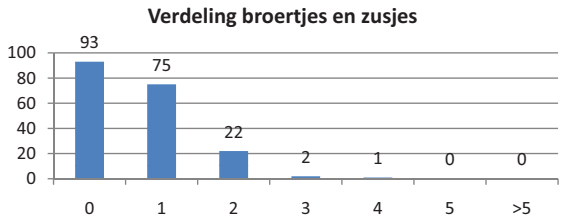
Geloofsovertuiging respondent

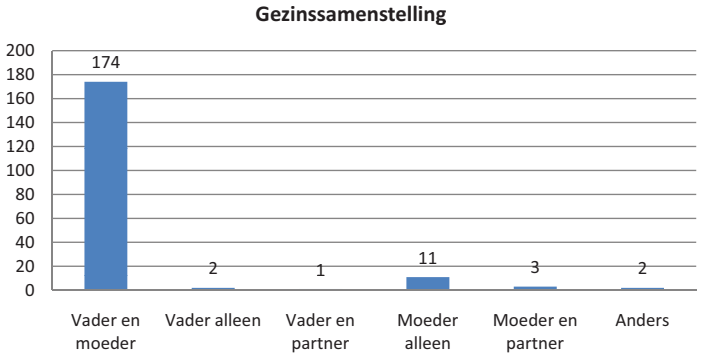


Gezinssamenstelling

Geslacht kind 96 meisjes 49,74%
97 jongens 50,26%

Aantal kinderen met broers of zussen: 100
Dat is: 52% van de kinderen
Gemiddeld hebben de kinderen: 1,29 broertjes of zusjes





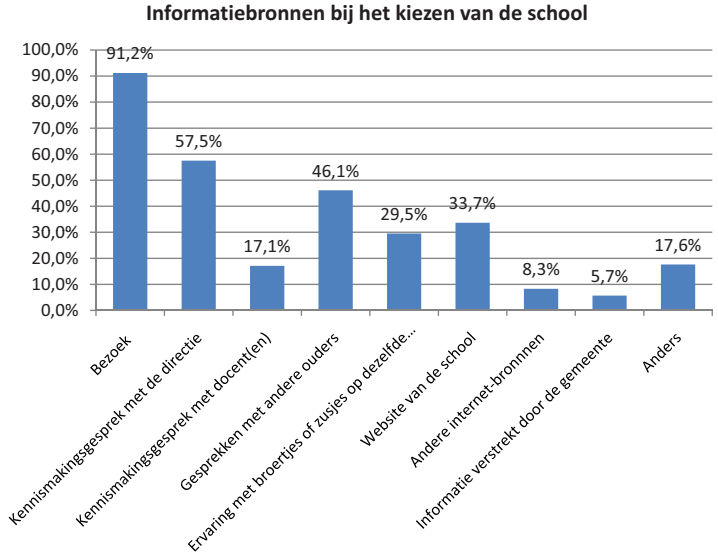
Schoolkeuze

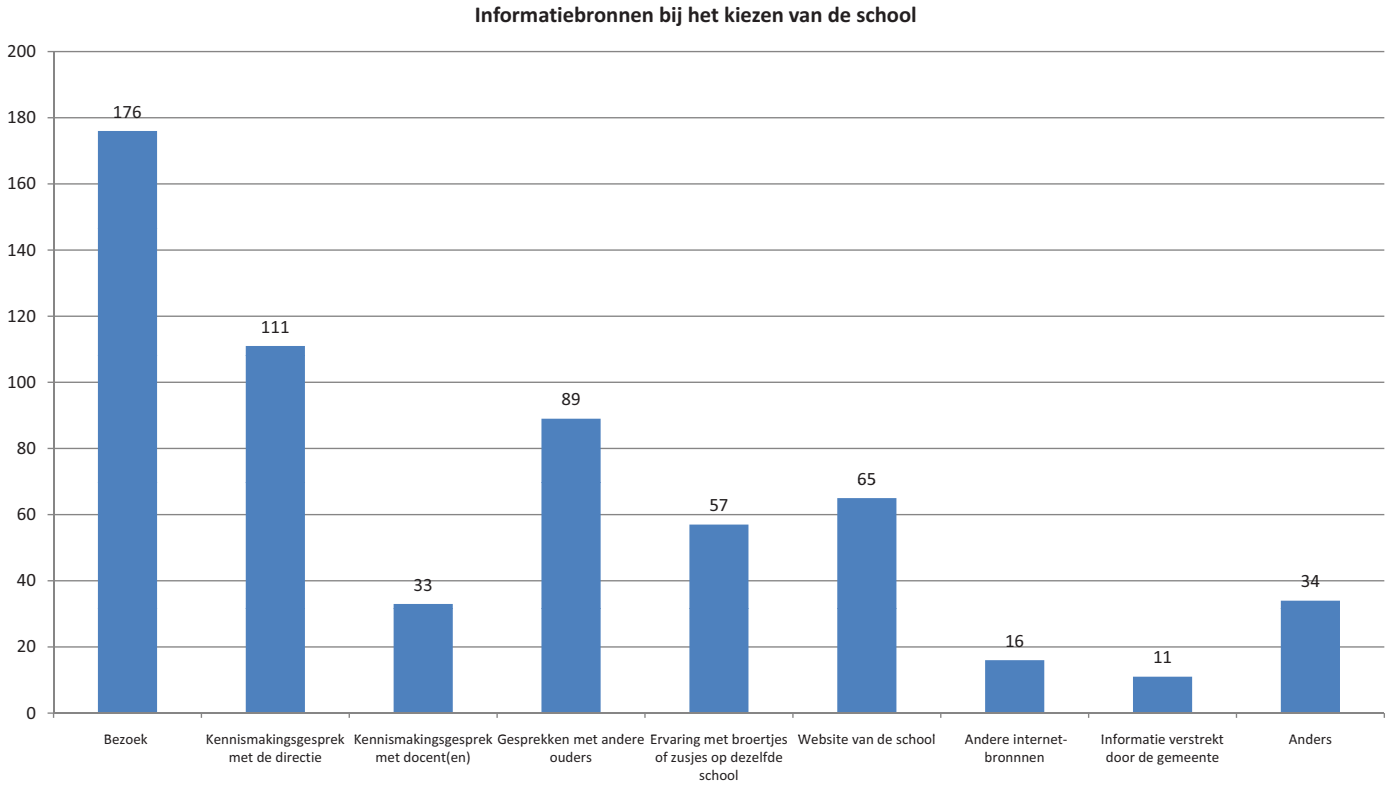
eerste keuze: 175 91%

reden tweede keuze:

Sfeer, goed onderwijs
Lokatie en beloofde nieuwe schoolgebouw
beter dan de eerste keuze school
dichterbij
Betere indruk
beste van de twee opties
sfeer, straalde rust uit
Afstand en de vele buurtkinderen gaan er naar school.
Dichts bij huis
afstand
ander kind was daar ook
Door pesten op een andere school!
verhuizing
Omdat de andere school die we hadden gekozen plotseling ging verhuizen. En deze school was dan dichter bij.

er was geen continu rooster
dat het christelijkis en omdat er GEEN continurooster is





Aspect 1. Kwaliteit

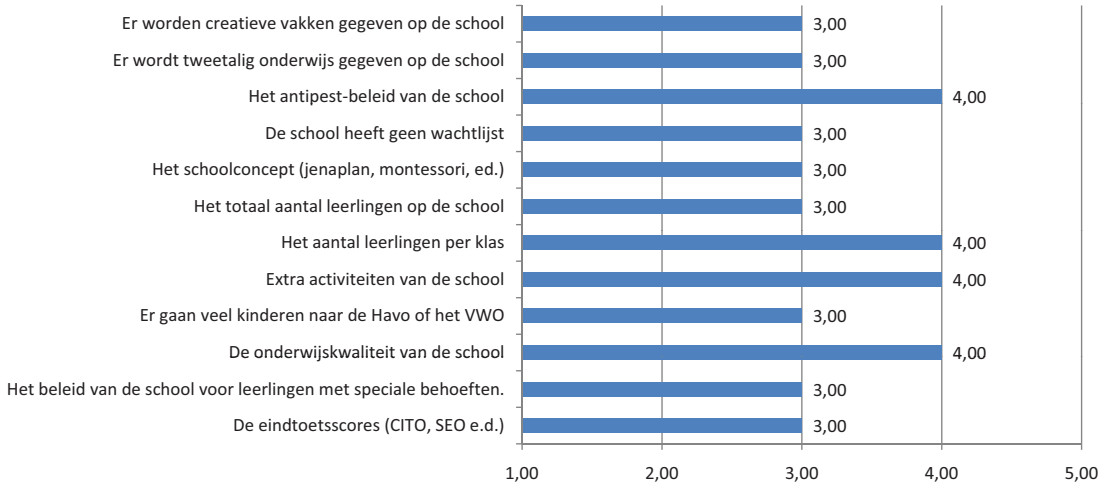
respondenten is gevraagd de aspecten te beoordelen op belang in de schoolkeuze.

Daarbij werd gebruik gemaakt van onderstaande Likert-scale.

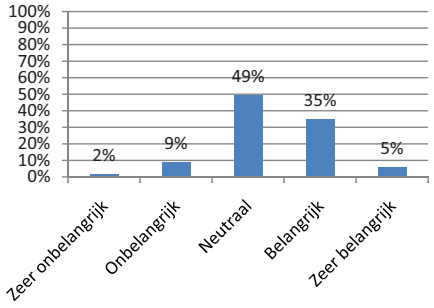
1 : Zeer onbelangrijk
2 : Onbelangrijk
3 : Neutraal
4 : Belangrijk
5 : Zeer belangrijk

Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.

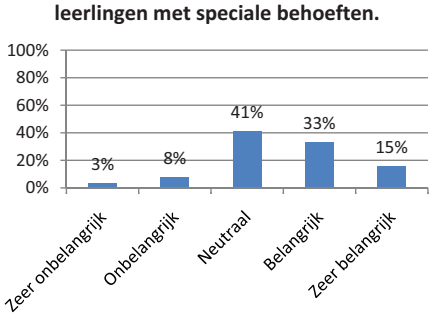
Mediaan van de score kwaliteitsaspecten



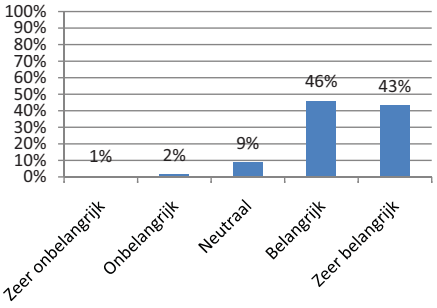
De eindtoetsscores (CITO, SEO e.d.)



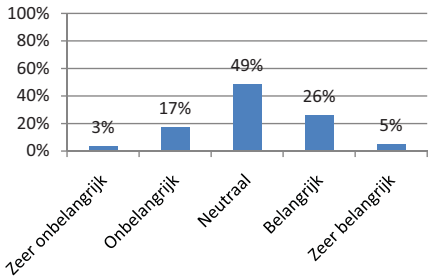
Het beleid van de school voor leerlingen met speciale behoeften.



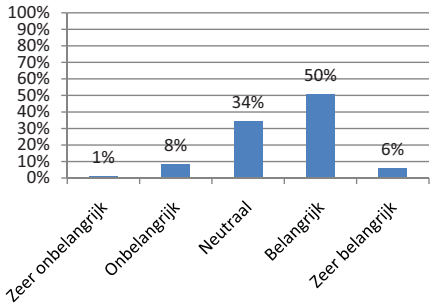
De onderwijskwaliteit van de school



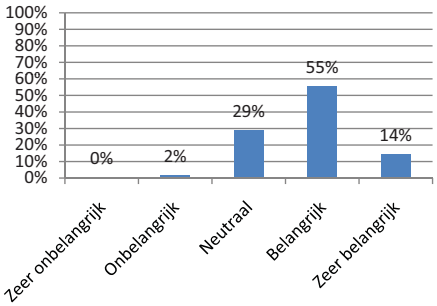
Er gaan veel kinderen naar de Havo of het VWO



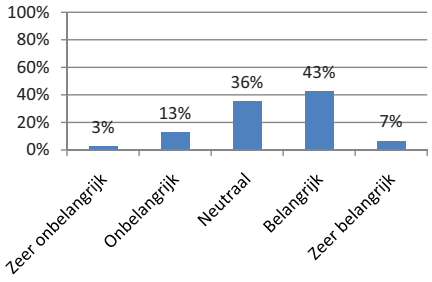
Extra activiteiten van de school



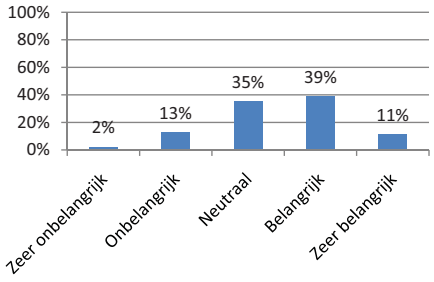
Het aantal leerlingen per klas



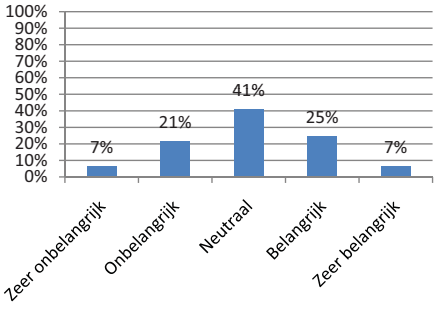
Het totaal aantal leerlingen op de school



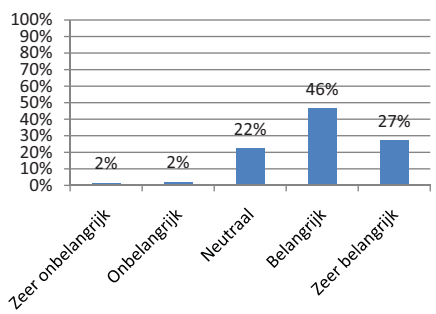
Het schoolconcept (jenaplan, montessori, ed.)



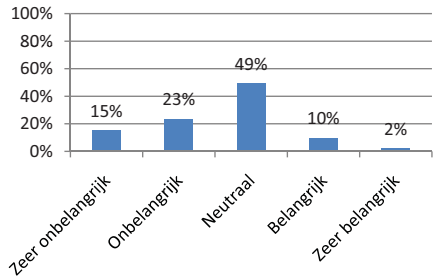
De school heeft geen wachtlijst



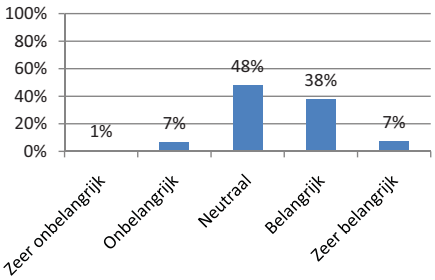
Het antipest-beleid van de school



Er wordt tweetalig onderwijs gegeven op de school



Er worden creatieve vakken gegeven op de school



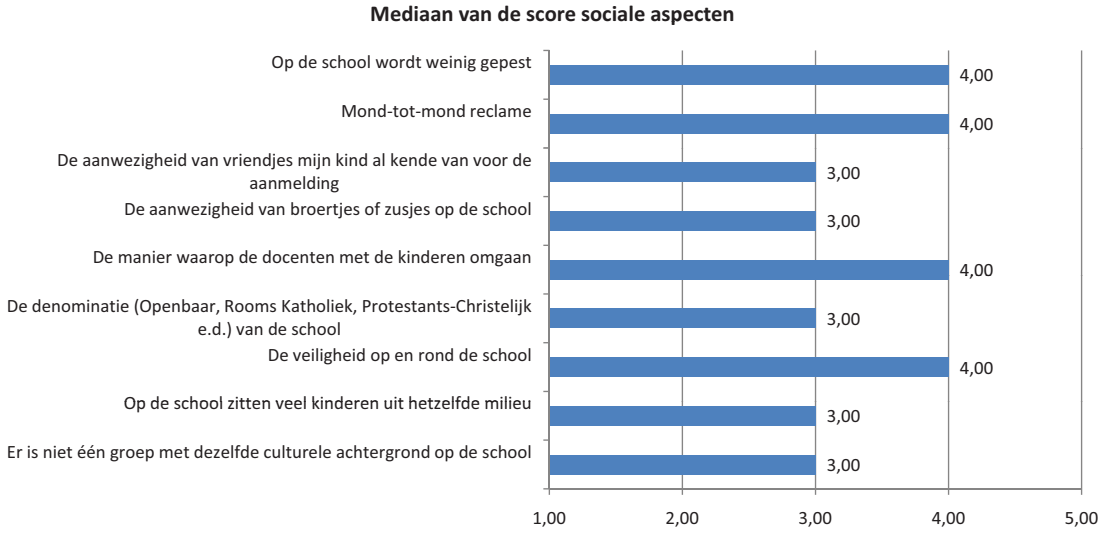
Aspect 2. Sociaal

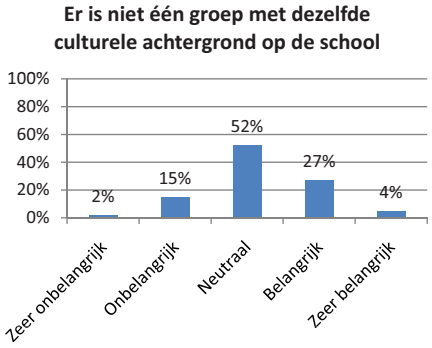
respondenten is gevraagd de aspecten te beoordelen op belang in de schoolkeuze.

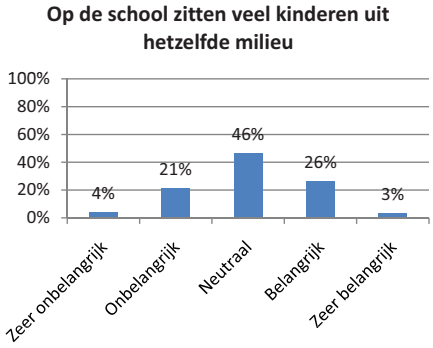
Daarbij werd gebruik gemaakt van onderstaande Likert-scale.

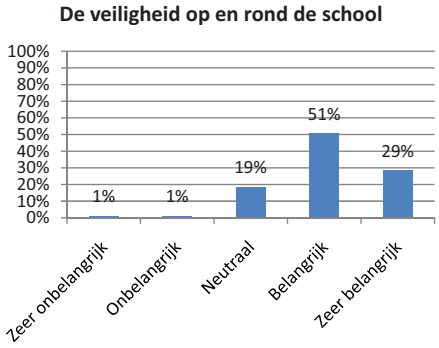
1 : Zeer onbelangrijk
2 : Onbelangrijk
3 : Neutraal
4 : Belangrijk
5 : Zeer belangrijk

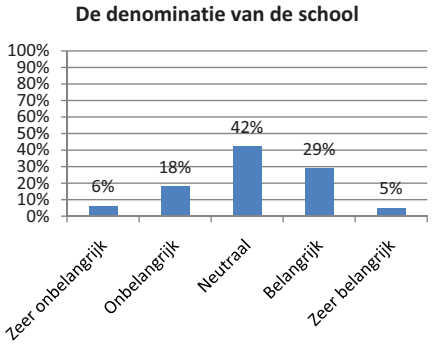
Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.

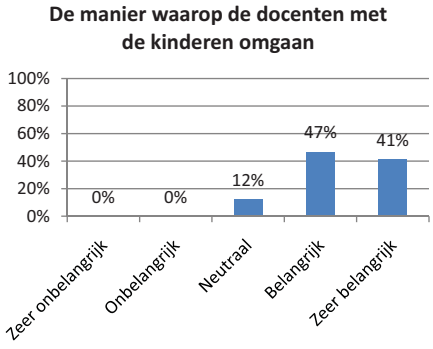


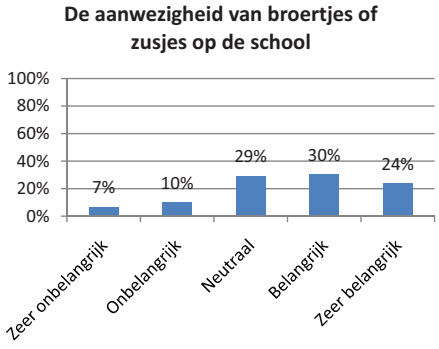


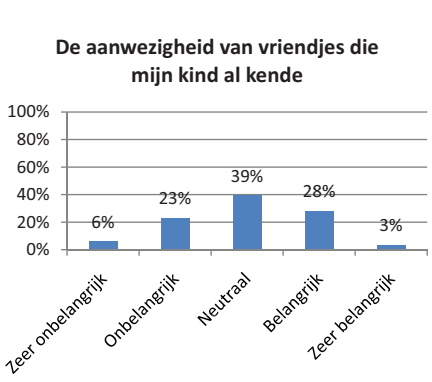


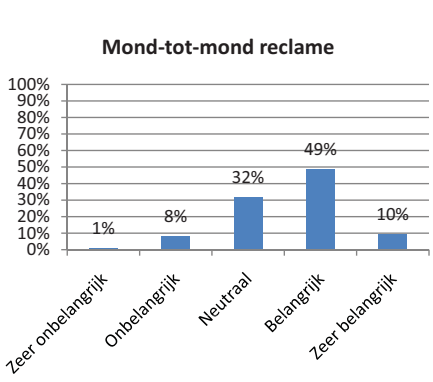


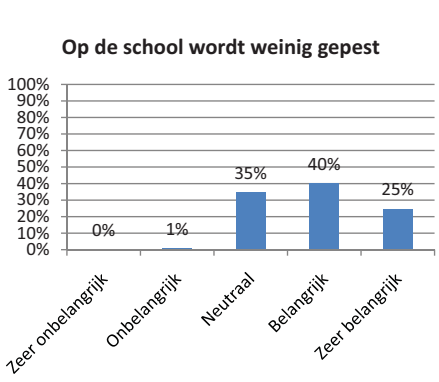












Aspect 3. Fysiek

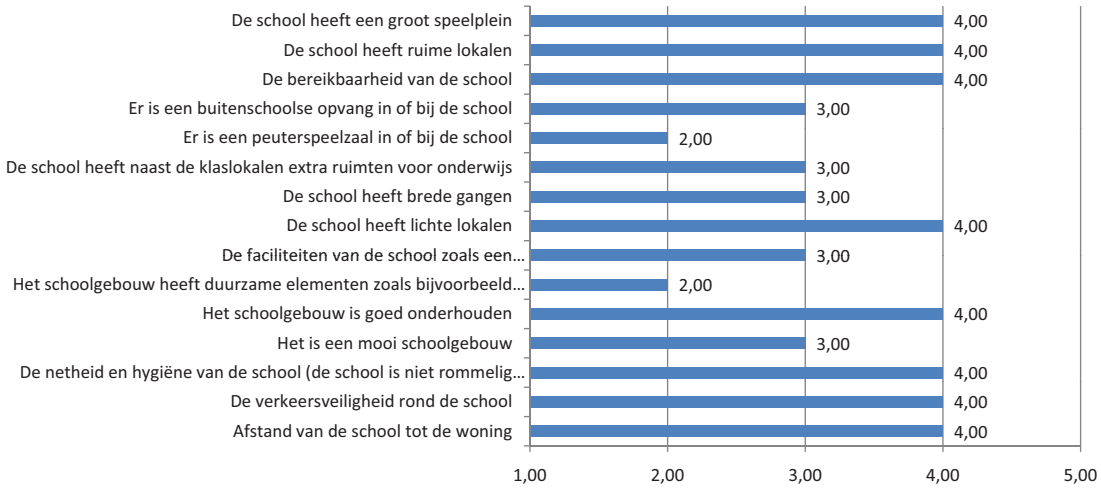
respondenten is gevraagd de aspecten te beoordelen op belang in de schoolkeuze.

Daarbij werd gebruik gemaakt van onderstaande Likert-scale.

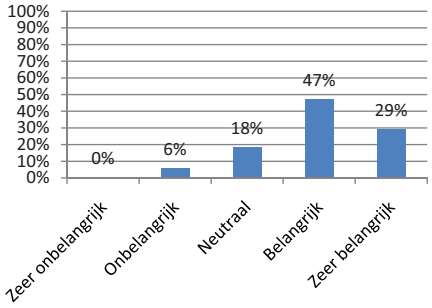
1 : Zeer onbelangrijk
2 : Onbelangrijk
3 : Neutraal
4 : Belangrijk
5 : Zeer belangrijk

Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.

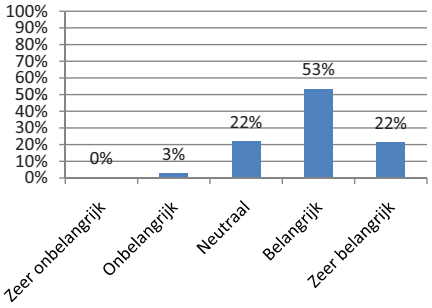
Mediaan van de score fysieke aspecten



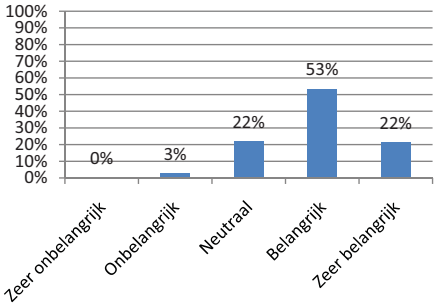
Afstand van de school tot de woning



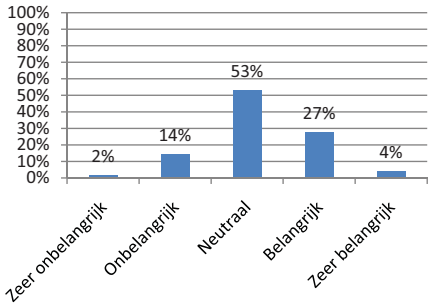
De verkeersveiligheid rond de school



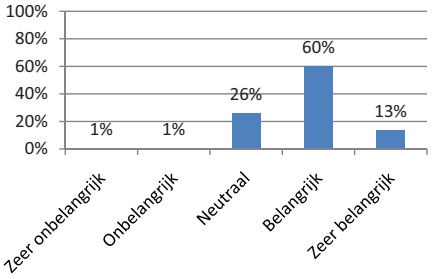
De netheid en hygiëne van de school



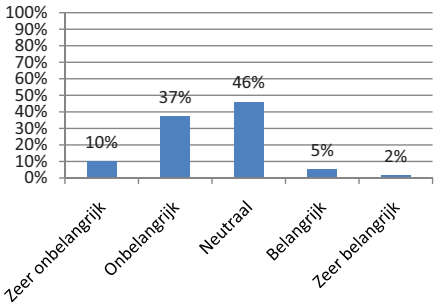
Het is een mooi schoolgebouw



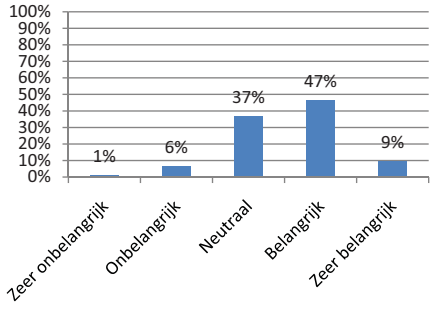
Het schoolgebouw is goed onderhouden



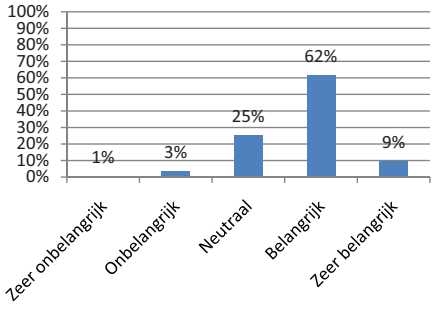
De school heeft duurzame elementen



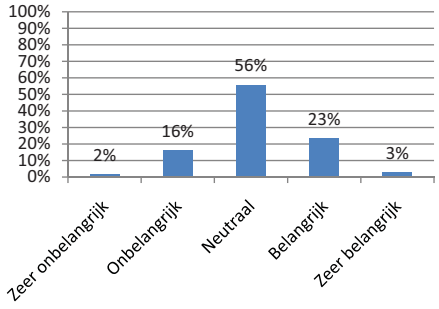
De faciliteiten van de school



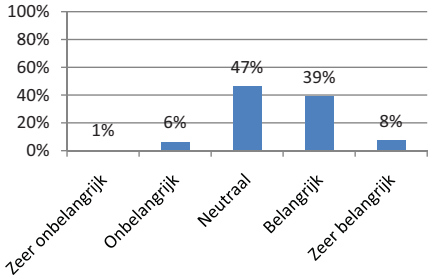
De school heeft lichte lokalen



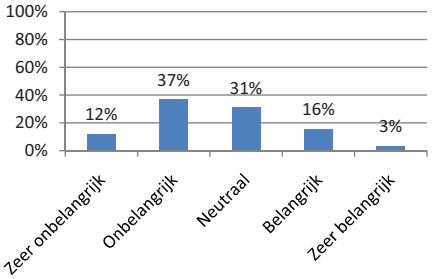
De school heeft brede gangen



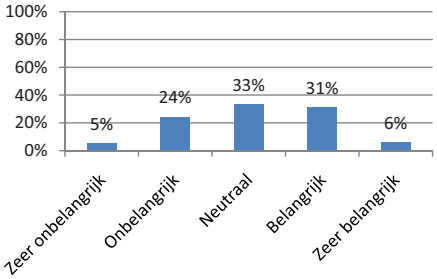
De school heeft extra ruimten voor onderwijs

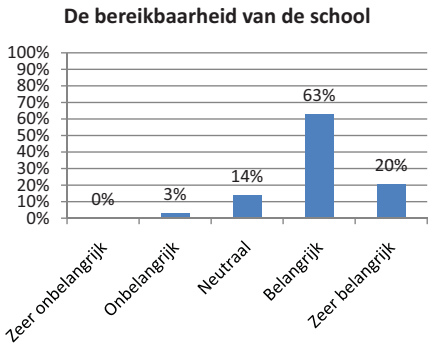


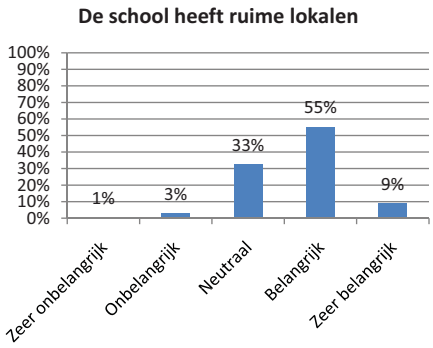
Er is een peuterspeelzaal in of bij de school

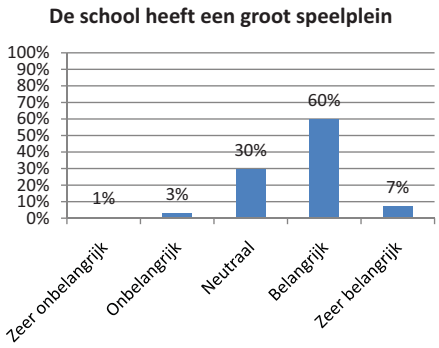


Er is een buitenschoolse opvang in of bij de school





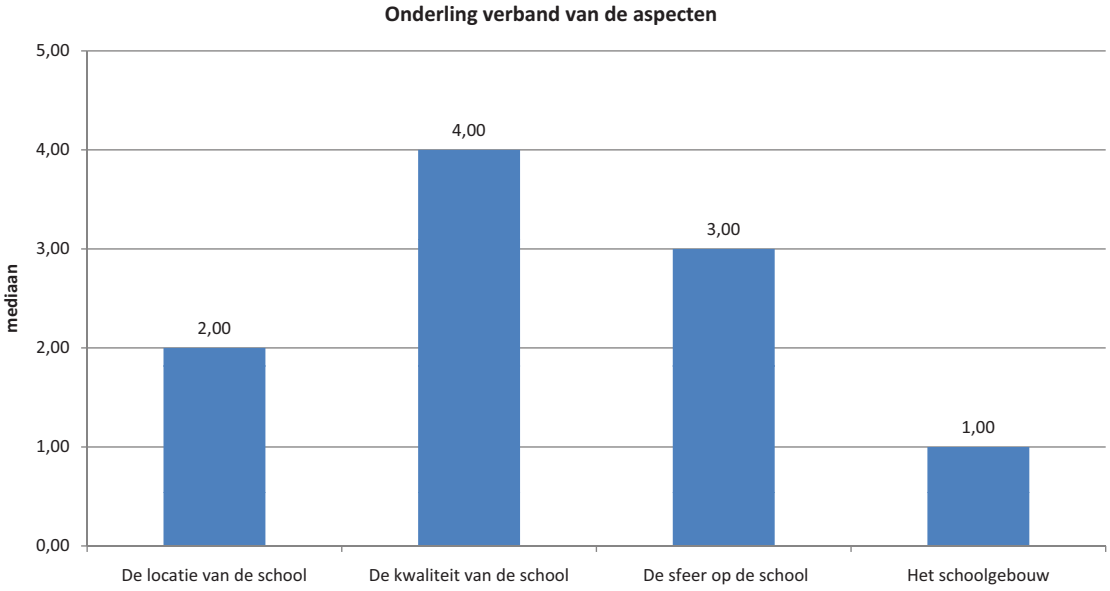


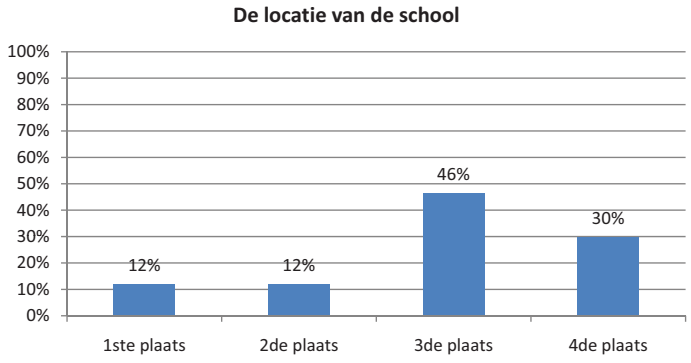


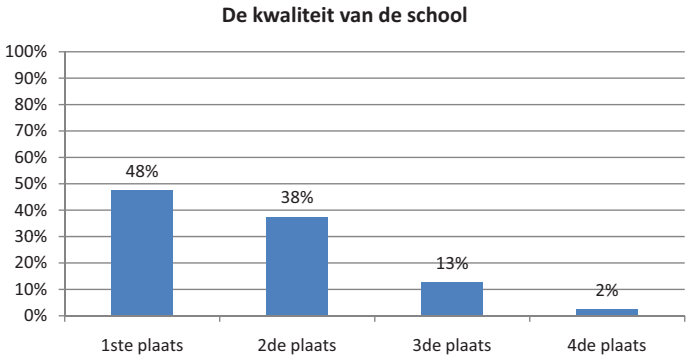
Onderlinge verhouding aspecten

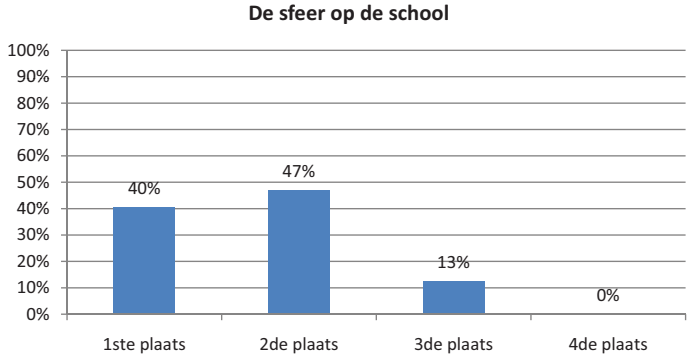
respondenten is gevraagd naar het onderling belang van de bovengenoemde aspecten.

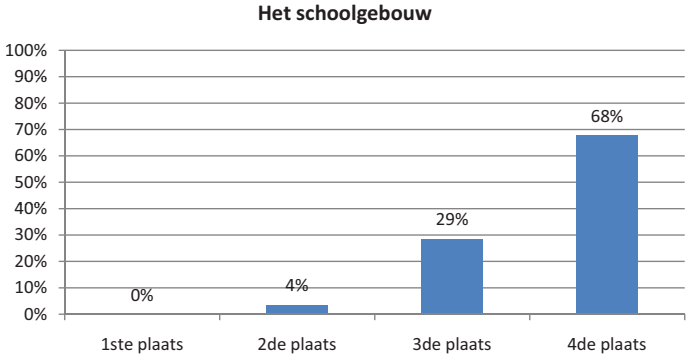
Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.











Uitslag Enquête onder de ouders van groep 1

aantal respondenten: 28

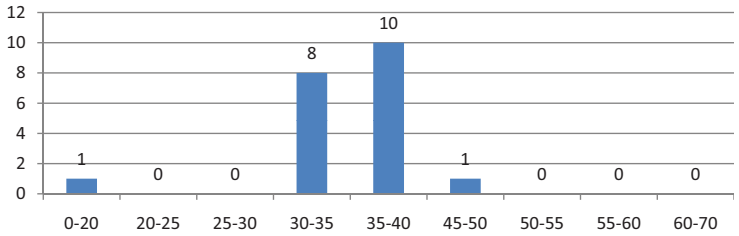
respons: 2,4%

Brielle

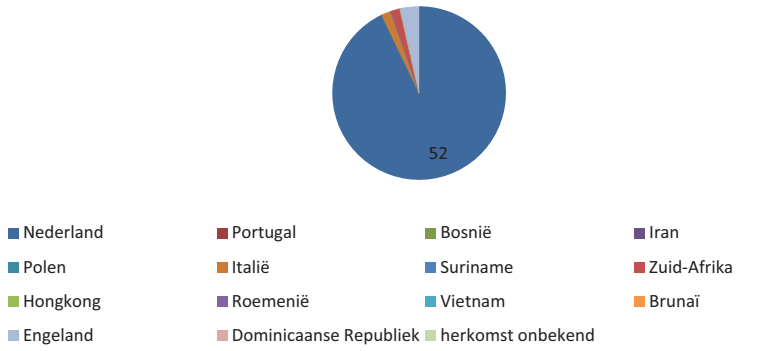
Respondenten

gemiddelde leeftijd	36,75	jaar	
Geslacht respondent	25	vrouw	89%
	3	man	11%
aantal respondenten:	28		
aantal ouders:	56		

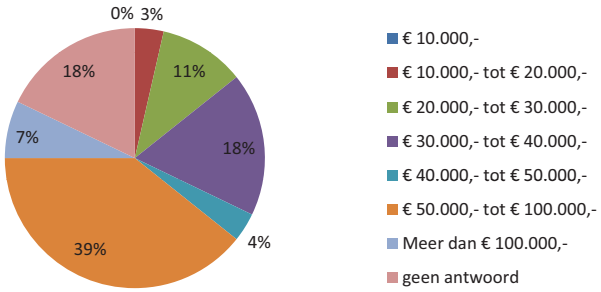
verdeling ouders in leeftijdsgroepen



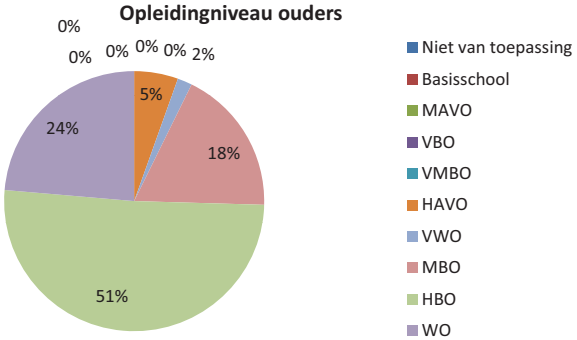
Land van afkomst ouders	aantal	percentage
Nederland	52	92,86%
Portugal	0	0,00%
Bosnië	0	0,00%
Iran	0	0,00%
Polen	0	0,00%
Italië	1	1,79%
Suriname	0	0,00%
Zuid-Afrika	1	1,79%
Hongkong	0	0,00%
Roemenië	0	0,00%
Vietnam	0	0,00%
Brunaï	0	0,00%
Engeland	2	3,57%
Dominicaanse Republiek	0	0,00%
herkomst onbekend	0	0,00%



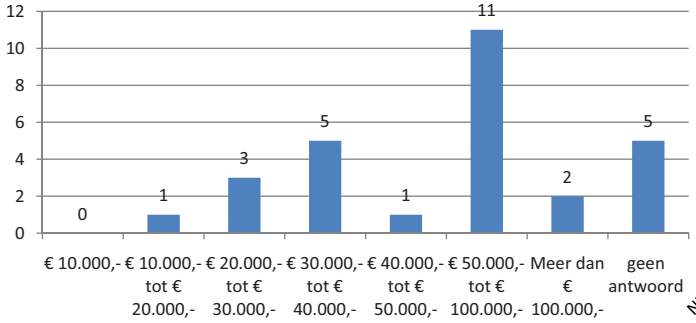
Netto verzamel jaarinkomen gezin



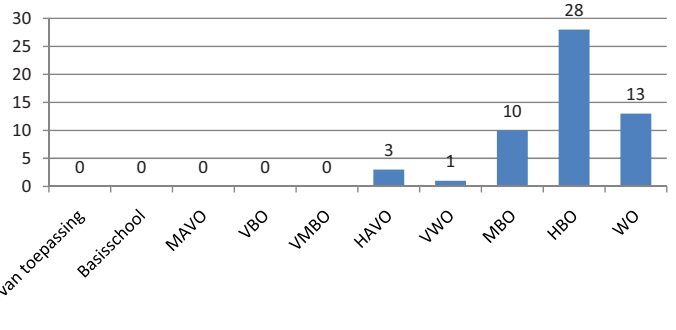
Opleidingniveau ouders

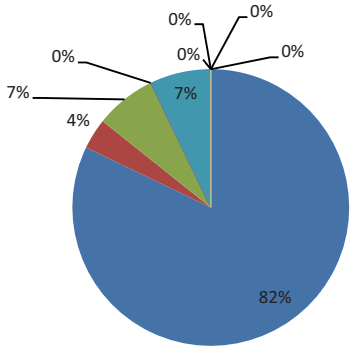


Netto verzamel jaarinkomen gezin



Opleidingniveau ouders

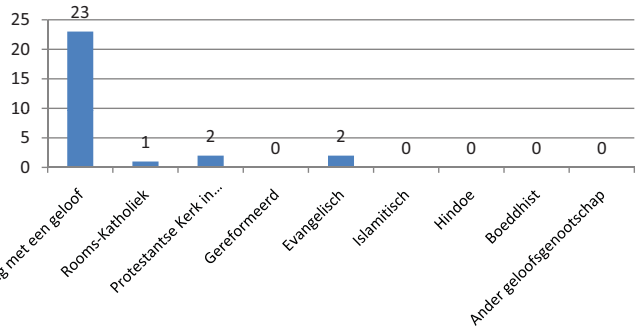




Geloofsovertuiging respondent

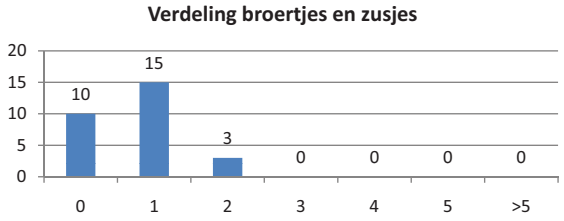
- Geen binding met een geloof
- Rooms-Katholiek
- Protestantse Kerk in Nederland
- Gereformeerd
- Evangelisch
- Islamitisch
- Hindoe
- Boeddhist
- Ander geloofsgenootschap

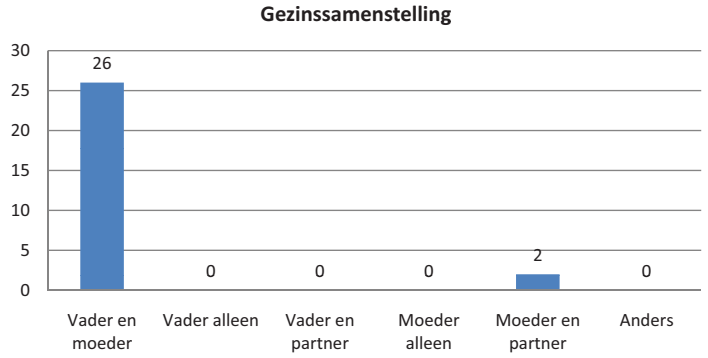
Geloofsovertuiging respondent



Gezinssamenstelling

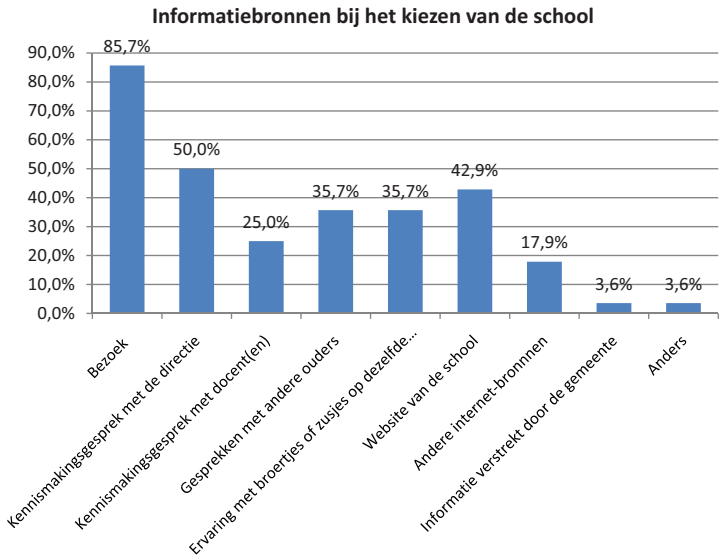
Geslacht kind	15	meisjes	53,57%
	13	jongens	46,43%
Aantal kinderen met broers of zussen:	18		
Dat is:	64%	van de kinderen	
Gemiddeld hebben de kinderen:	1,17	broertjes of zusjes	

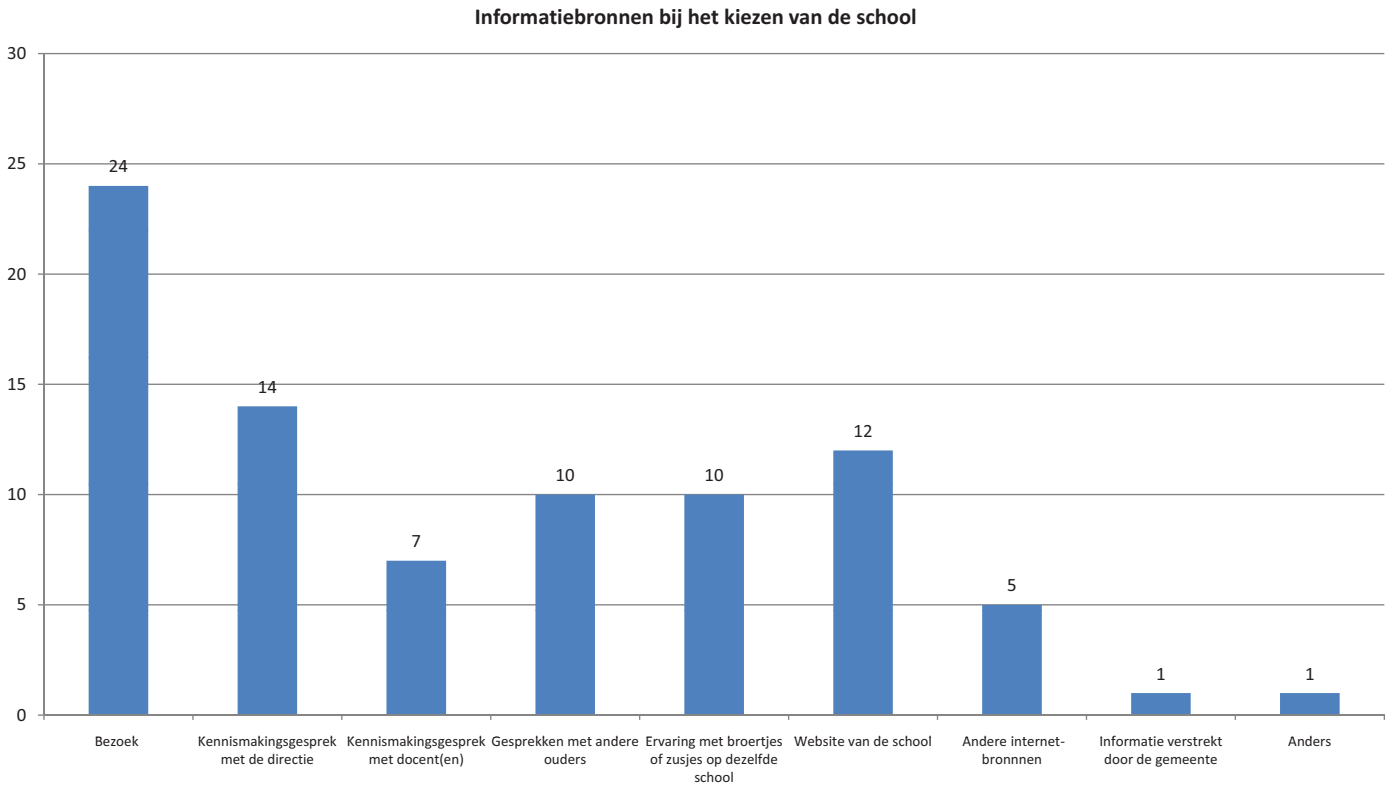




Schoolkeuze

eerste keuze:	26	93%
reden tweede keuze:	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	
	...	





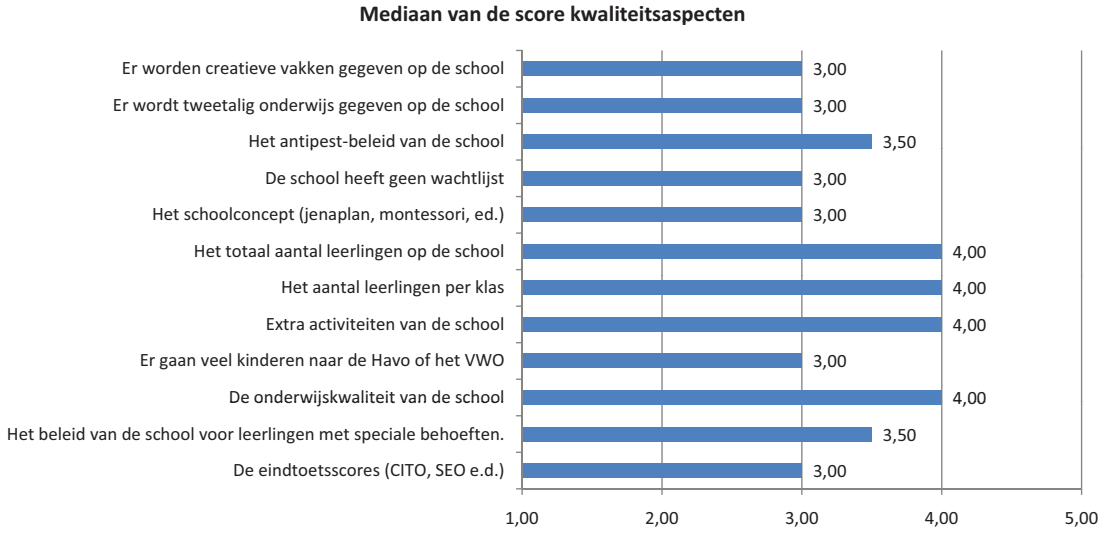
Aspect 1. Kwaliteit

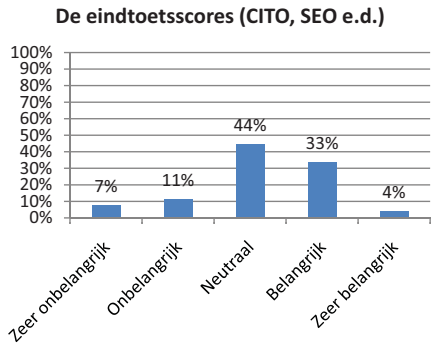
respondenten is gevraagd de aspecten te beoordelen op belang in de schoolkeuze.

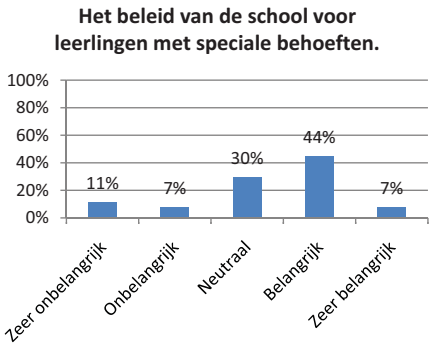
Daarbij werd gebruik gemaakt van onderstaande Likert-scale.

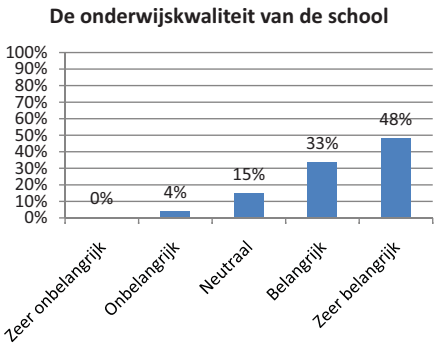
1 : Zeer onbelangrijk
2 : Onbelangrijk
3 : Neutraal
4 : Belangrijk
5 : Zeer belangrijk

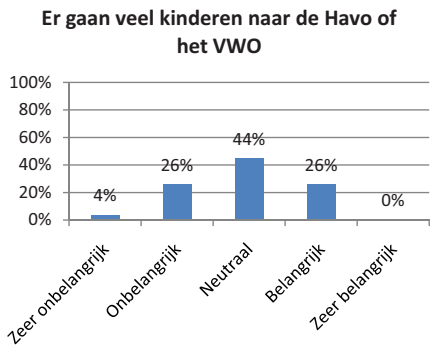
Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.

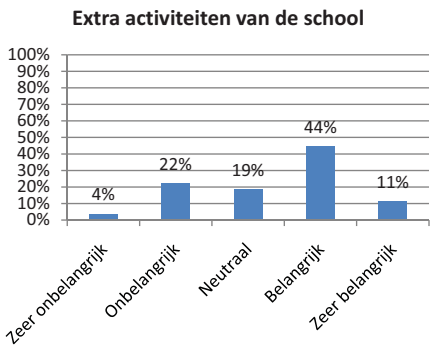


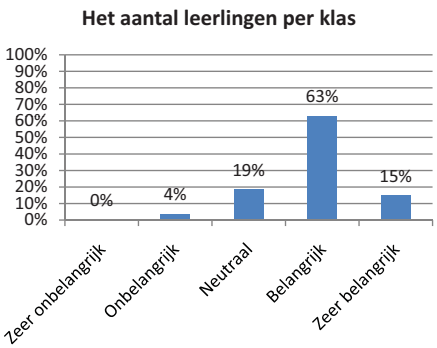


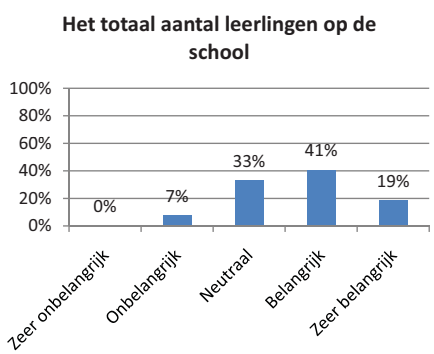


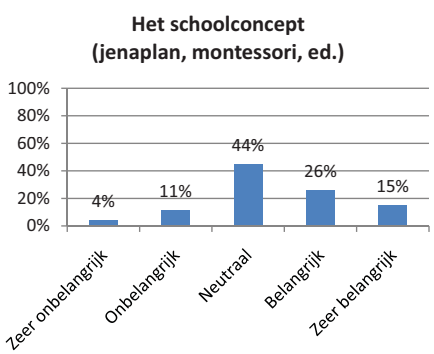


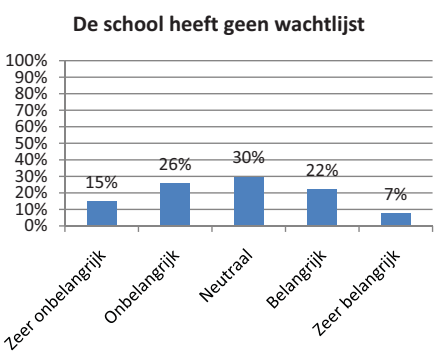


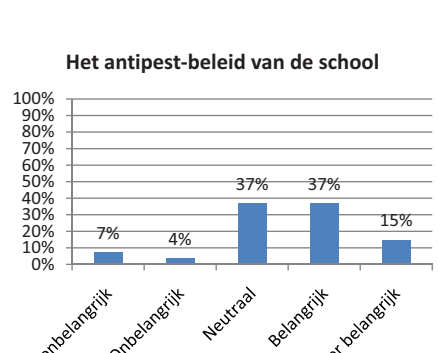


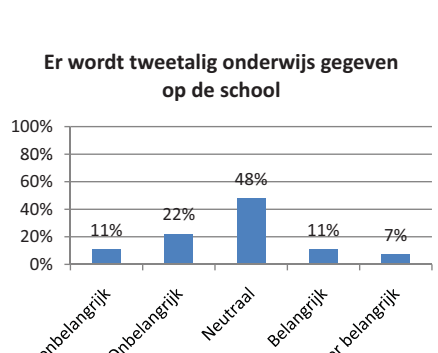


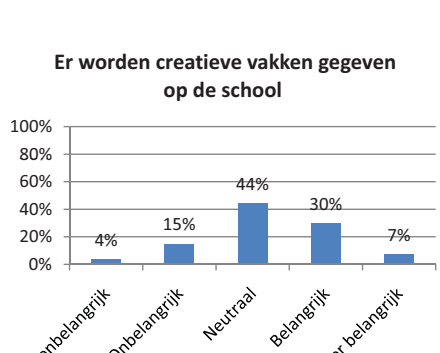












Aspect 2. Sociaal

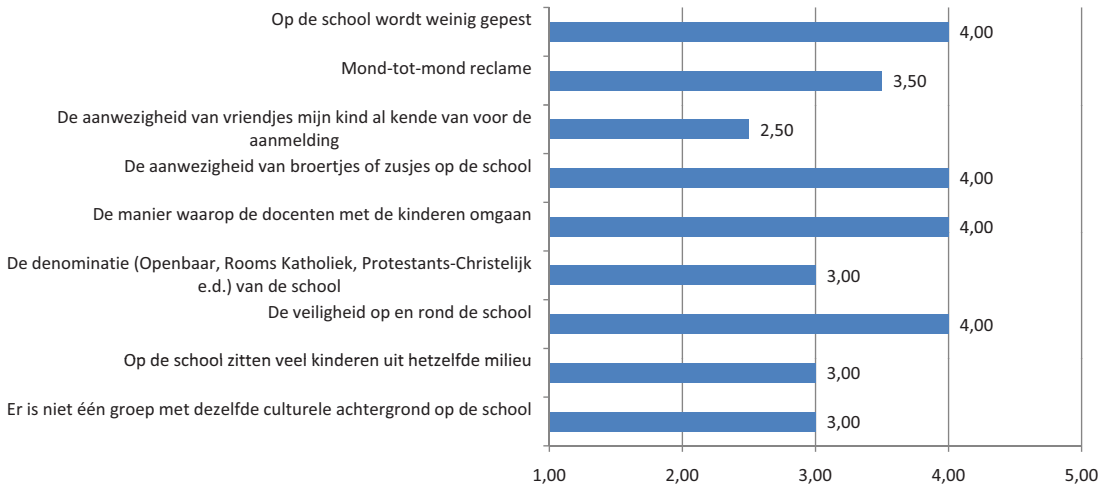
respondenten is gevraagd de aspecten te beoordelen op belang in de schoolkeuze.

Daarbij werd gebruik gemaakt van onderstaande Likert-scale.

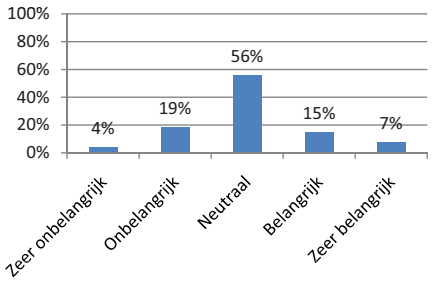
1 : Zeer onbelangrijk
2 : Onbelangrijk
3 : Neutraal
4 : Belangrijk
5 : Zeer belangrijk

Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.

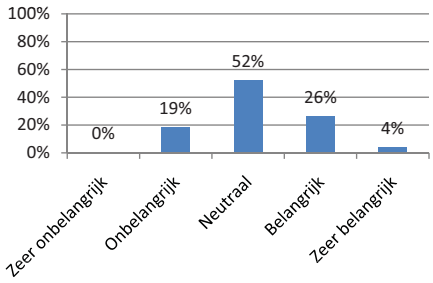
Mediaan van de score sociale aspecten



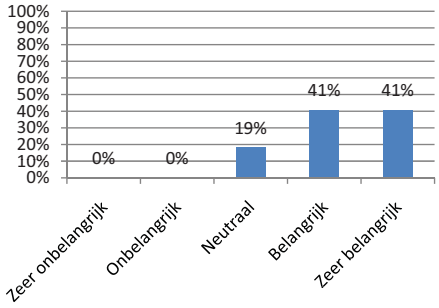
Er is niet één groep met dezelfde culturele achtergrond op de school



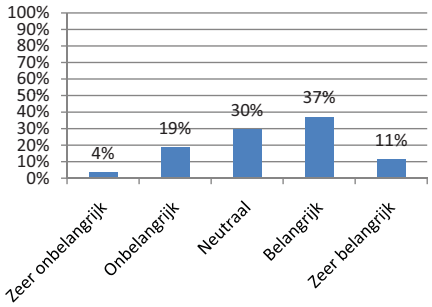
Op de school zitten veel kinderen uit hetzelfde milieu



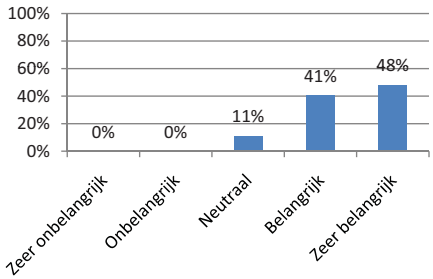
De veiligheid op en rond de school



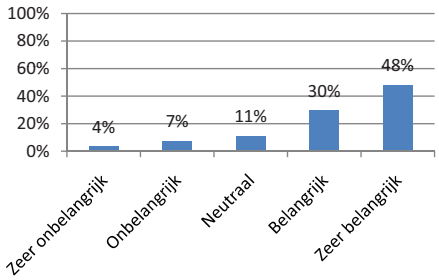
De denominatie van de school



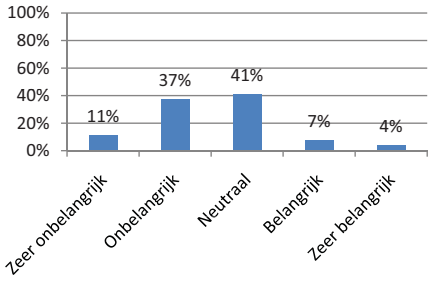
De manier waarop de docenten met de kinderen omgaan



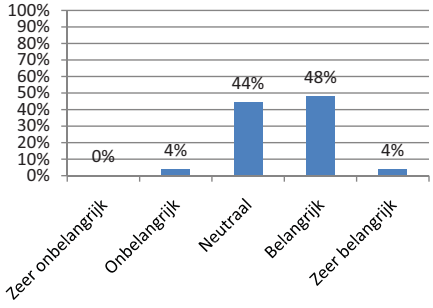
De aanwezigheid van broertjes of zusjes op de school



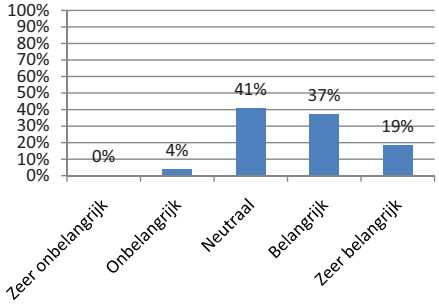
De aanwezigheid van vriendjes die mijn kind al kende



Mond-tot-mond reclame



Op de school wordt weinig gepest



Aspect 3. Fysiek

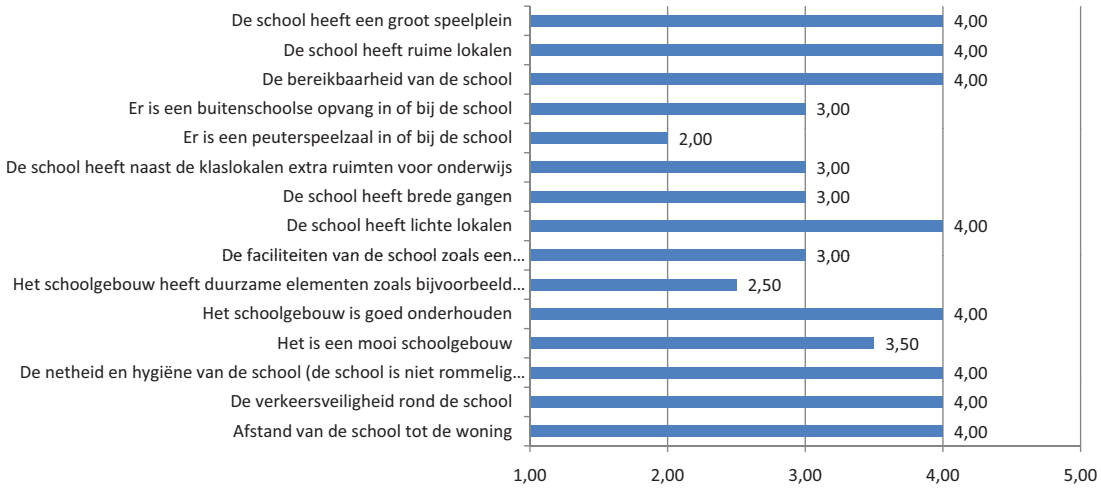
respondenten is gevraagd de aspecten te beoordelen op belang in de schoolkeuze.

Daarbij werd gebruik gemaakt van onderstaande Likert-scale.

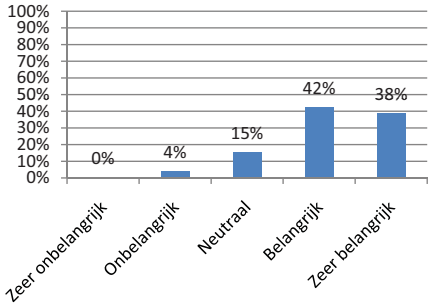
1 : Zeer onbelangrijk
2 : Onbelangrijk
3 : Neutraal
4 : Belangrijk
5 : Zeer belangrijk

Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.

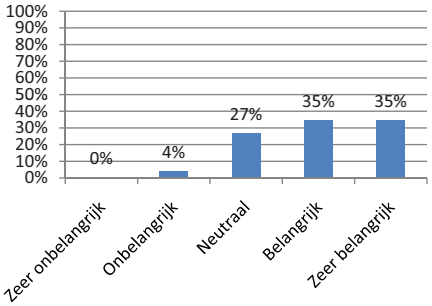
Mediaan van de score fysieke aspecten



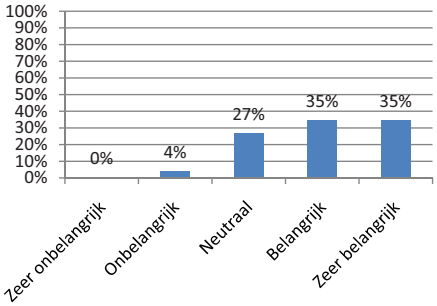
Afstand van de school tot de woning



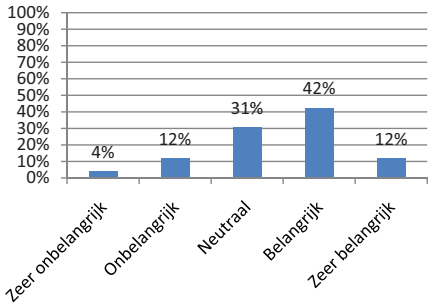
De verkeersveiligheid rond de school



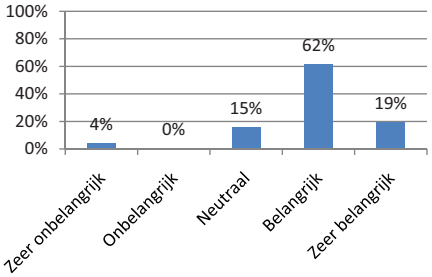
De netheid en hygiëne van de school



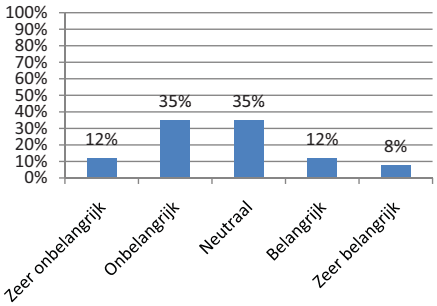
Het is een mooi schoolgebouw



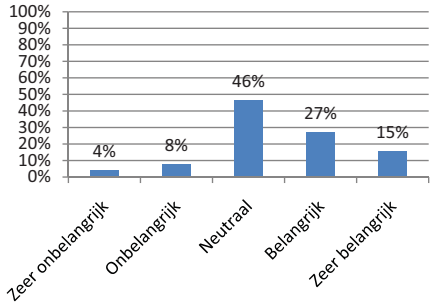
Het schoolgebouw is goed onderhouden



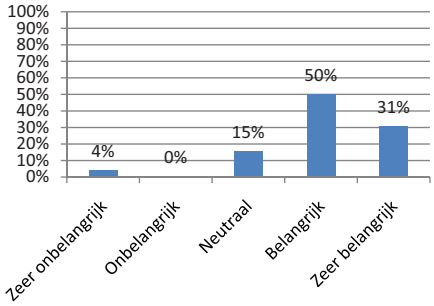
De school heeft duurzame elementen



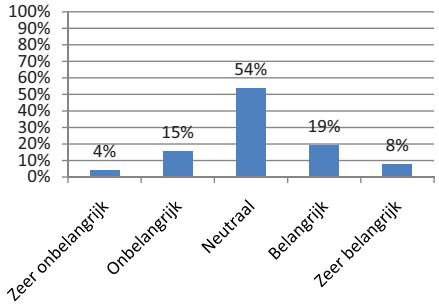
De faciliteiten van de school



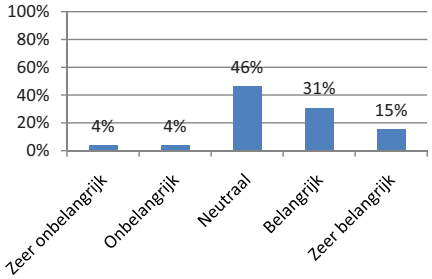
De school heeft lichte lokalen



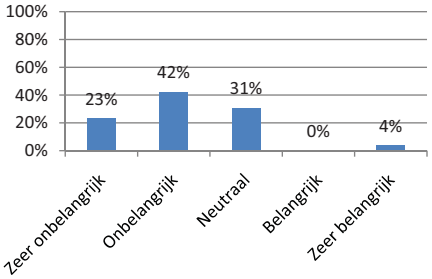
De school heeft brede gangen



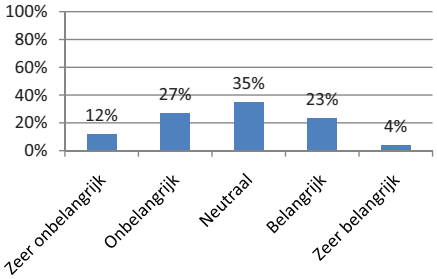
De school heeft extra ruimten voor onderwijs



Er is een peuterspeelzaal in of bij de school



Er is een buitenschoolse opvang in of bij de school



Horst aan de Maas

Uitslag Enquête onder de ouders van groep 1

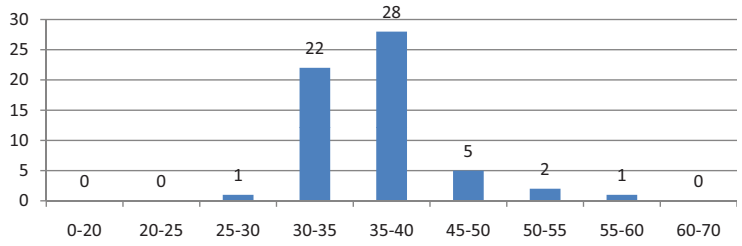
aantal respondenten: 75

respons: 6,4%

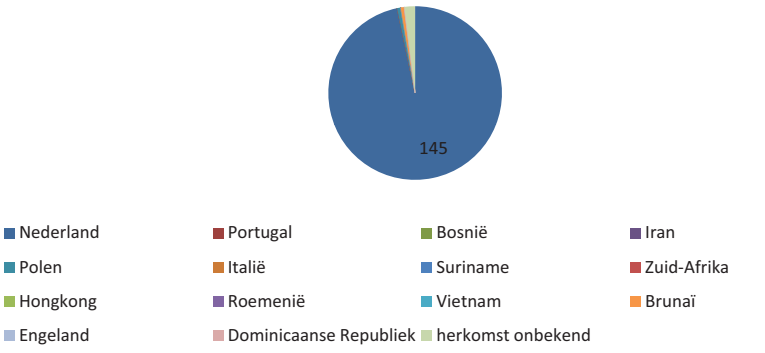
Respondenten

gemiddelde leeftijd	37,60	jaar	
Geslacht respondent	64	vrouw	85%
	11	man	15%
aantal respondenten:	75		
aantal ouders:	150		

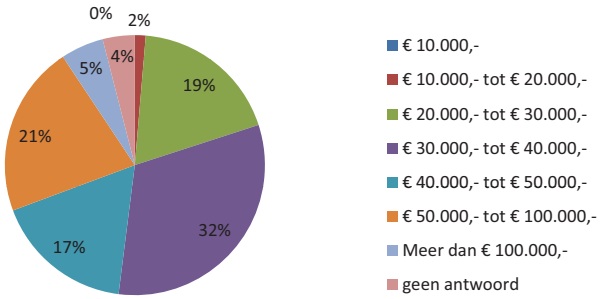
verdeling ouders in leeftijdsgroepen



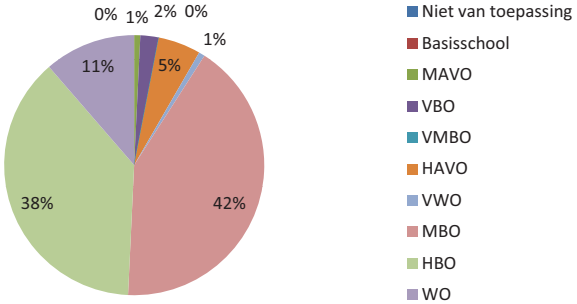
Land van afkomst ouders	aantal	percentage
Nederland	145	96,67%
Portugal	0	0,00%
Bosnië	0	0,00%
Iran	0	0,00%
Polen	1	0,67%
Italië	0	0,00%
Suriname	0	0,00%
Zuid-Afrika	0	0,00%
Hongkong	0	0,00%
Roemenië	0	0,00%
Vietnam	0	0,00%
Brunaï	1	0,67%
Engeland	0	0,00%
Dominicaanse Republiek	0	0,00%
herkomst onbekend	3	2,00%



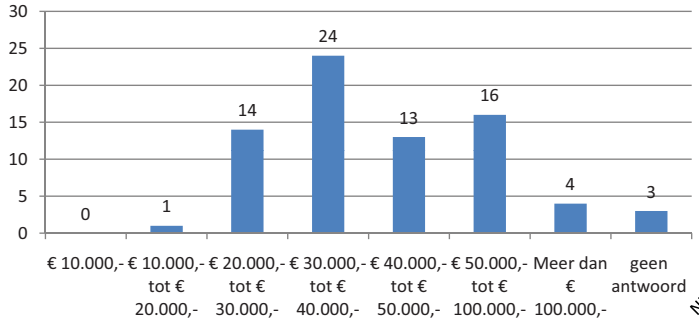
Netto verzamel jaarinkomen gezin



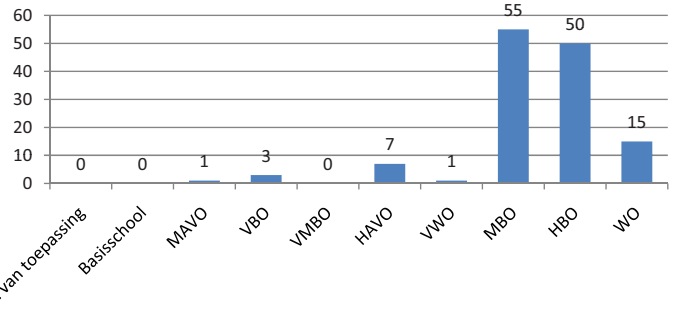
Opleidingniveau ouders

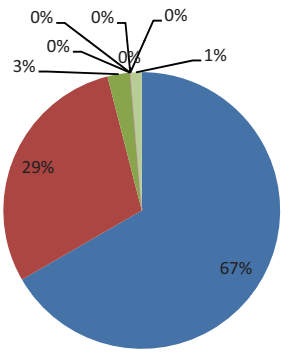


Netto verzamel jaarinkomen gezin



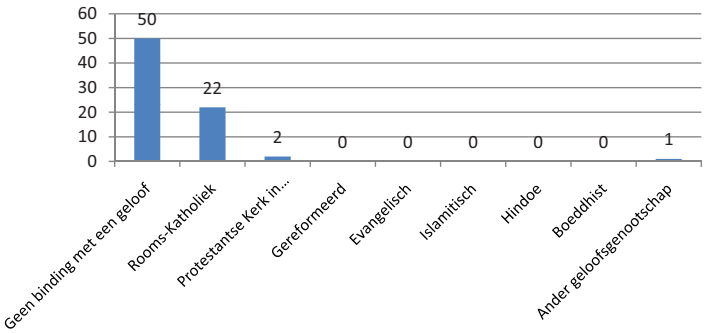
Opleidingniveau ouders





Geloofsovertuiging respondent

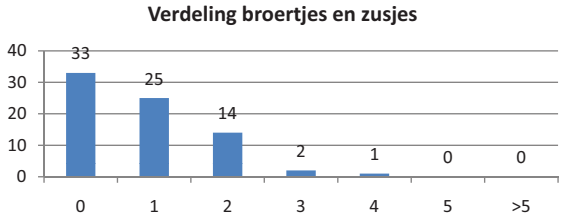
Geloofsovertuiging respondent

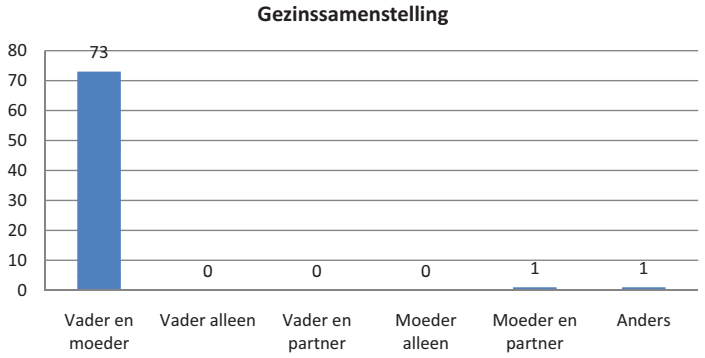


Gezinssamenstelling

Geslacht kind 36 meisjes 48,00%
39 jongens 52,00%

Aantal kinderen met broers of zussen: 42
Dat is: 56% van de kinderen
Gemiddeld hebben de kinderen: 1,50 broertjes of zusjes

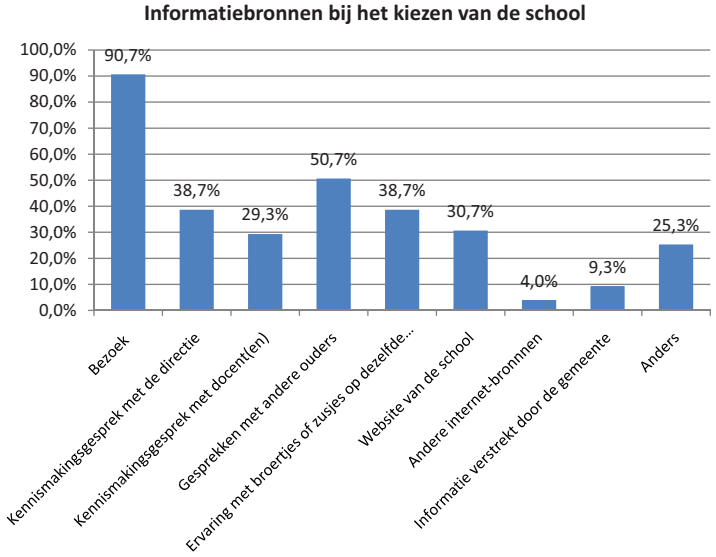


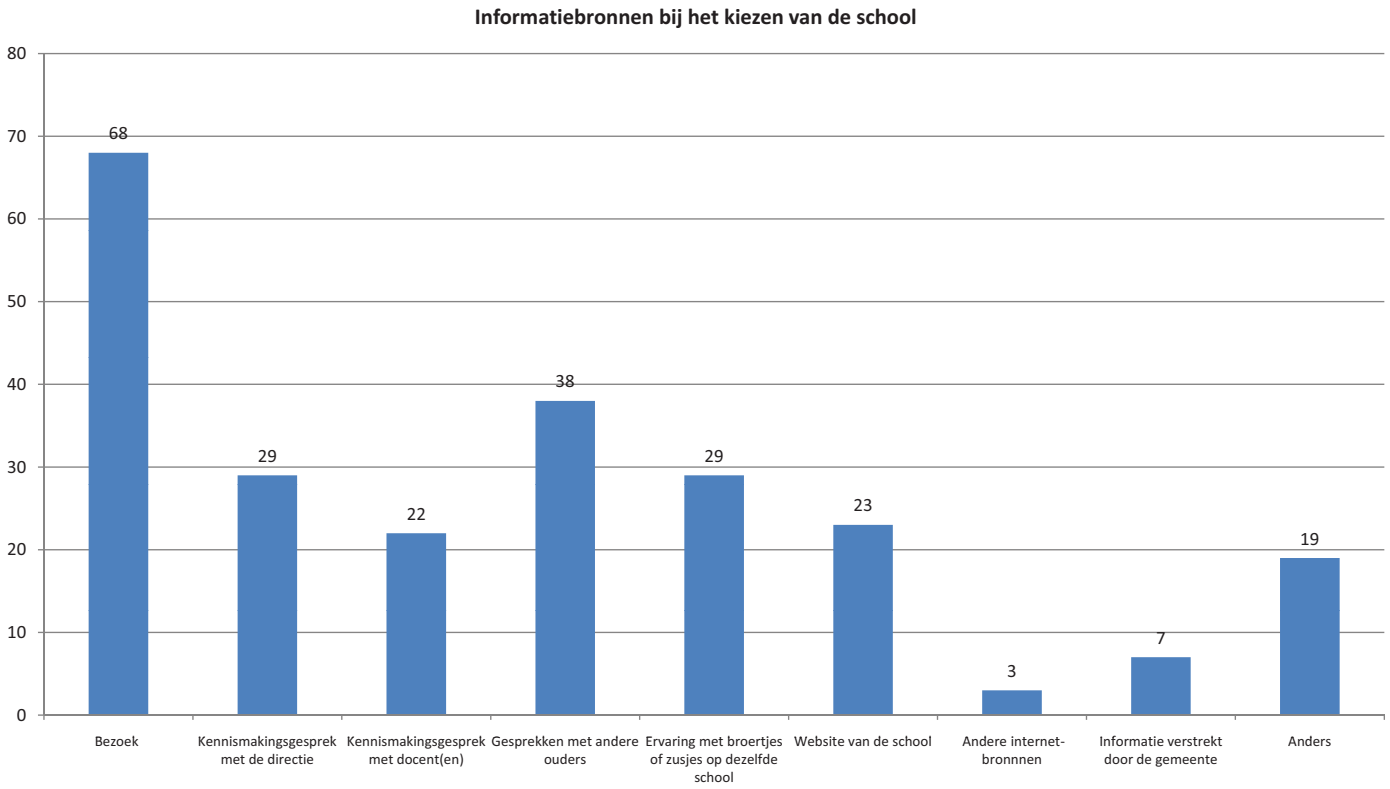


Schoolkeuze

eerste keuze: 69 92%

reden tweede keuze: Sfeer, goed onderwijs
...
...
...
...
...
sfeer, straalde rust uit
Afstand en de vele buurtkinderen gaan er naar school.
Dichts bij huis
afstand
ander kind was daar ook
...
...
...
...
...





Aspect 1. Kwaliteit

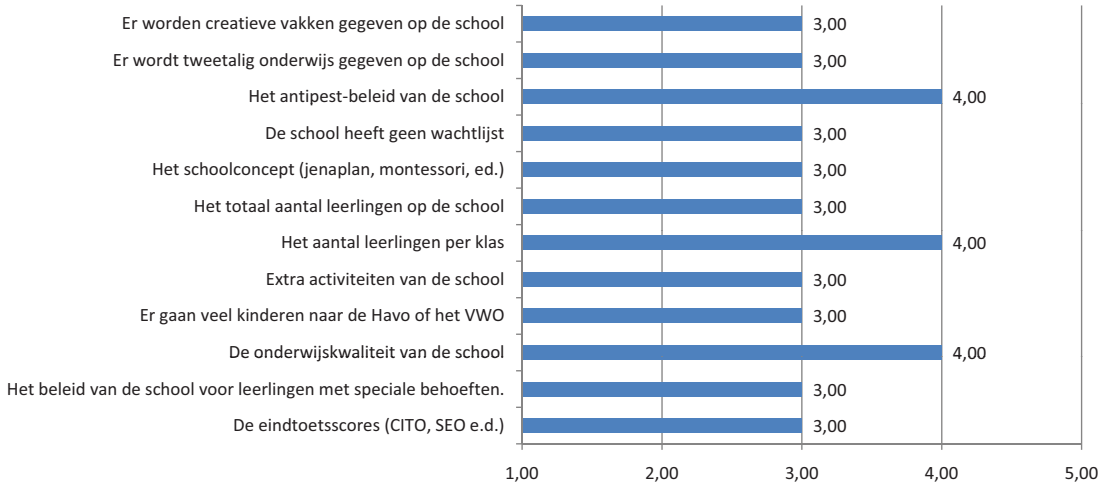
respondenten is gevraagd de aspecten te beoordelen op belang in de schoolkeuze.

Daarbij werd gebruik gemaakt van onderstaande Likert-scale.

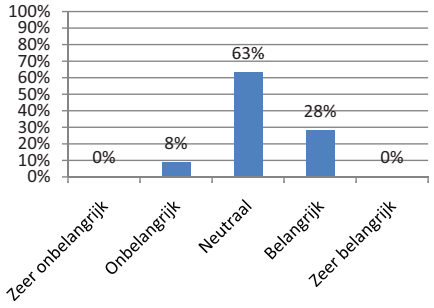
1 : Zeer onbelangrijk
2 : Onbelangrijk
3 : Neutraal
4 : Belangrijk
5 : Zeer belangrijk

Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.

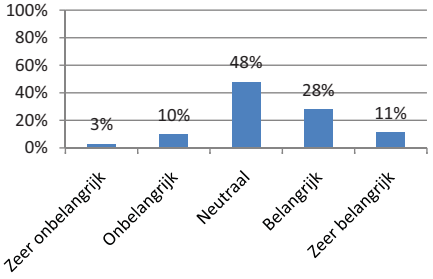
Mediaan van de score kwaliteitsaspecten



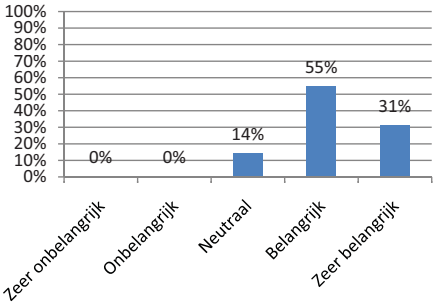
De eindtoetsscores (CITO, SEO e.d.)



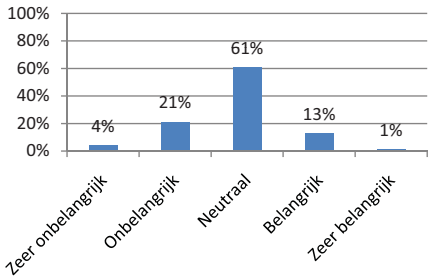
Het beleid van de school voor leerlingen met speciale behoeften.



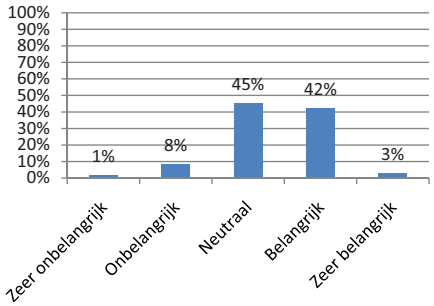
De onderwijskwaliteit van de school



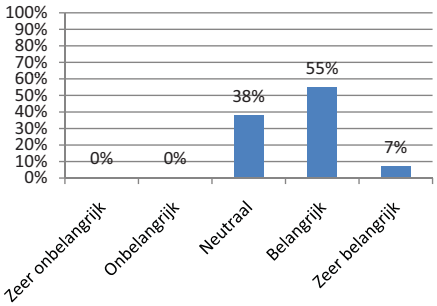
Er gaan veel kinderen naar de Havo of het VWO



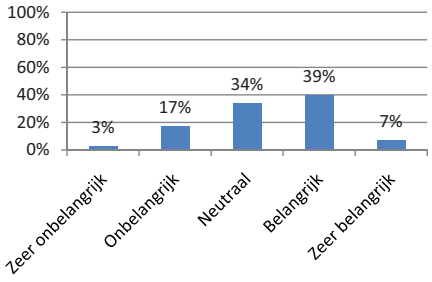
Extra activiteiten van de school



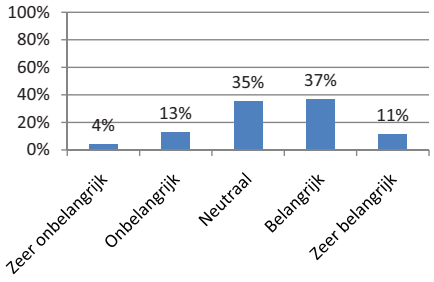
Het aantal leerlingen per klas



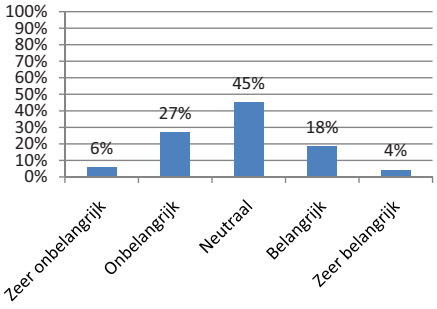
Het totaal aantal leerlingen op de school



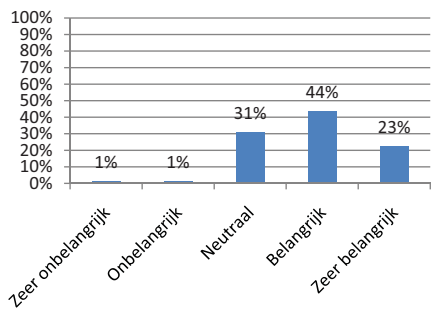
Het schoolconcept (jenaplan, montessori, ed.)



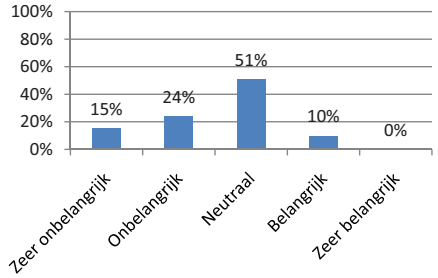
De school heeft geen wachtlijst



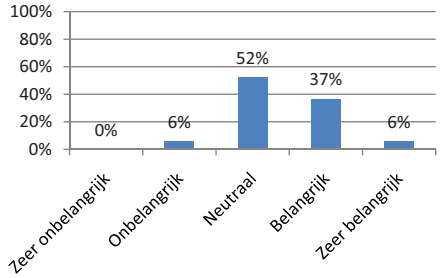
Het antipest-beleid van de school



Er wordt tweetalig onderwijs gegeven op de school



Er worden creatieve vakken gegeven op de school



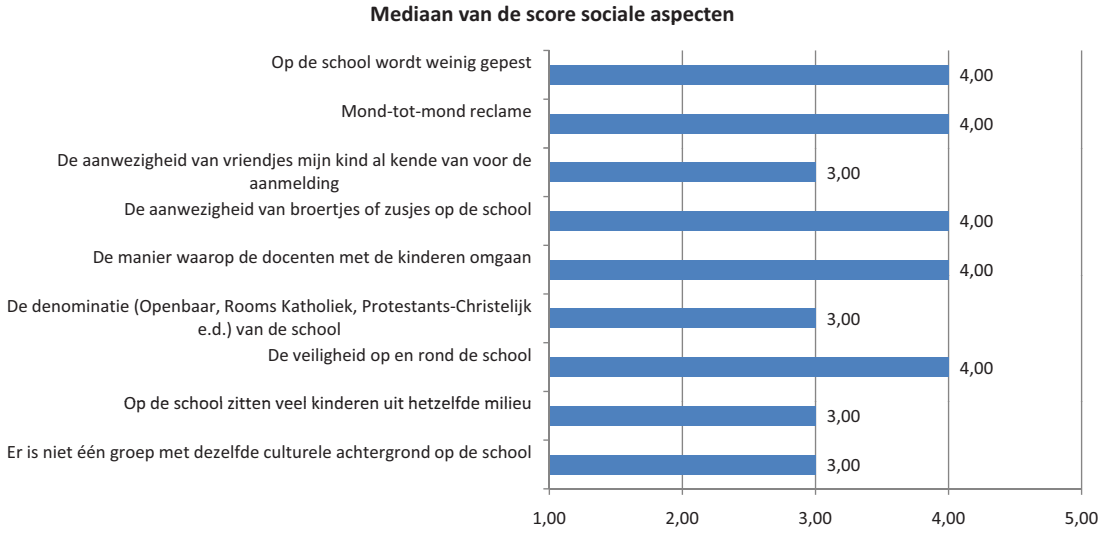
Aspect 2. Sociaal

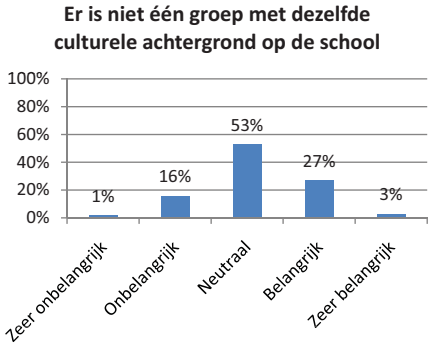
respondenten is gevraagd de aspecten te beoordelen op belang in de schoolkeuze.

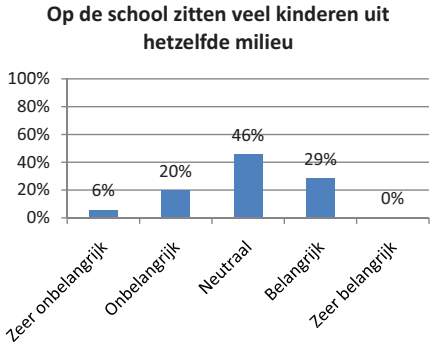
Daarbij werd gebruik gemaakt van onderstaande Likert-scale.

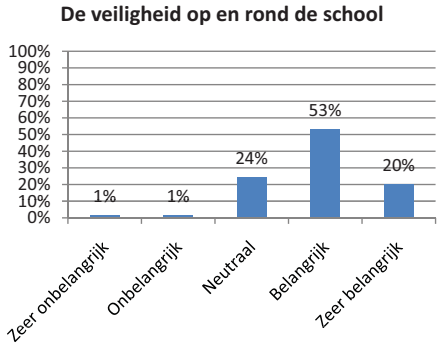
1 : Zeer onbelangrijk
2 : Onbelangrijk
3 : Neutraal
4 : Belangrijk
5 : Zeer belangrijk

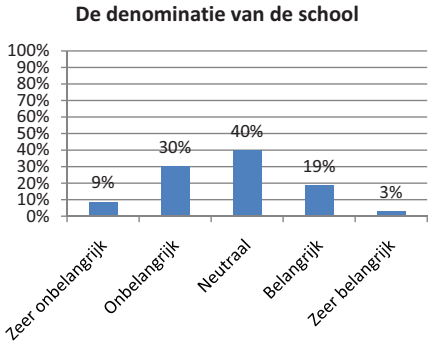
Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.

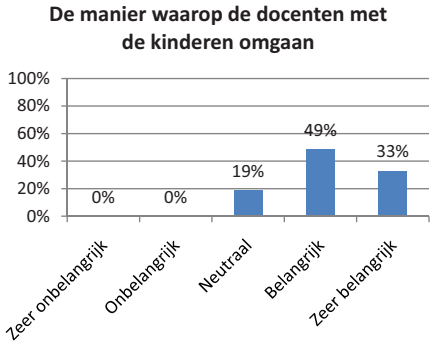


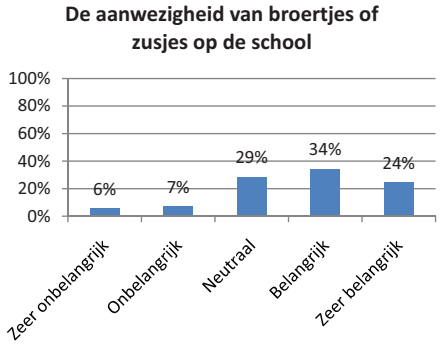


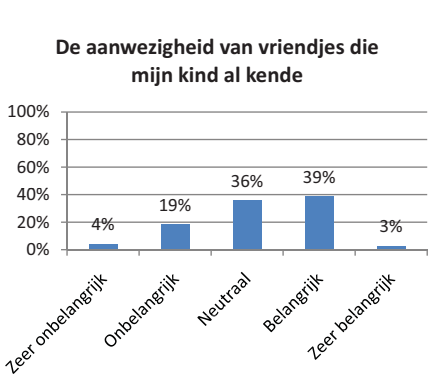


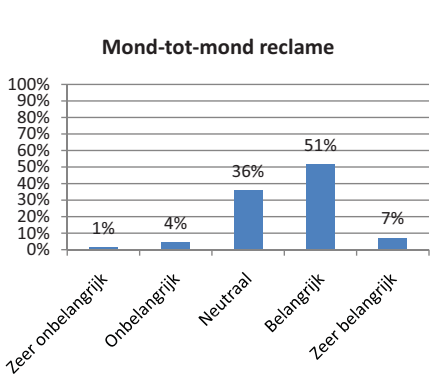


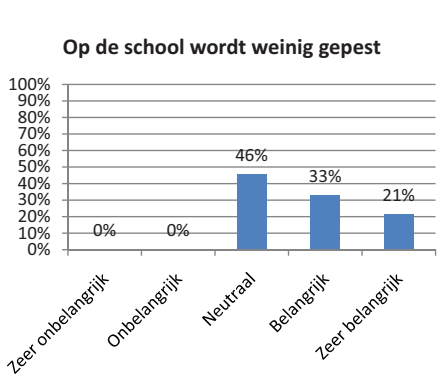












Aspect 3. Fysiek

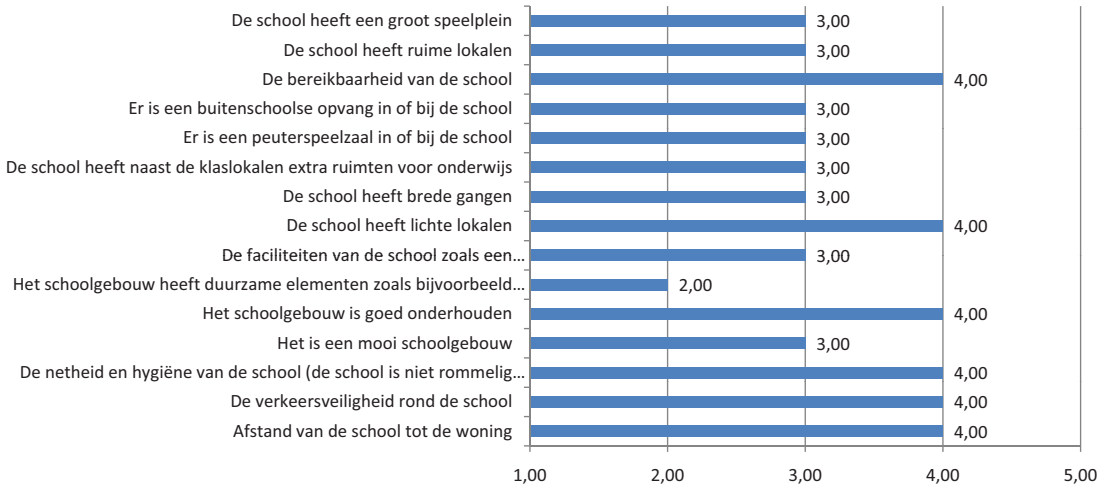
respondenten is gevraagd de aspecten te beoordelen op belang in de schoolkeuze.

Daarbij werd gebruik gemaakt van onderstaande Likert-scale.

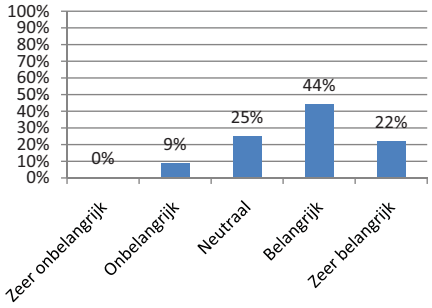
1 : Zeer onbelangrijk
2 : Onbelangrijk
3 : Neutraal
4 : Belangrijk
5 : Zeer belangrijk

Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.

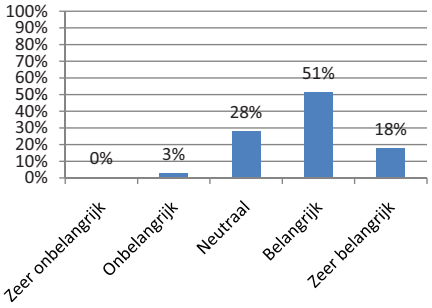
Mediaan van de score fysieke aspecten



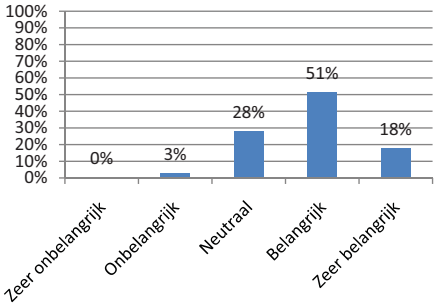
Afstand van de school tot de woning



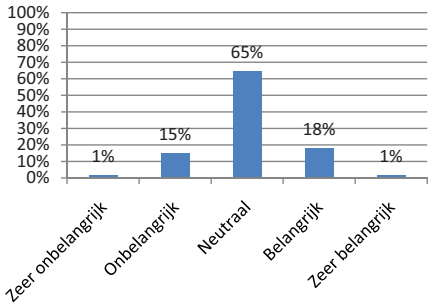
De verkeersveiligheid rond de school



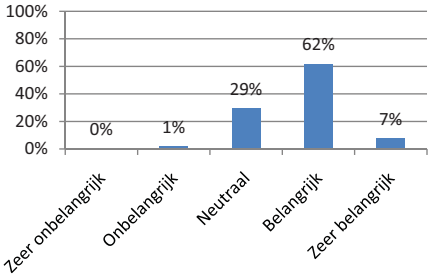
De netheid en hygiëne van de school



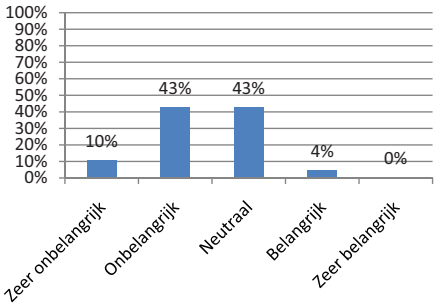
Het is een mooi schoolgebouw



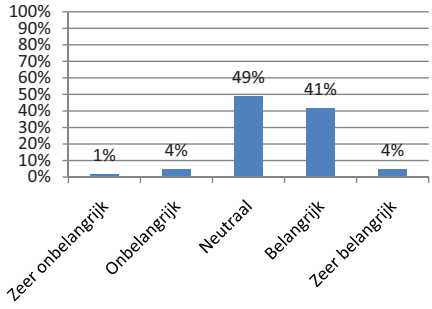
Het schoolgebouw is goed onderhouden



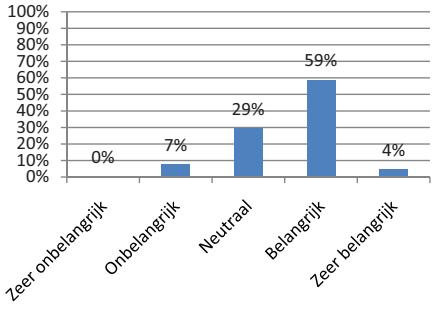
De school heeft duurzame elementen



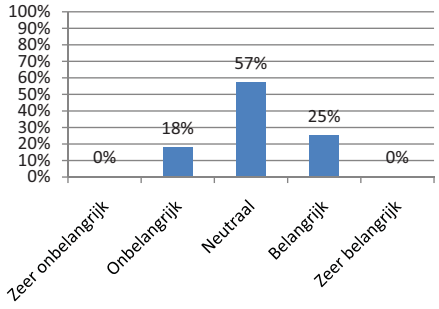
De faciliteiten van de school



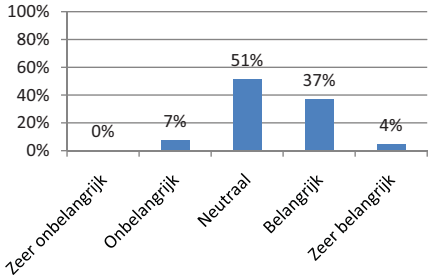
De school heeft lichte lokalen



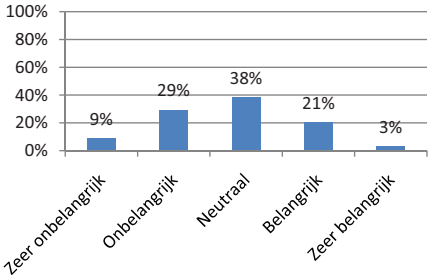
De school heeft brede gangen



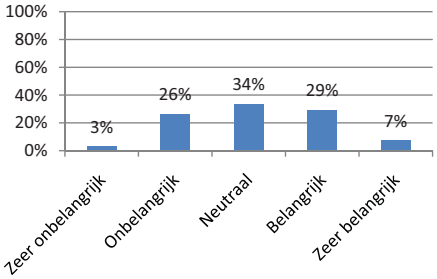
De school heeft extra ruimten voor onderwijs

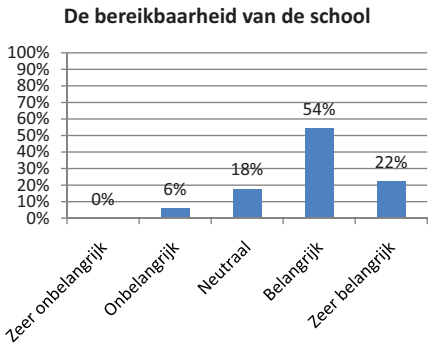


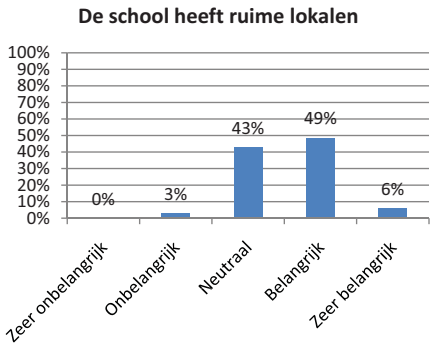
Er is een peuterspeelzaal in of bij de school

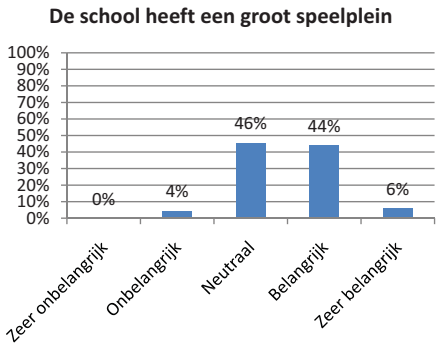


Er is een buitenschoolse opvang in of bij de school





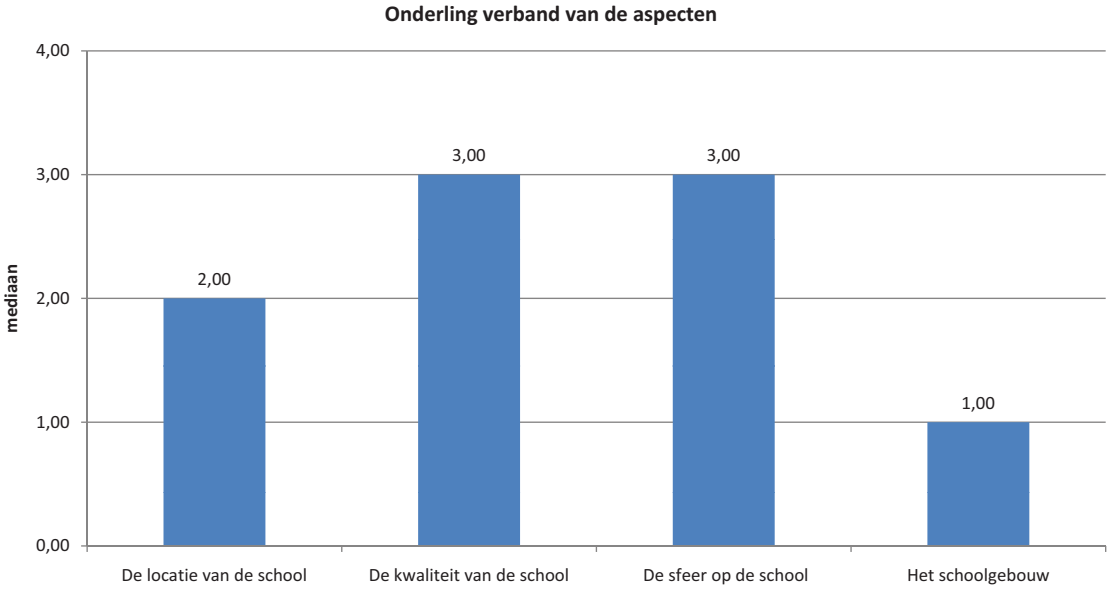


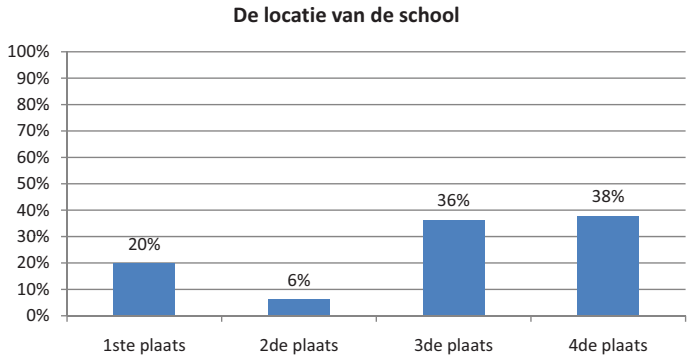


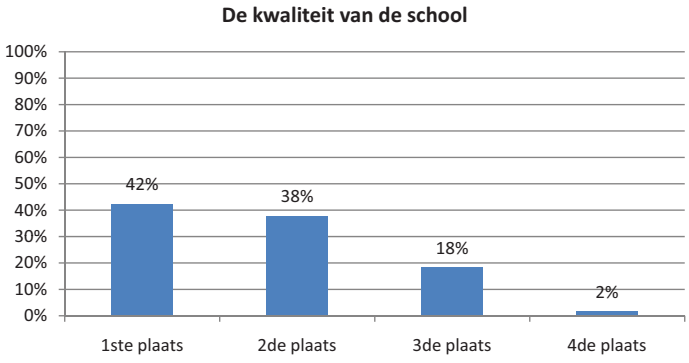
Onderlinge verhouding aspecten

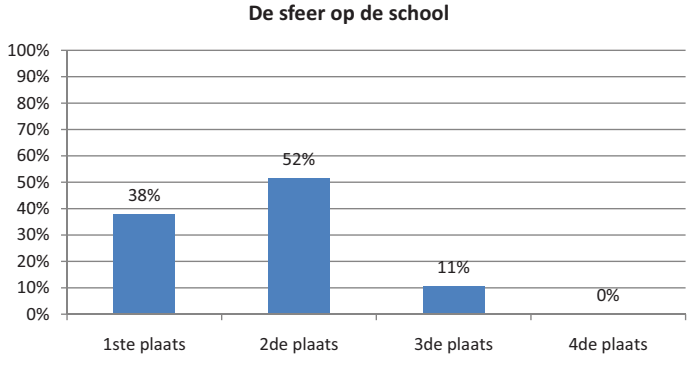
respondenten is gevraagd naar het onderling belang van de bovengenoemde aspecten.

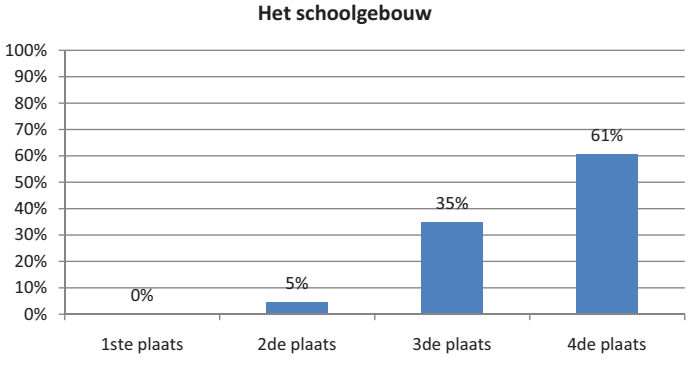
Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.

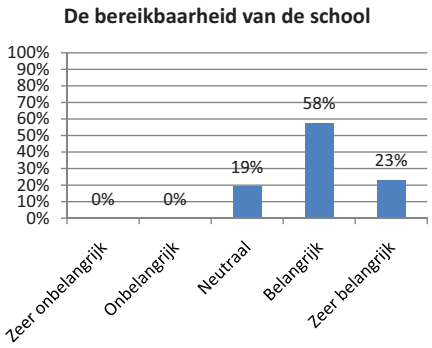


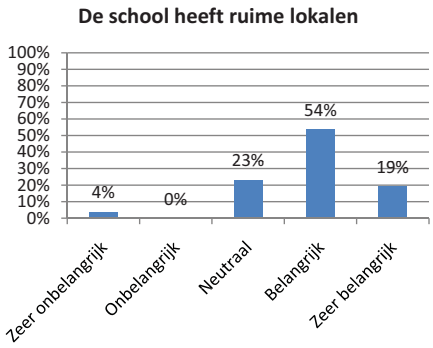


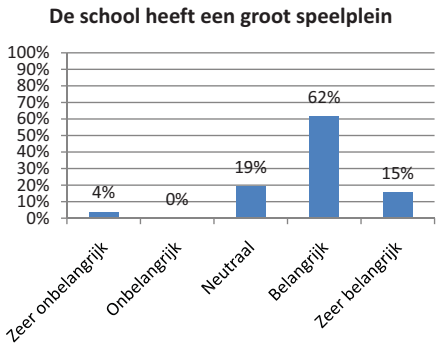








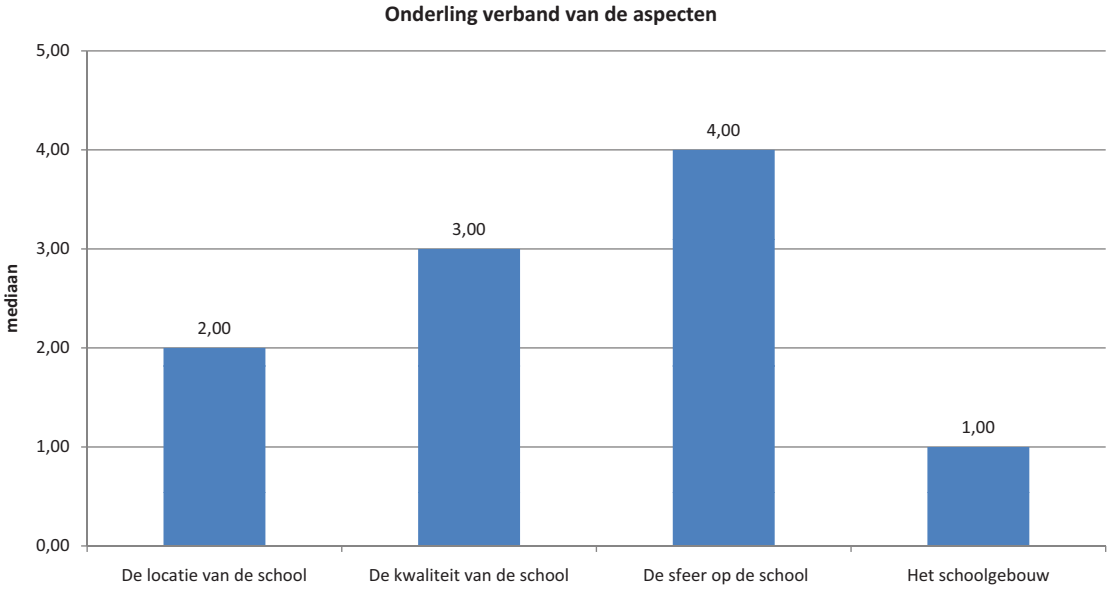


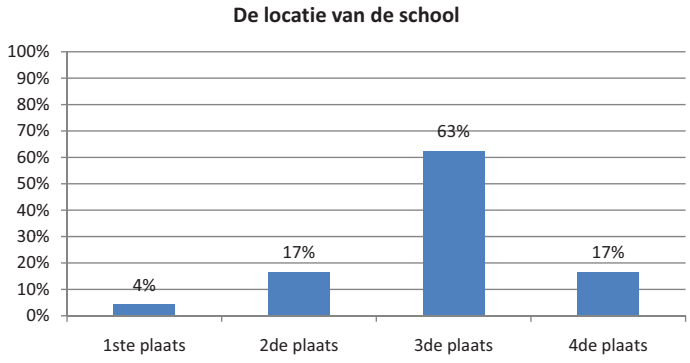


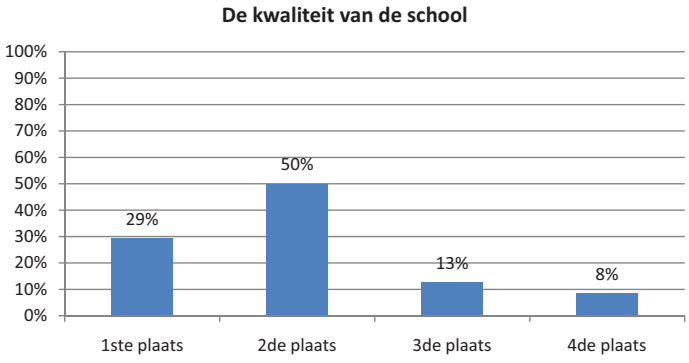
Onderlinge verhouding aspecten

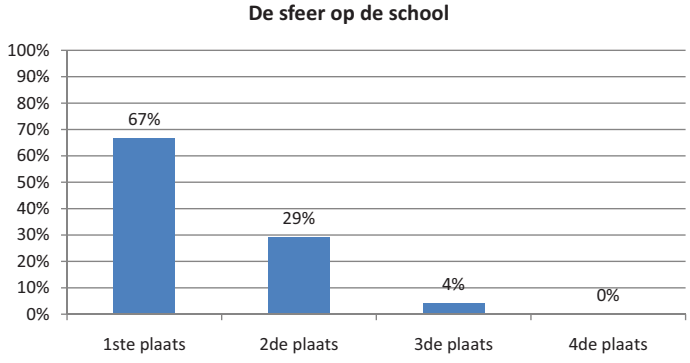
respondenten is gevraagd naar het onderling belang van de bovengenoemde aspecten.

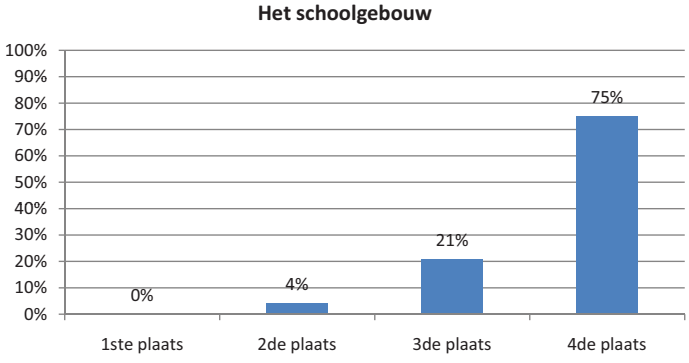
Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.











Purmerend

Uitslag Enquête onder de ouders van groep 1

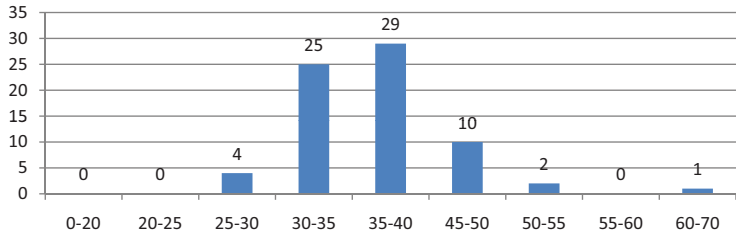
aantal respondenten: 90

respons: 7,6%

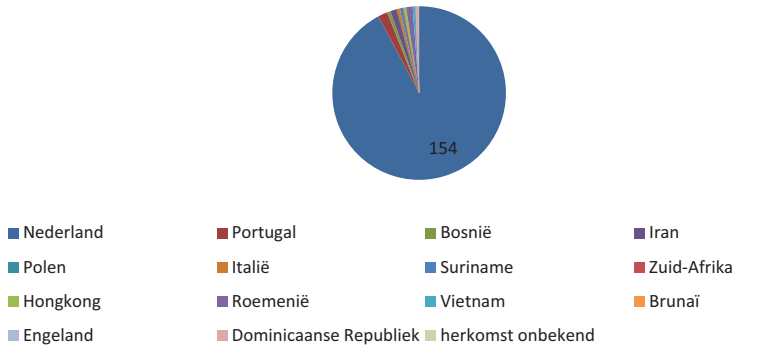
Respondenten

gemiddelde leeftijd	38,04	jaar	
Geslacht respondent	74	vrouw	82%
	16	man	18%
aantal respondenten:	90		
aantal ouders:	167		

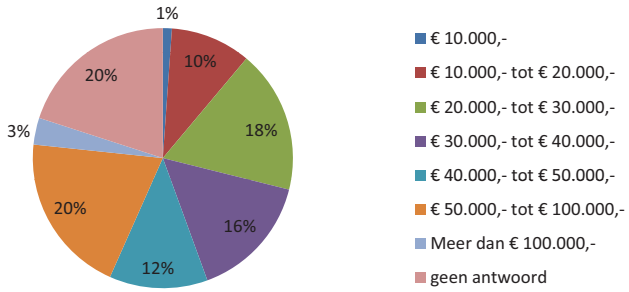
verdeling ouders in leeftijdsgroepen



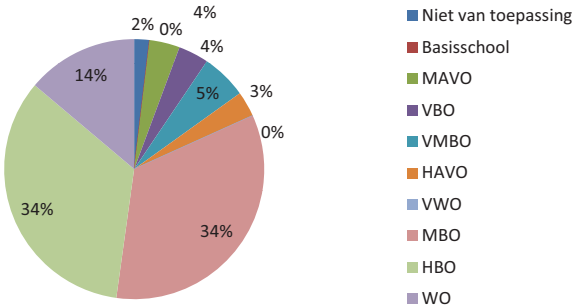
Land van afkomst ouders	aantal	percentage
Nederland	154	92,22%
Portugal	3	1,80%
Bosnië	1	0,60%
Iran	2	1,20%
Polen	0	0,00%
Italië	1	0,60%
Suriname	1	0,60%
Zuid-Afrika	0	0,00%
Hongkong	1	0,60%
Roemenië	2	1,20%
Vietnam	1	0,60%
Brunaï	0	0,00%
Engeland	0	0,00%
Dominicaanse Republiek	1	0,60%
herkomst onbekend	0	0,00%



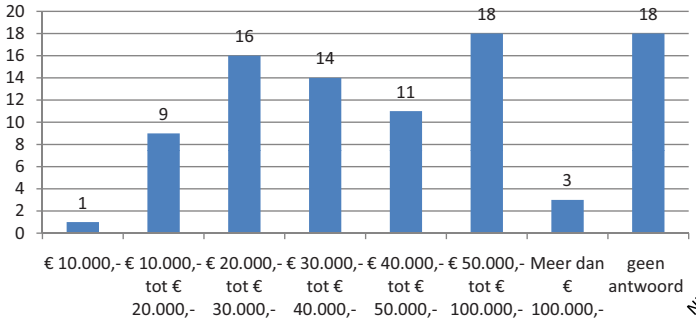
Netto verzamel jaarinkomen gezin



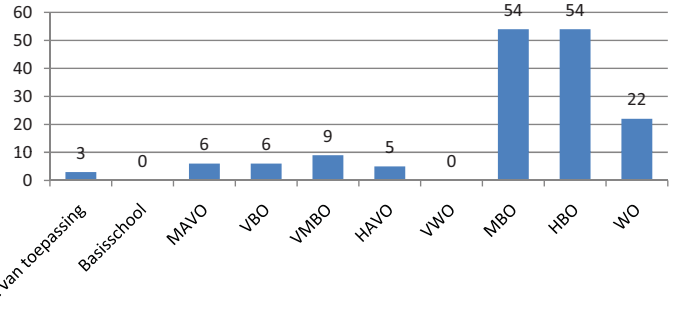
Opleidingniveau ouders

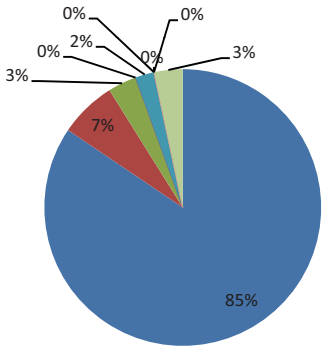


Netto verzamel jaarinkomen gezin



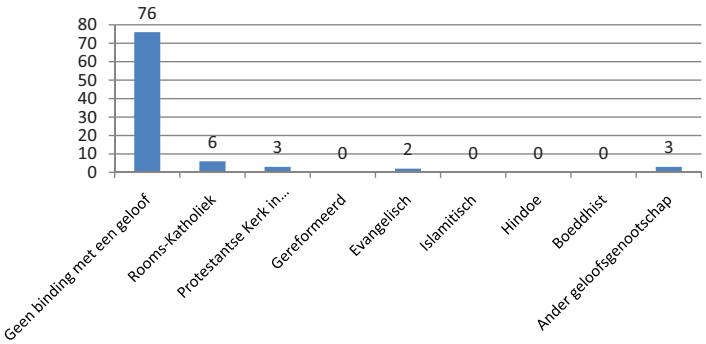
Opleidingniveau ouders





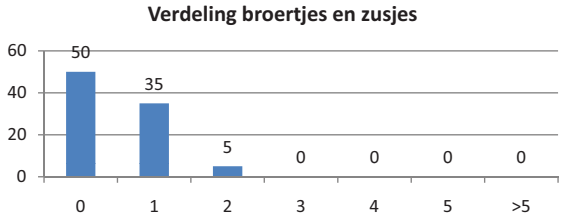
Geloofsovertuiging respondent

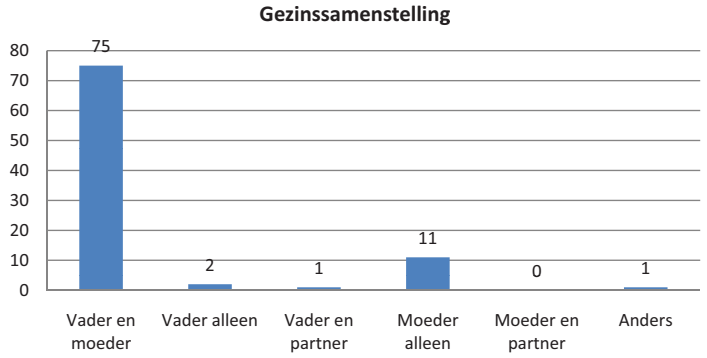
Geloofsovertuiging respondent



Gezinssamenstelling

Geslacht kind	45	meisjes	50,00%
	45	jongens	50,00%
Aantal kinderen met broers of zussen:	40		
Dat is:	44%	van de kinderen	
Gemiddeld hebben de kinderen:	1,13	broertjes of zusjes	





Schoolkeuze

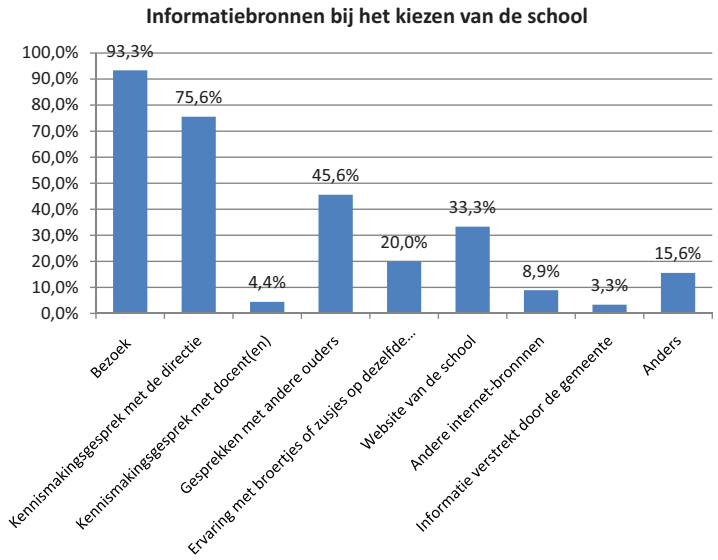
eerste keuze: 80 89%

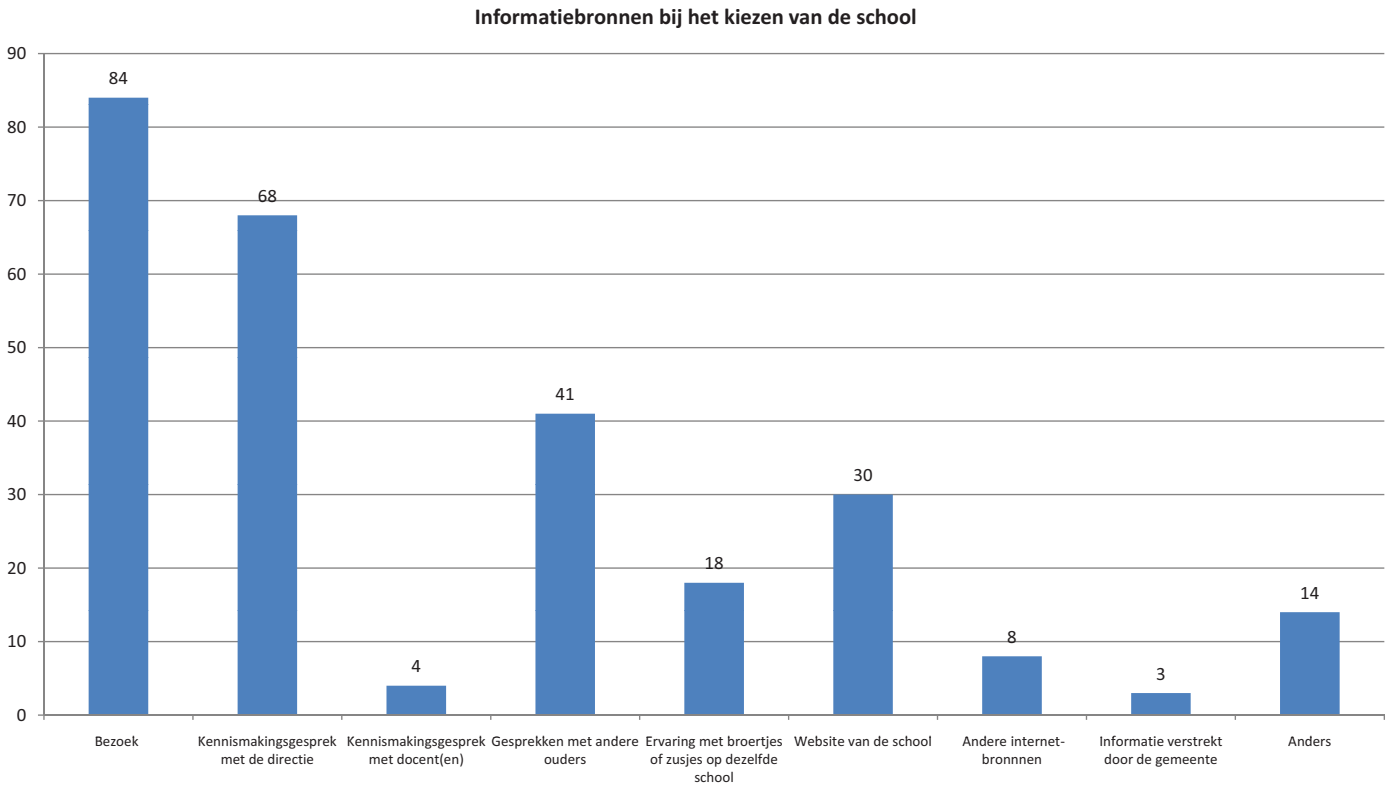
reden tweede keuze:

…
Lokatie en beloofde nieuwe schoolgebouw
beter dan de eerste keuze school
dichterbij
Betere indruk
beste van de twee opties
…
…

…
…
…
Door pesten op een andere school!
verhuizing
Omdat de andere school die we hadden gekozen plotseling ging verhuizen. En deze school was dan dichter bij.

er was geen continu rooster
dat het christelijkis en omdat er GEEN continurooster is





Aspect 1. Kwaliteit

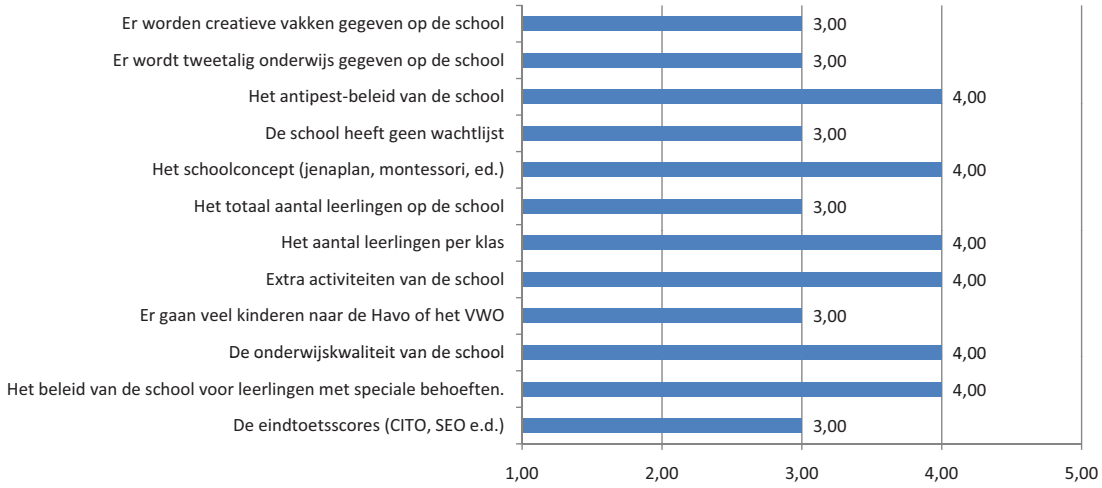
respondenten is gevraagd de aspecten te beoordelen op belang in de schoolkeuze.

Daarbij werd gebruik gemaakt van onderstaande Likert-scale.

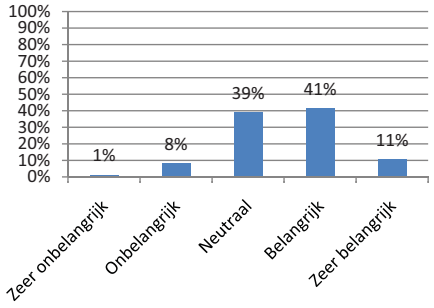
1 : Zeer onbelangrijk
2 : Onbelangrijk
3 : Neutraal
4 : Belangrijk
5 : Zeer belangrijk

Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.

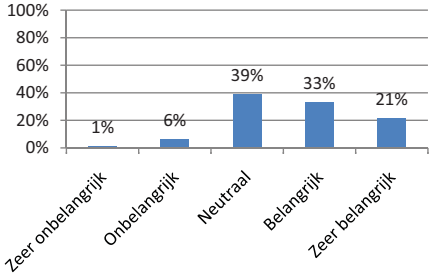
Mediaan van de score kwaliteitsaspecten



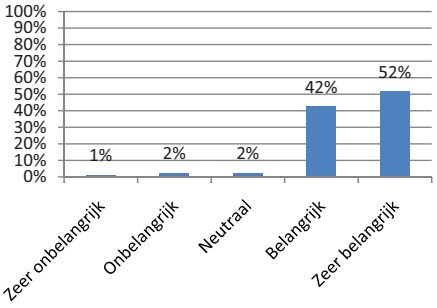
De eindtoetsscores (CITO, SEO e.d.)



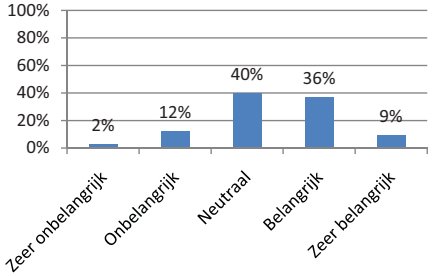
Het beleid van de school voor leerlingen met speciale behoeften.



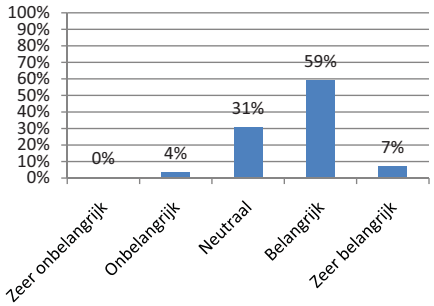
De onderwijskwaliteit van de school



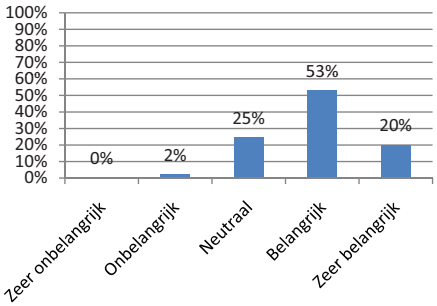
Er gaan veel kinderen naar de Havo of het VWO



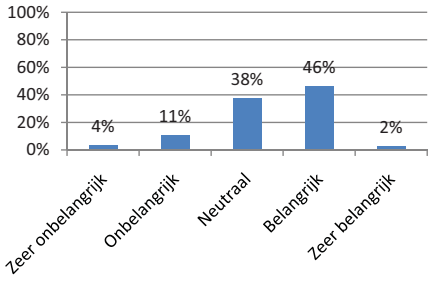
Extra activiteiten van de school



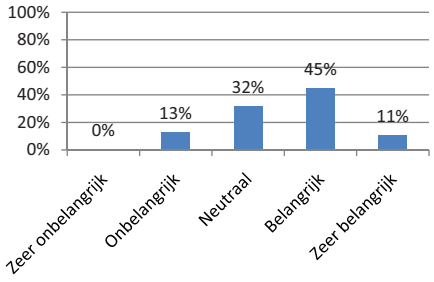
Het aantal leerlingen per klas



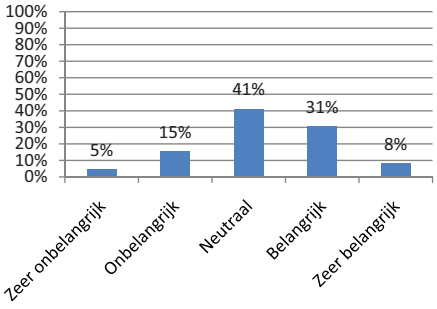
Het totaal aantal leerlingen op de school



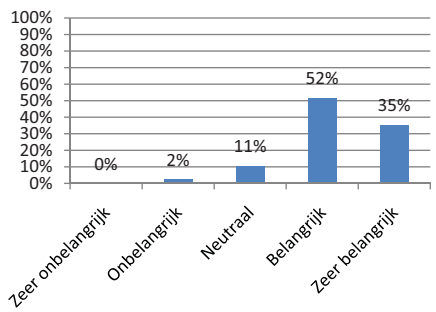
Het schoolconcept (jenaplan, montessori, ed.)



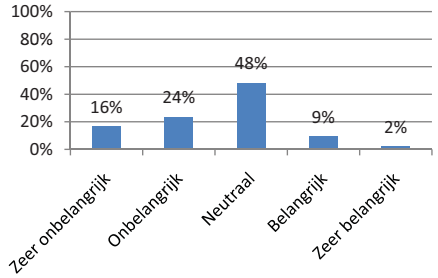
De school heeft geen wachtlijst



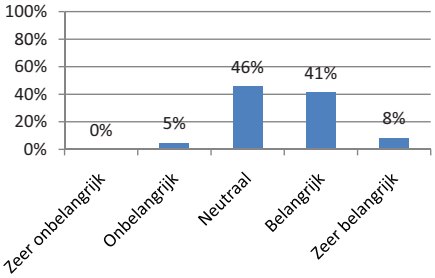
Het antipest-beleid van de school



Er wordt tweetalig onderwijs gegeven op de school



Er worden creatieve vakken gegeven op de school



Aspect 2. Sociaal

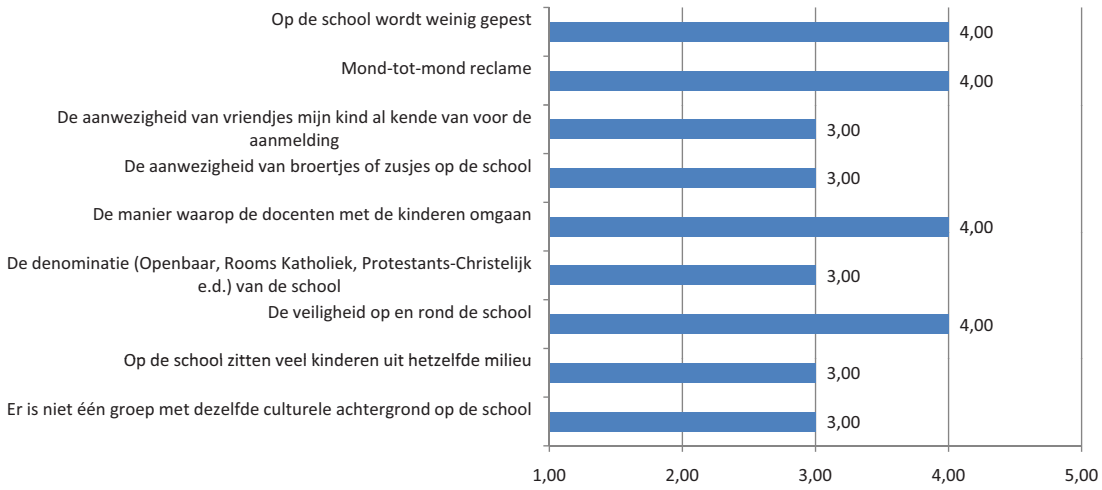
respondenten is gevraagd de aspecten te beoordelen op belang in de schoolkeuze.

Daarbij werd gebruik gemaakt van onderstaande Likert-scale.

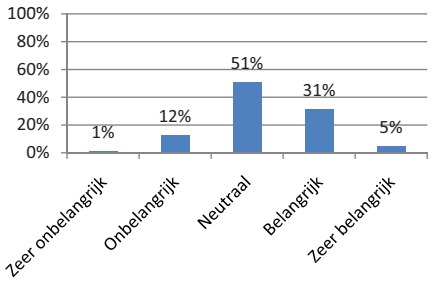
1 : Zeer onbelangrijk
2 : Onbelangrijk
3 : Neutraal
4 : Belangrijk
5 : Zeer belangrijk

Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.

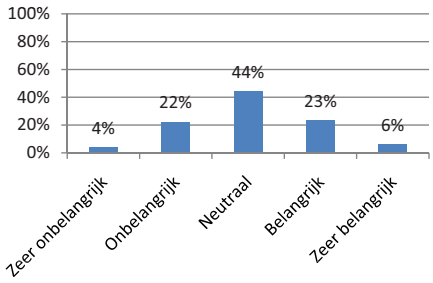
Mediaan van de score sociale aspecten



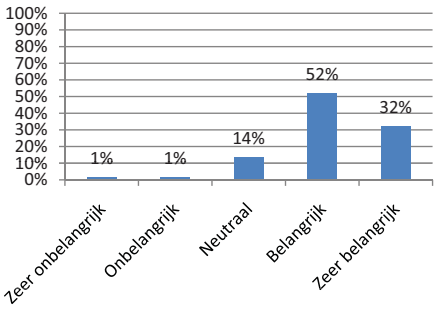
Er is niet één groep met dezelfde culturele achtergrond op de school



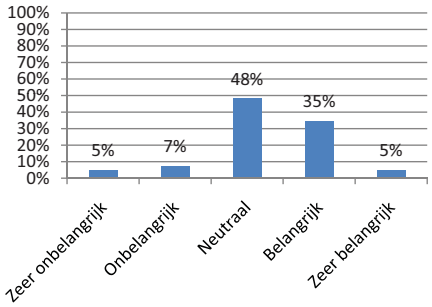
Op de school zitten veel kinderen uit hetzelfde milieu



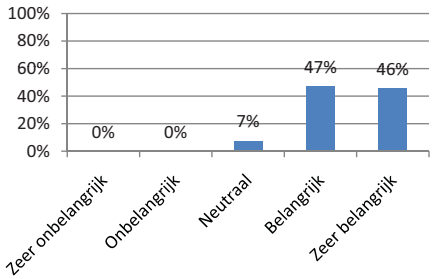
De veiligheid op en rond de school



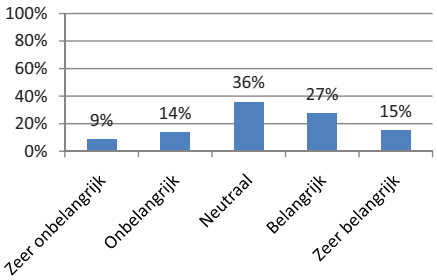
De denominatie van de school



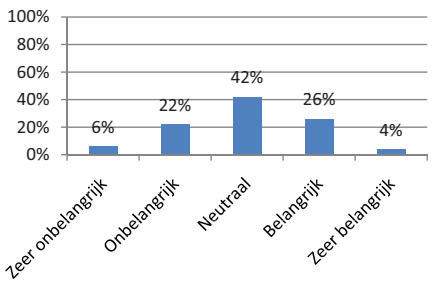
De manier waarop de docenten met de kinderen omgaan



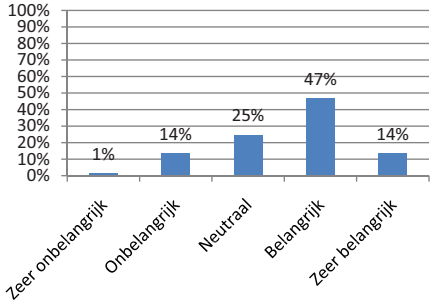
De aanwezigheid van broertjes of zusjes op de school



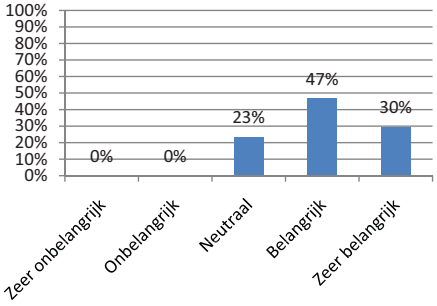
De aanwezigheid van vriendjes die mijn kind al kende



Mond-tot-mond reclame



Op de school wordt weinig gepest



Aspect 3. Fysiek

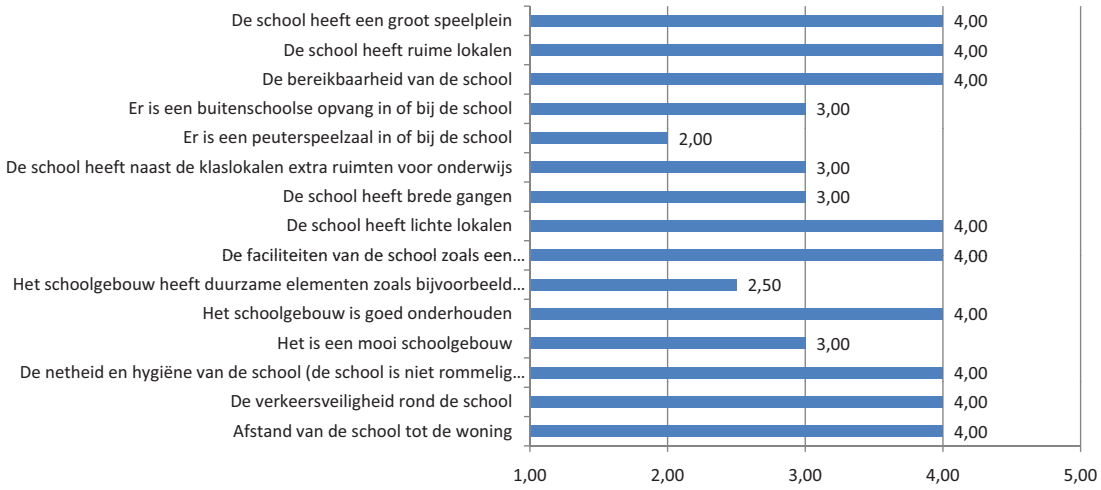
respondenten is gevraagd de aspecten te beoordelen op belang in de schoolkeuze.

Daarbij werd gebruik gemaakt van onderstaande Likert-scale.

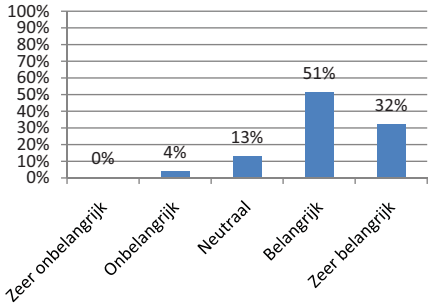
1 : Zeer onbelangrijk
2 : Onbelangrijk
3 : Neutraal
4 : Belangrijk
5 : Zeer belangrijk

Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.

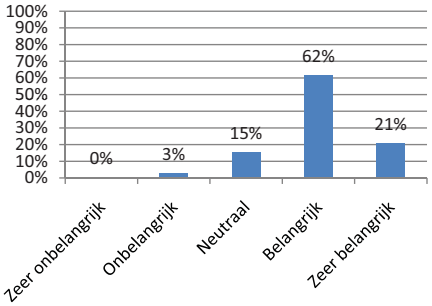
Mediaan van de score fysieke aspecten



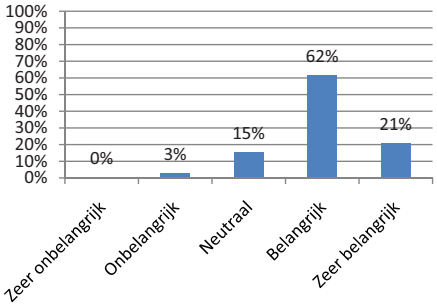
Afstand van de school tot de woning



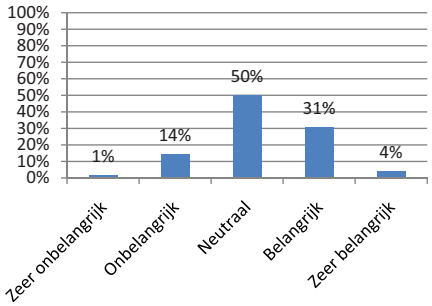
De verkeersveiligheid rond de school



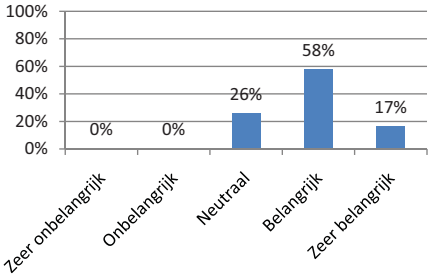
De netheid en hygiëne van de school



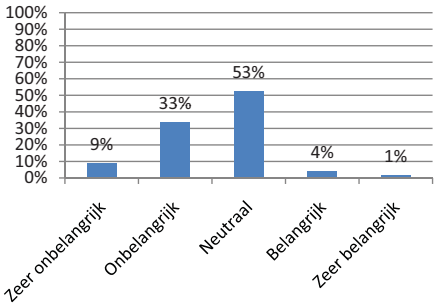
Het is een mooi schoolgebouw



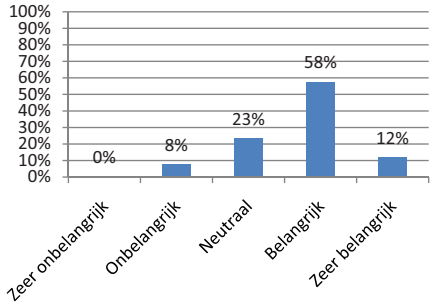
Het schoolgebouw is goed onderhouden



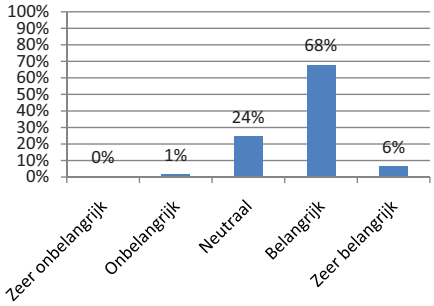
De school heeft duurzame elementen



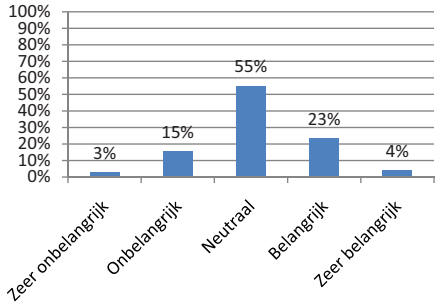
De faciliteiten van de school



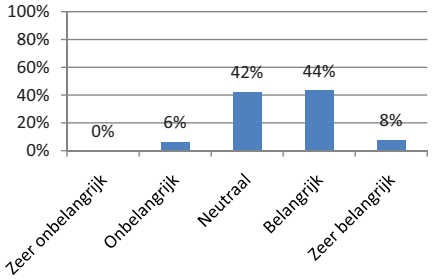
De school heeft lichte lokalen



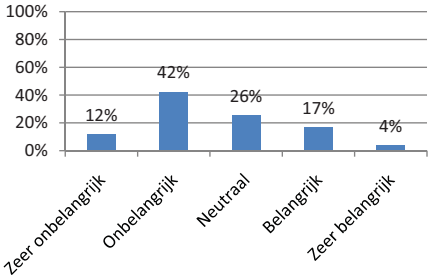
De school heeft brede gangen



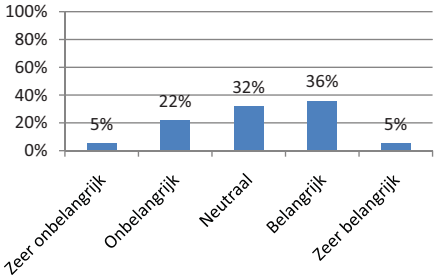
De school heeft extra ruimten voor onderwijs

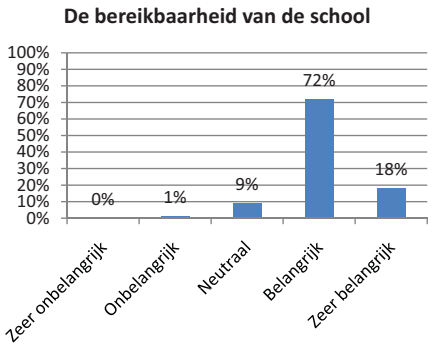


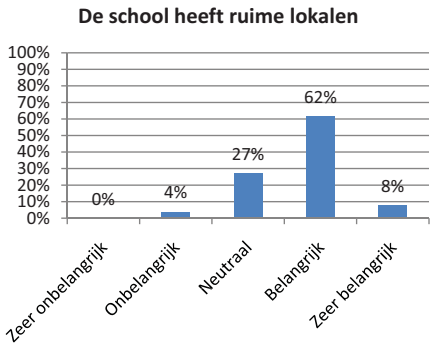
Er is een peuterspeelzaal in of bij de school

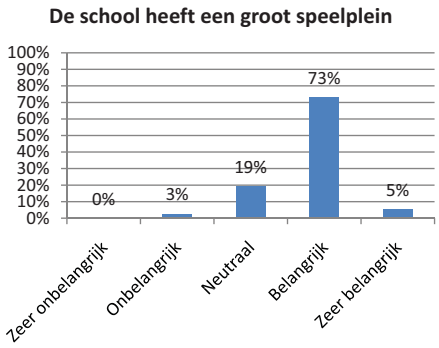


Er is een buitenschoolse opvang in of bij de school





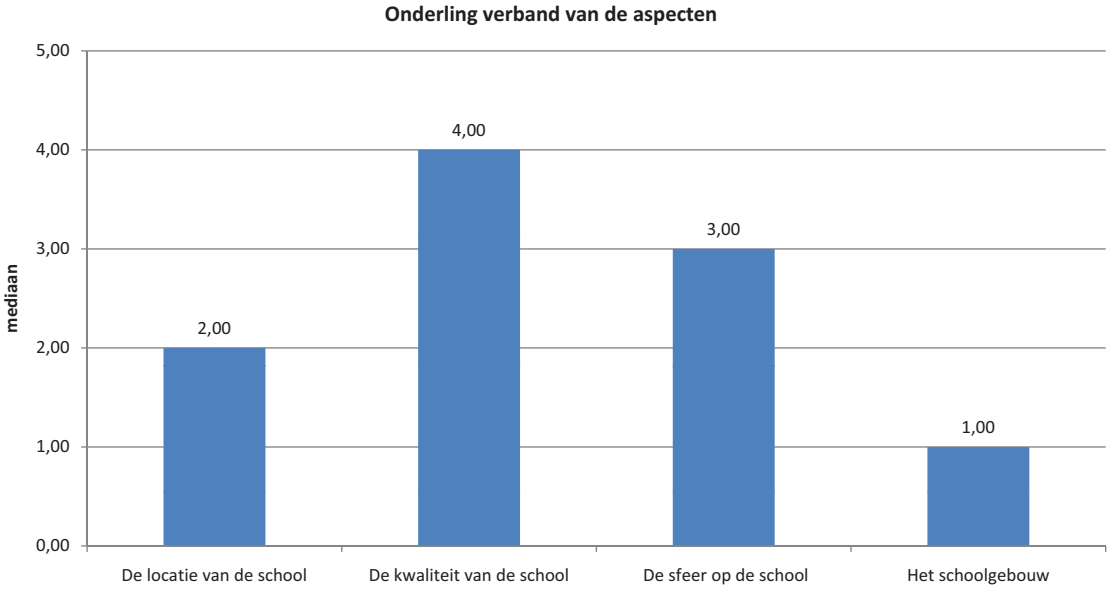


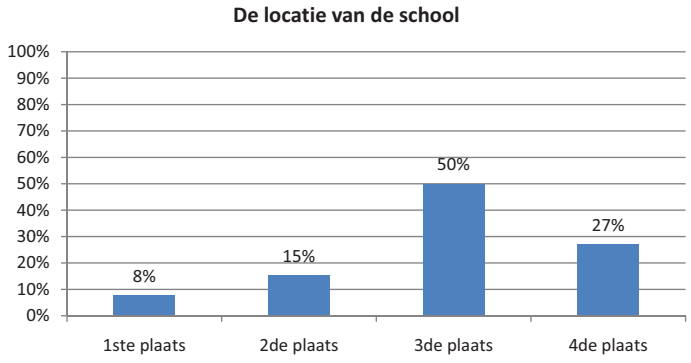


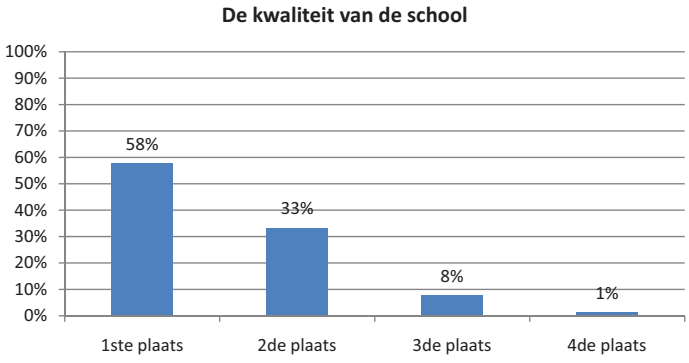
Onderlinge verhouding aspecten

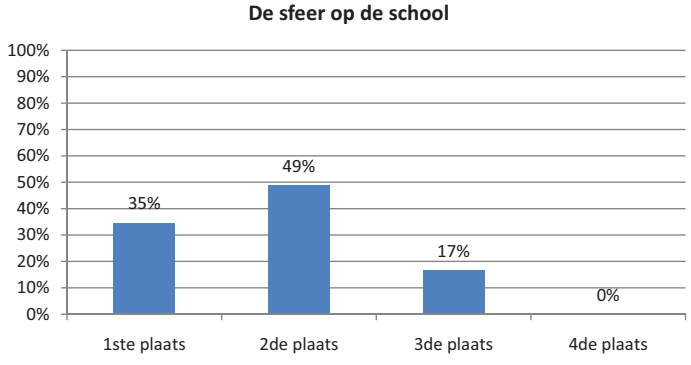
respondenten is gevraagd naar het onderling belang van de bovengenoemde aspecten.

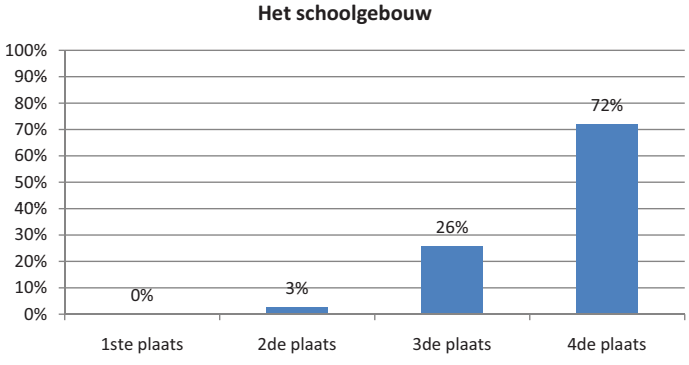
Hieronder wordt van ieder inidividueel aspect een histogram weergegeven.











Appendix I

Overview of results of survey among schools

Alle scholen

Uitslag Enquêtes onder de directie van de school

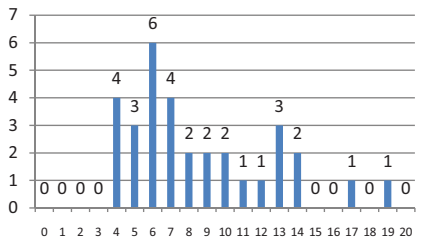
Aantal scholen	32
reactiepercentage	64%

scholen

per gemeente			per stichting		
	Horst aan de Maas	15		Akkoord	2
	Purmerend	12		CPOW	7
	Brielle	5		vcodekring	2
	totaal	32		PRIMOvpr	3
				OPSO	5
				Dynamiek	13
				totaal	32

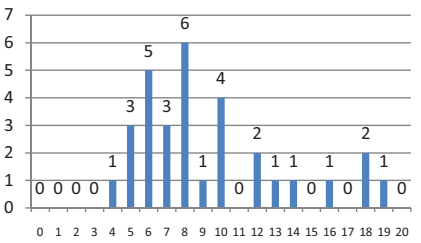
faciliteiten

aantal groepen



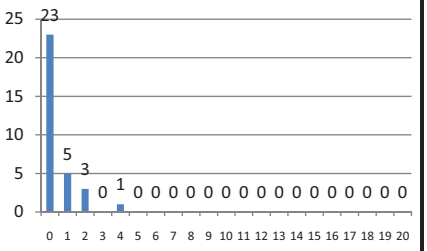
gemiddelde	8,59375
maximaal	19
minimaal	4
standaard deviatie	3,9826995

permanente klaslokalen



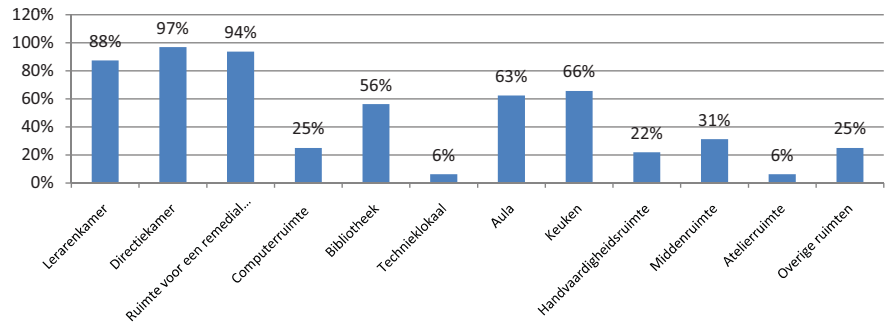
gemiddelde	9,32
maximaal	19,00
minimaal	4,00
standaard deviatie	4,11

tijdelijke klaslokalen



gemiddelde	0,47
maximaal	4,00
minimaal	0,00
standaard deviatie	0,92

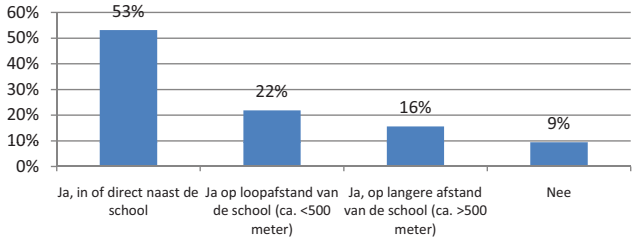
aanvullende ruimten



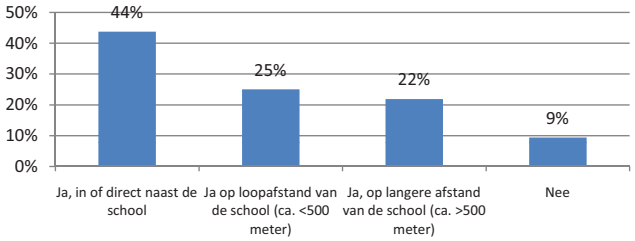
gemeldde overige ruimten:

speelzaal
verbrede gang bij bovenbouw
kleuterhal
lerarenkamer wordt als klaslokaal gebruikt. Directielokaal wordt ook als personeelruimte gebruikt
Op directiekamer na worden alle ruimtes gedeeld met de andere school in ons gebouw
speelzaal
peuterspeelzaal
kamer IB

Is er een peuterspeelzaal aanwezig bij de school?

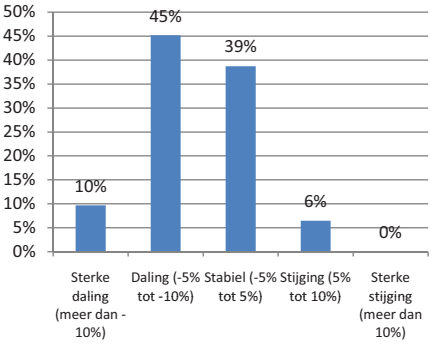


Is er een buitenschools opvang (BSO) bij de school?

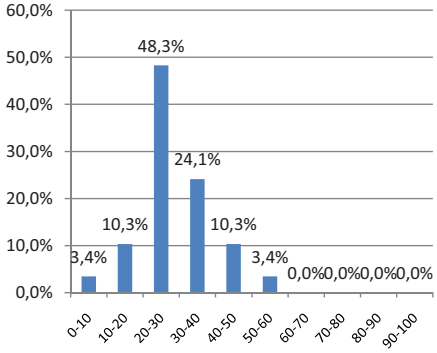


leerlingen prognoses

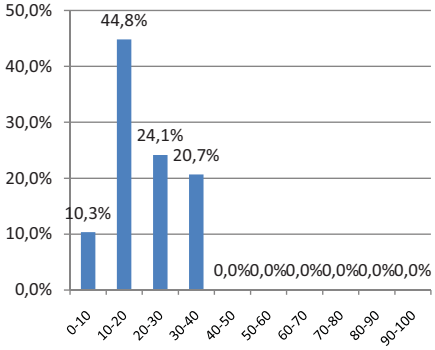
leerlingen prognoses



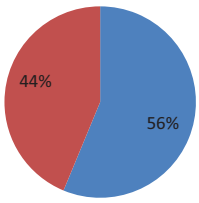
leerlingen (%) dat naar HAVO gaat



leerlingen (%) dat naar VWO gaat

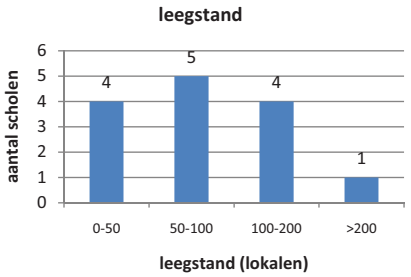


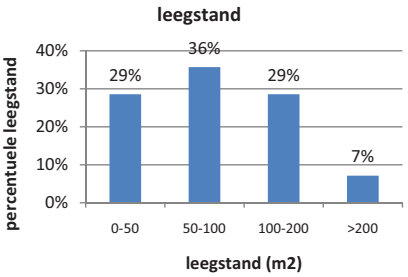
leegstand



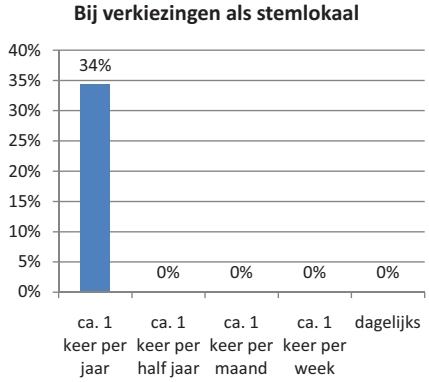
Leegstand

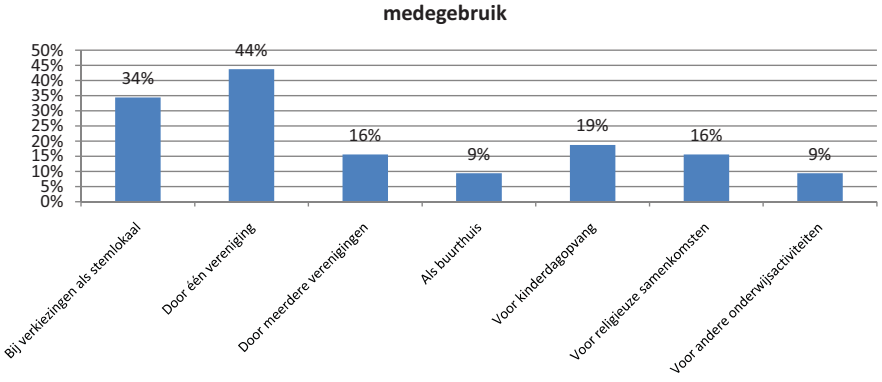
- geen leegstand
- leegstand

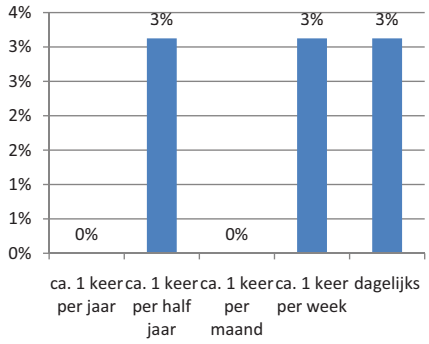


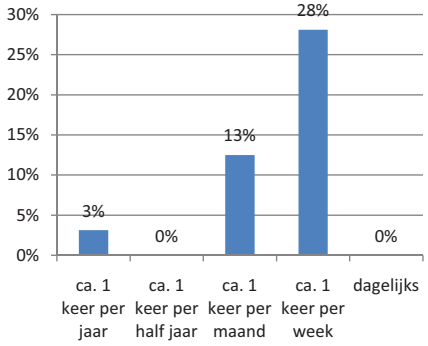


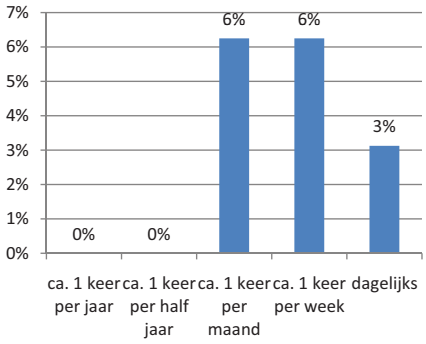
medegebruik

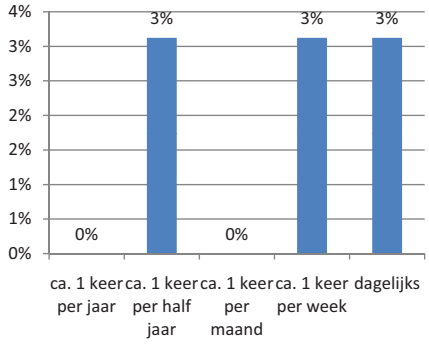


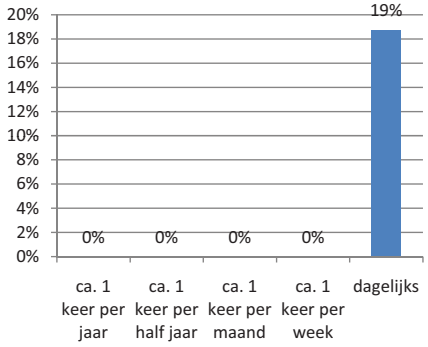


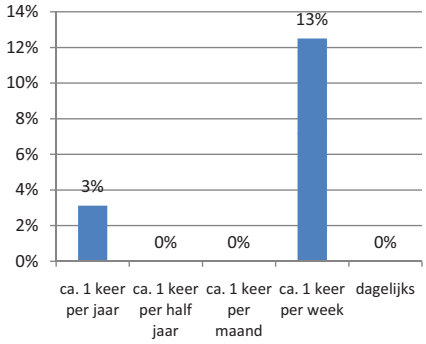


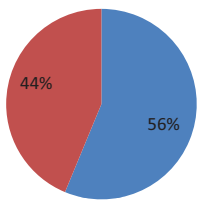


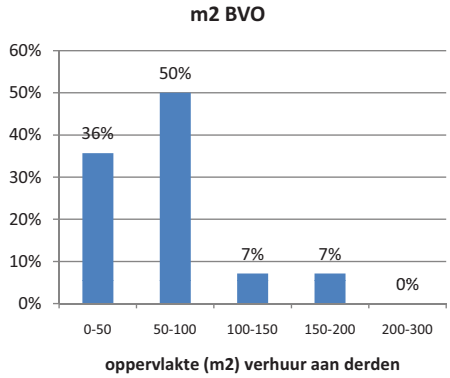




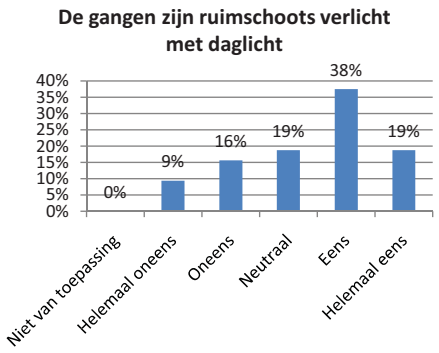


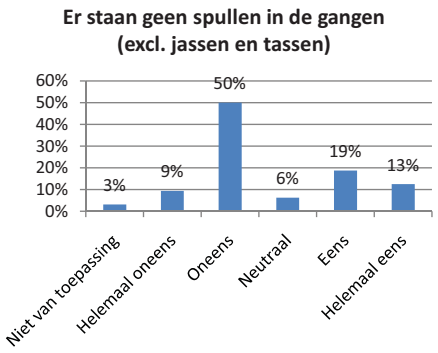


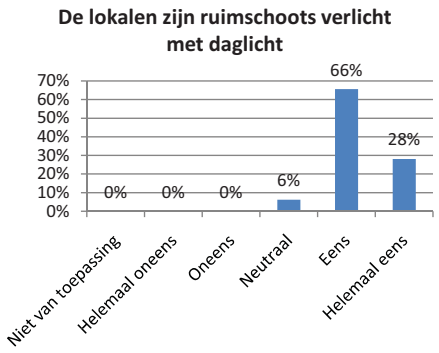


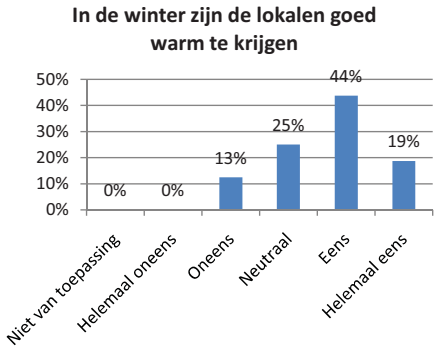


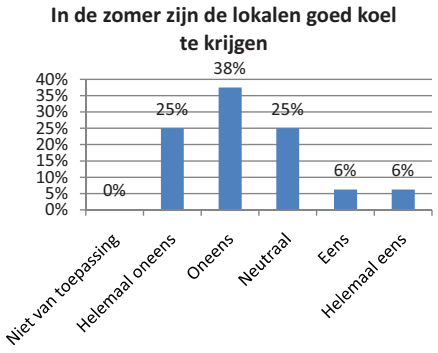
comfort

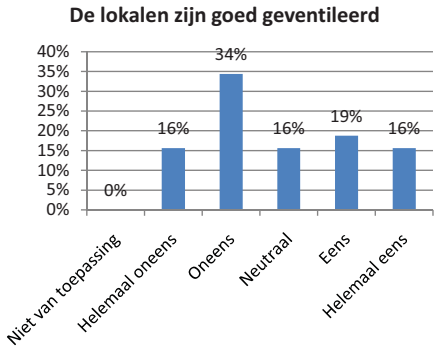




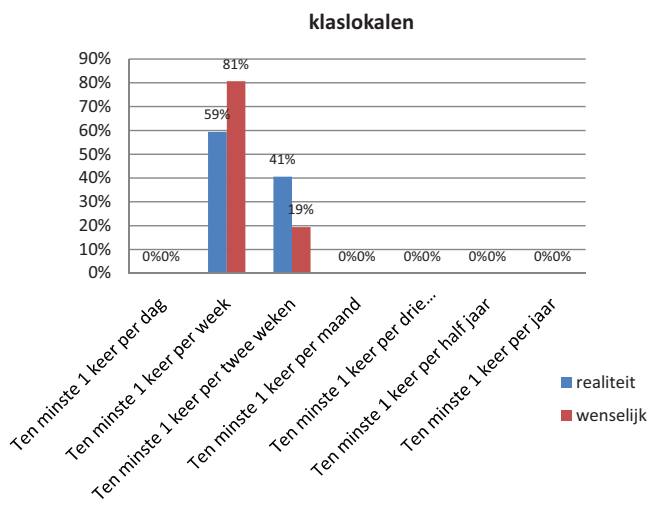


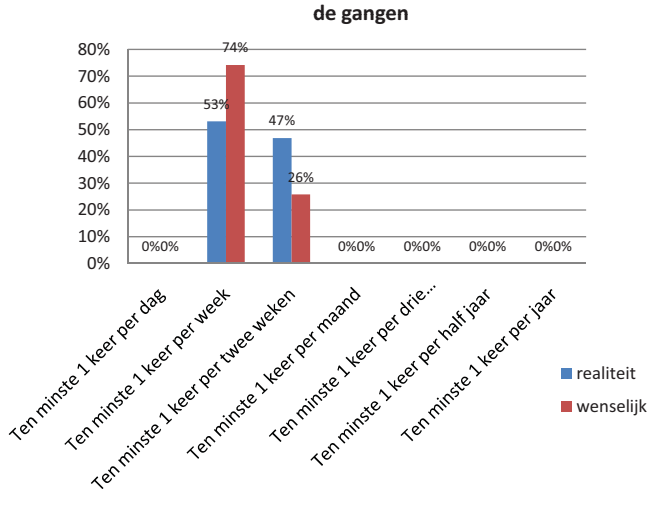


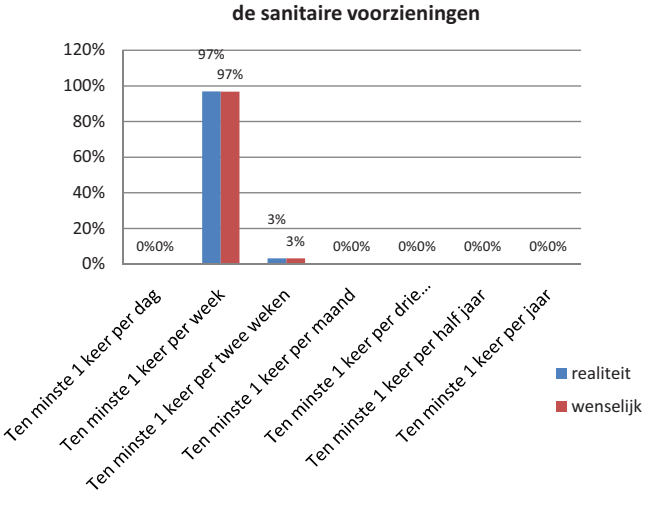


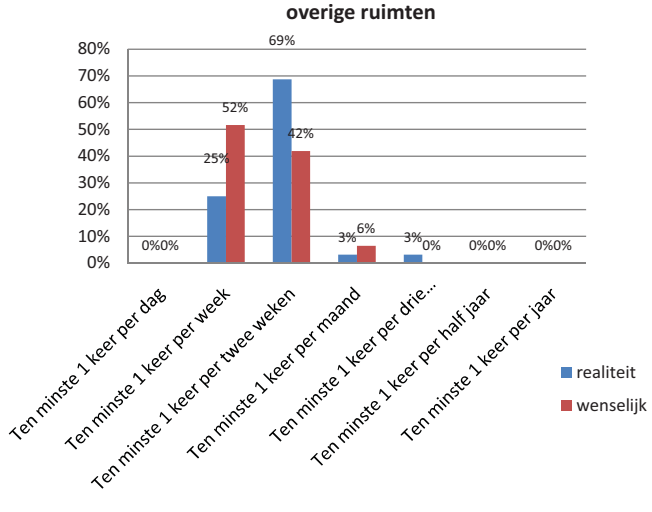


schoonmaak



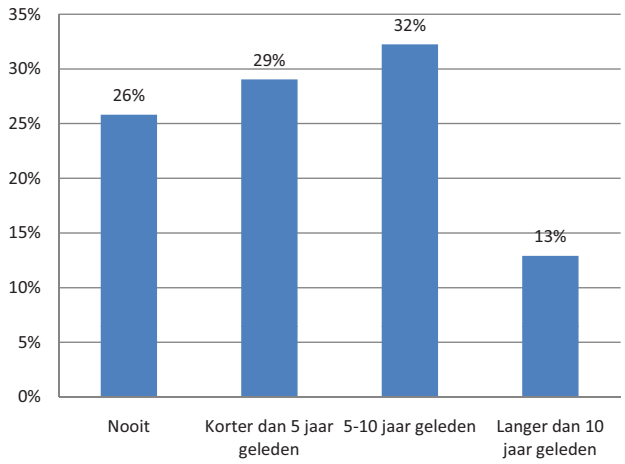




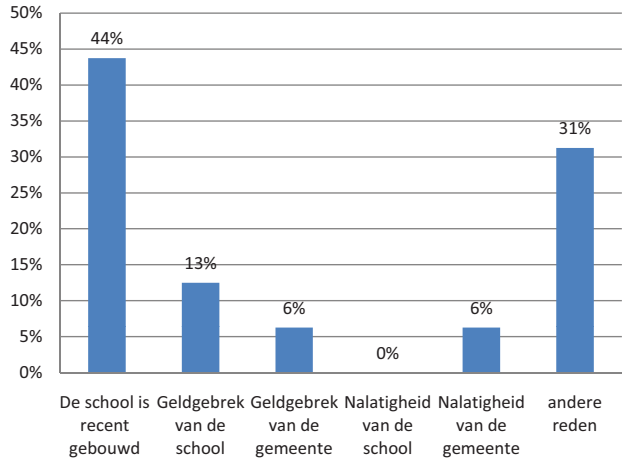


renovatie

Wanneer is de school voor het laatst gerenoveerd?



Redenen voor niet renoveren (> 10 jaar geleden)



Andere redenen:

24 jaar oud

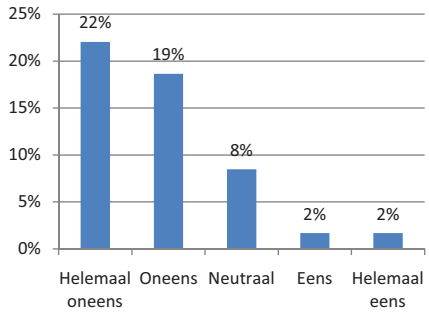
Ik heb geen goed inzicht in dit onderdeel. Hier wordt weinig helderheid over geboden vanuit het bestuurskantoor.

verbouwd in 2001, geen noodzaak voor grootschalig onderhoud

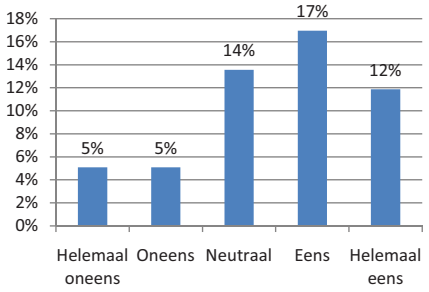
onderhoud redelijk op orde
goede staat

sociale veiligheid

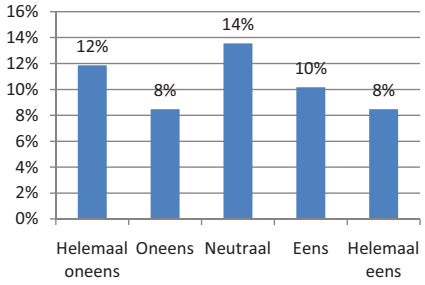
Er wordt ingebroken in de school



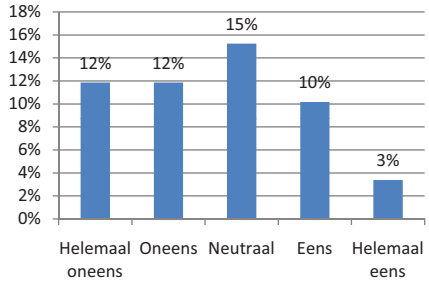
Er hangen jongeren (die niet op de school zitten) rond de school



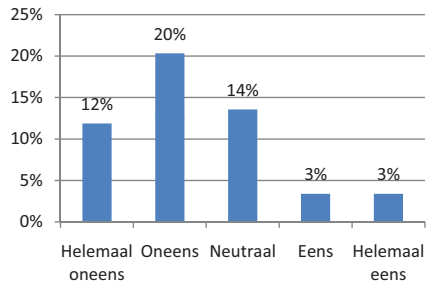
Er wordt op straat alcohol gedronken rond de school



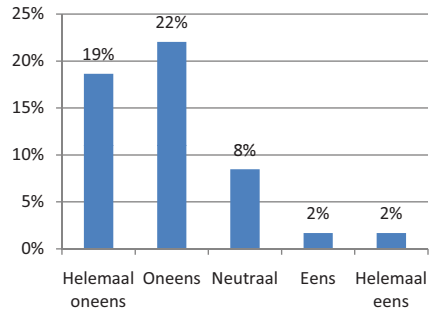
Er wordt op straat drugs gebruikt rond de school



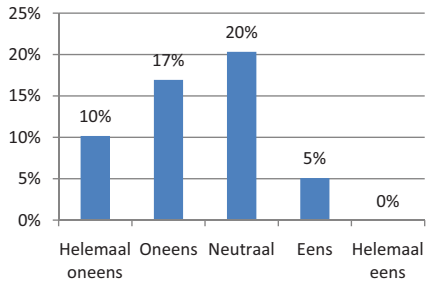
Er worden op straat vernielingen aangericht.



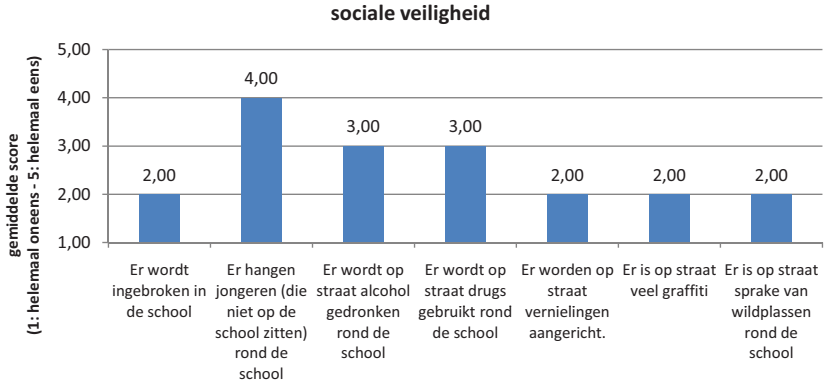
Er is op straat veel graffiti



Er is op straat sprake van wildplassen rond de school

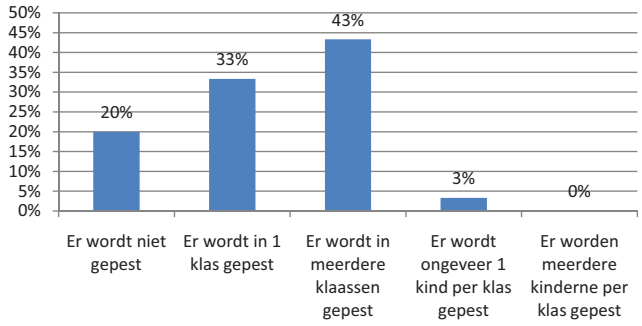


sociale veiligheid

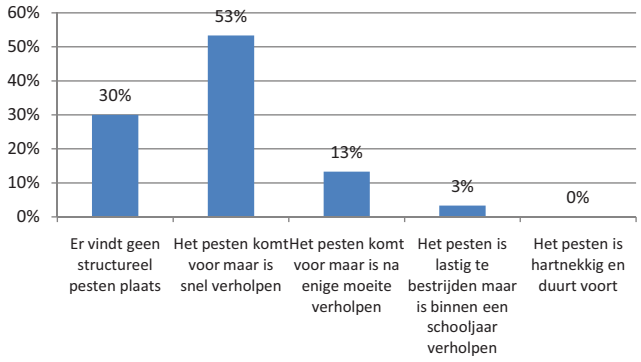


overig

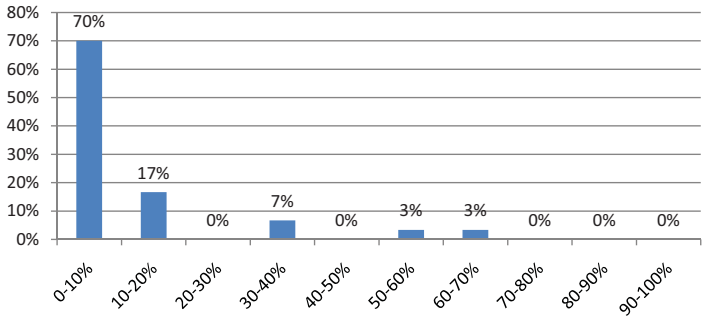
In hoeverre is er sprake van pesten?



In hoeverre is er sprake van pesten?



Percentage allochtone kinderen op de school



Appendix J

Overview of the participating schools

The schools of participating principals are marked blue.

BRIN-nummer	Municipality	Name school
13LE	Brielle	Basisschool de Branding
12UE	Brielle	Basisschool VII 't Want
13XH	Brielle	Bs Meester Eeuwout
13AK	Brielle	Bs VI de Tiende Penning
09BQ	Brielle	CBS Geuzenschip
05MU	Brielle	Chr Basissch Anker
05AU	Brielle	Sint Leonardus
11QL	Horst aan de Maas	Basissch de Dobbelsteen
05ZU	Horst aan de Maas	Basissch De Samensprong
03YW	Horst aan de Maas	Basissch Onder De Linde
03UY	Horst aan de Maas	Basisschool De Brink
03VB	Horst aan de Maas	Basisschool De Doolgaard
06UG	Horst aan de Maas	Basisschool De Driehoek
12KN	Horst aan de Maas	Basisschool De Horizon
03QF	Horst aan de Maas	st. Annaschool
09MO	Horst aan de Maas	Basisschool De Kameleon
03QE	Horst aan de Maas	Basisschool De Klimboom
03VA	Horst aan de Maas	Basisschool De Wouter
03QJ	Horst aan de Maas	Basisschool Megelsheim
06MM	Horst aan de Maas	Basisschool Weisterbeek
03QI	Horst aan de Maas	Mariaschool
22JP	Horst aan de Maas	OBS De Krullevaar
12BH	Horst aan de Maas	RK Basissch de Kroevert
05GC	Horst aan de Maas	RK Basissch De Schakel
06OR	Horst aan de Maas	RK Basisschool De Bottel
03UZ	Horst aan de Maas	RK Basisschool Meuleveld
03UW	Horst aan de Maas	RK Bs Onder de Wieken
26AR	Purmerend	Basisschool de Marimba
12KT	Purmerend	Basisschool Klim Op
11QV	Purmerend	Basisschool 't Prisma
11PQ	Purmerend	Chr Bs de Ploegschaar
23TB	Purmerend	De Vlieger
22FC	Purmerend	Het Baken
22OD	Purmerend	Montessori School
16MC	Purmerend	OBS De Akker
16UC	Purmerend	OBS De Boemerang
21NH	Purmerend	OBS De Delta
16LA	Purmerend	OBS De Dijk
26AP	Purmerend	OBS De Koempoelan
27CJ	Purmerend	OBS De Nieuwe Wereld
16HK	Purmerend	OBS De Ranonkel
23EA	Purmerend	OBS De Weidevogels
27NZ	Purmerend	OBS Oeboentoe
16BZ	Purmerend	OBS 't Carrousel
24BL	Purmerend	OBS 't Pierement
16AJ	Purmerend	OBS Wheermolen
15WJ	Purmerend	OBS Willem Eggert
09XL	Purmerend	Oec BS Kawana
09XL	Purmerend	Oec BS Trifolium
12BP	Purmerend	RK Basissch de Smidse
24RA	Purmerend	Vrije School Waterland

Appendix K

List of municipalities with in a population decline area

DECLINE MUNICIPALITIES	PROVINCE	MUNICIPALITY NUMBER
HET BILDT	Friesland	157
FRANEKERADEEL	Friesland	111
LITTENSERADIEL	Friesland	203
MENAMERADIEL	Friesland	217
HARLINGEN	Friesland	141
BOARNSTERHIM	Friesland	47
LEEUWARDERADEEL	Friesland	192
DONGERADEEL	Friesland	88
DANTUMADIEL	Friesland	73
KOLLUMERLAND EN NIEUWKRUISLAND	Friesland	179
ACHTKARSPELEN	Friesland	6
TYTSJERKSTERADIEL	Friesland	338
FERWERDERADIEL	Friesland	110
EMMEN	Drenthe	104
BORGER-ODOORN	Drenthe	50
COEVORDEN	Drenthe	67
AA EN HUNZE	Drenthe	2
BRONCKHORST	Gelderland	58
HELLENDOORN	Overijssel	151
RIJSSEN-HOLTEN	Overijssel	286
HOF VAN TWENTE	Overijssel	163
HAAKSBERGEN	Overijssel	131
ENSCHEDE	Overijssel	106
HENGELO OV	Overijssel	155
WIERDEN	Overijssel	382
BORNE	Overijssel	51
ALMELO	Overijssel	10
TWENTERAND	Overijssel	336
TUBBERGEN	Overijssel	335
DINKELLAND	Overijssel	84
OLDENZAAL	Overijssel	253
LOSSER	Overijssel	208
DEN HELDER	Noord-Holland	80
SCHAGEN	Noord-Holland	296
SCHAGEN	Noord-Holland	296
HOLLANDS KROON	Noord-Holland	164
SCHAGEN	Noord-Holland	296
TEXEL	Noord-Holland	330
GOEREE-OVERFLAKKEE	Zuid-Holland	120
WESTVOORNE	Zuid-Holland	381
BRIELLE	Zuid-Holland	57
HELLEVOETSLUIS	Zuid-Holland	152
BERNISSE	Zuid-Holland	39
SPIJKENISSE	Zuid-Holland	318
SCHOUWEN-DUIVELAND	Zeeland	304
OUD-BEIJERLAND	Zuid-Holland	264
KORENDIJK	Zuid-Holland	180
STRIJEN	Zuid-Holland	326
CROMSTRIJEN	Zuid-Holland	69
BINNENMAAS	Zuid-Holland	43
NEDERLEK	Zuid-Holland	233
BERGAMBACHT	Zuid-Holland	32
NEDERLEK	Zuid-Holland	233
OUDERKERK	Zuid-Holland	267
SCHOONHOVEN	Zuid-Holland	303
VLIST	Zuid-Holland	362
ALBLASSERDAM	Zuid-Holland	7
ZEDERIK	Zuid-Holland	396
GORINCHEM	Zuid-Holland	123
HARDINXVELD-GIESSENDAM	Zuid-Holland	139
GIESSENLANDEN	Zuid-Holland	118
ZEDERIK	Zuid-Holland	396
LEERDAM	Zuid-Holland	190
MOLENWAARD	Zuid-Holland	226
NIEUWKOOP	Zuid-Holland	237
RIJNWOUDE	Zuid-Holland	285
ALPHEN AAN DEN RIJN	Zuid-Holland	12

D.M.Vos

NIEUWKOOP	Zuid-Holland	237
WOENSDRECHT	Noord-Brabant	388
BERGEN OP ZOOM	Noord-Brabant	36
STEENBERGEN	Noord-Brabant	322
MOERDIJK	Noord-Brabant	225
HALDERBERGE	Noord-Brabant	136
ROOSENDAAL	Noord-Brabant	290
RUCPHEN	Noord-Brabant	293
ZUNDERT	Noord-Brabant	405
ETTEN-LEUR	Noord-Brabant	109
ALPHEN-CHAAM	Noord-Brabant	13
BAARLE-NASSAU	Noord-Brabant	23
BREDA	Noord-Brabant	56
OOSTERHOUT	Noord-Brabant	258
DRIMMELEN	Noord-Brabant	91
WERKENDAM	Noord-Brabant	375
WOUDRICHEM	Noord-Brabant	392
AALBURG	Noord-Brabant	3
GEERTRUIDENBERG	Noord-Brabant	113
THOLEN	Zeeland	332
MOOK EN MIDDELAAR	Limburg	229
GENNEP	Limburg	117
BERGEN (L.)	Limburg	34
VENRAY	Limburg	356
HORST AAN DE MAAS	Limburg	168
VENLO	Limburg	355
PEEL EN MAAS	Limburg	271
BEESEL	Limburg	30
ROERMOND	Limburg	289
ROERDALEN	Limburg	288
ECHT-SUSTEREN	Limburg	95
MAASGOUW	Limburg	211
LEUDAL	Limburg	198
WEERT	Limburg	373
NEDERWEERT	Limburg	234
APPINGEDAM	Groningen	19
DELFZIJL	Groningen	79
EEMSMOND	Groningen	99
LOPPERSUM	Groningen	207
BELLINGWEDDE	Groningen	31
MENTERWOLDE	Groningen	218
OLDAMBT	Groningen	251
PEKELA	Groningen	272
STADSKANAAL	Groningen	319
VEENDAM	Groningen	349
VLAGTWEDDE	Groningen	359
DE MARNE	Groningen	75
BRUNSSUM	Limburg	60
HEERLEN	Limburg	148
KERKRADE	Limburg	177
NUTH	Limburg	247
LANDGRAAF	Limburg	184
ONDERBANKEN	Limburg	256
SIMPELVELD	Limburg	305
VOERENDAAL	Limburg	363
GULPEN-WITTEM	Limburg	130
MEERSSEN	Limburg	216
VALKENBURG AAN DE GEUL	Limburg	347
EIJSDEN-MARGRATEN	Limburg	101
GULPEN-WITTEM	Limburg	130
VAALS	Limburg	346
MAASTRICHT	Limburg	213
SITTARD-GELEEN	Limburg	309
STEIN	Limburg	324
BEEK	Limburg	28
SCHINNEN	Limburg	302
HULST	Zeeland	171
SLUIS	Zeeland	313
TERNEUZEN	Zeeland	328

Source: BZK, 2014

Appendix L

Final models

Enriched BAG - Complete

```
MIXED VACANCY_2013 BY Bouwjaar5 Religie2 WITH POSTCODE
 /CRITERIA=CIN(95) MXITER(100) MXSTEP(10) SCORING(1) SINGULAR(0.000000000001) HCONVERGE(0,
   ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
 /FIXED= Bouwjaar5 Religie2 POSTCODE | SSTYPE(3)
 /METHOD=ML
 /PRINT=SOLUTION TESTCOV
 /RANDOM=INTERCEPT | SUBJECT(GEM_NUM) COVTYPE(VC)
 /EMMEANS=TABLES(Bouwjaar5) COMPARE REFCAT(FIRST) ADJ(LSD)
 /EMMEANS=TABLES(Religie2) COMPARE REFCAT(FIRST) ADJ(LSD).
```

Enriched BAG – Cito

```
MIXED VACANCY_2013 BY Bouwjaar5 Religie2 WITH POSTCODE SCORE_2013
 /CRITERIA=CIN(95) MXITER(200) MXSTEP(10) SCORING(1) SINGULAR(0.000000000001) HCONVERGE(0,
   ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
 /FIXED=Bouwjaar5 Religie2 POSTCODE SCORE_2013 | SSTYPE(3)
 /METHOD=ML
 /PRINT=SOLUTION TESTCOV
 /RANDOM=INTERCEPT | SUBJECT(GEM_NUM) COVTYPE(VC)
 /EMMEANS=TABLES(Bouwjaar5) COMPARE REFCAT(FIRST) ADJ(LSD)
 /EMMEANS=TABLES(Religie2) COMPARE REFCAT(FIRST) ADJ(LSD).
```

Verified Municipal Data – Complete

```
MIXED VACANCY_2013 BY Bouwjaar5 Religie2 Vergroening WITH POSTCODE
 /CRITERIA=CIN(95) MXITER(100) MXSTEP(10) SCORING(1) SINGULAR(0.000000000001) HCONVERGE(0,
   ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
 /FIXED= Bouwjaar5 Religie2 POSTCODE vergroening | SSTYPE(3)
 /METHOD=ML
 /PRINT=SOLUTION TESTCOV
 /RANDOM=INTERCEPT | SUBJECT(GEM_NUM) COVTYPE(VC)
 /EMMEANS=TABLES(Bouwjaar5) COMPARE REFCAT(FIRST) ADJ(LSD)
/EMMEANS=TABLES(vergroening) COMPARE REFCAT(FIRST) ADJ(LSD)
 /EMMEANS=TABLES(Religie2) COMPARE REFCAT(FIRST) ADJ(LSD).
```

Verified Municipal Data – Cito

```
MIXED VACANCY_2013 BY Bouwjaar5 vergroening WITH POSTCODE SCORE_2013
 /CRITERIA=CIN(95) MXITER(100) MXSTEP(10) SCORING(1) SINGULAR(0.000000000001) HCONVERGE(0,
   ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
 /FIXED= Bouwjaar5 SCORE_2013 POSTCODE vergroening | SSTYPE(3)
 /METHOD=ML
 /PRINT=SOLUTION TESTCOV
 /RANDOM=INTERCEPT | SUBJECT(GEM_NUM) COVTYPE(VC)
 /EMMEANS=TABLES(Bouwjaar5) COMPARE REFCAT(FIRST) ADJ(LSD)
 /EMMEANS=TABLES(vergroening) COMPARE REFCAT(FIRST) ADJ(LSD).
```

Verified Sample – vacancy according to government standard

```
MIXED VACANCY_2013 BY int_vrijzicht_gang Directiekamer sp_verloedering ext_hoogte ext_rooilijn
    ext_type ext_clustering_functies  Erstaangeenspullenindegangenexcl.jassenentassen
    Indewinterzijndelokalengoedwarmtekrijgen
  /CRITERIA=CIN(95) MXITER(100) MXSTEP(10) SCORING(1) SINGULAR(0.000000000001) HCONVERGE(0,
    ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
  /FIXED=int_vrijzicht_gang Directiekamer sp_verloedering ext_hoogte ext_rooilijn ext_type
    ext_clustering_functies  Erstaangeenspullenindegangenexcl.jassenentassen
    Indewinterzijndelokalengoedwarmtekrijgen  | SSTYPE(3)
  /METHOD=ML
  /PRINT=SOLUTION TESTCOV.
```

Verified Sample – vacancy according to principals

```
MIXED VACANCY_PRINCIPALS BY sp_speeltoestellen ext_hoogte ext_type ext_arch_kenmerken
    ext_arch_eenheid Degangenzijnruimschootsverlichtmetdaglicht
    Delokalenzijnruimschootsverlichtmetdaglicht Indewinterzijndelokalengoedwarmtekrijgen WITH GROUPS
    sp_omvang ing_omvang
  /CRITERIA=CIN(95) MXITER(100) MXSTEP(10) SCORING(1) SINGULAR(0.000000000001) HCONVERGE(0,
    ABSOLUTE) LCONVERGE(0, ABSOLUTE) PCONVERGE(0.000001, ABSOLUTE)
  /FIXED=sp_speeltoestellen ext_hoogte ext_type ext_arch_kenmerken ext_arch_eenheid
    Degangenzijnruimschootsverlichtmetdaglicht Delokalenzijnruimschootsverlichtmetdaglicht
    Indewinterzijndelokalengoedwarmtekrijgen GROUPS sp_omvang ing_omvang | SSTYPE(3)
  /METHOD=ML
  /PRINT=SOLUTION TESTCOV.
```

Appendix M

List of variables

cluster	name	SPSS name	values	dichotomization
general	delicine region	delicine region	0 =no decline region 1 = decline region	
	building year	building year	scale	1 = 'pre-1600' 2 = '1600-1944' 3 = '1945-1959' 4= '1960-1984' 5 = '1985-1996' 6 = '1997-2007' 7 = 'post 2008'
	denomination	denomination	1 = ABZ 2 = ASF 3 = EVA 4 = EVB 5 = GEV 6 = HIN 7 = IC 8 = ISL 9 = JOO 10 = OPB 11 = PC 12 = REF 13 = RK 14 = SCA 15 = SOP 16 = SOR 17 = SPR	1=OPB 2=Religious
	children in postcode	children in vicinty	scale	
	rejuvenation	rejuvenation	scale	<0 = 0 >0 = 1
	average size municipality	average size municipality	scale	
	growth municipality	growth municipality	scale	
	cito score 2013	cito score 2013	scale	
interior	number of classrooms	int_aantal_lokalen	scale	
	number of additional rooms	int_aanvullende_ruimten	scale	
	size theatre	int_omvang_aula	scale	
	accessability handicapped	int_invaliden	0 = no access handicapped 1 = access for cruches 2 = full access	0 = no access handicapped 1 = full access
	clear view corridors	int_vrijzicht_gang	0 = no clear view 1 = clear view	
	height corridors	int_hoogte_gang	scale	
	height classrooms	int_hoogte_lokaal	scale	
	cleaning	int_schoonmaak	1 = not 2 = a bit 3 = much 4 = very much	= 0 = no = 0 = no = 1 = yes = 1 = yes
	maintainance	int_onderhoud	1 = not 2 = a bit 3 = much 4 = very much	= 0 = no = 0 = no = 1 = yes = 1 = yes
	rent to other parties	rent	scale	

	studio space	Atelierruimte	0 = not present 1 = present	
	hall	Middenruimte	0 = not present 1 = present	
	crafts room	Handvaardigheidsruimte	0 = not present 1 = present	
	kitchen	Keuken	0 = not present 1 = present	
	theatre	Aula	0 = not present 1 = present	
	technic room	Techniekokaal	0 = not present 1 = present	
	library	Bibliotheek	0 = not present 1 = present	
	computer room	Computerruimte	0 = not present 1 = present	
	remedial teacher room	RTruimte	0 = not present 1 = present	
	principals office	Directiekamer	0 = not present 1 = present	
	staff office	Lerarenkamer	0 = not present 1 = present	
	temporary classrooms	temp_classrooms	scale	
	permanent classrooms	perm_classrooms	scale	
	number of groups	Groups	scale	
playing ground	size playing ground	sp_omvang	scale	
	number of playingsets	sp_speeltoestellen	scale	
	view on playing ground	sp_zicht_school	0 = no 1 = yes	
	view on the public road	sp_zicht_weg	0 = no 1 = yes	
	degredation	sp_verloedering	scale	0 = 0 = no 1/ 2/ 3 / 4 = 1 = yes
	social security	sociale_veiligheid	scale	
surroundings	road for cars near the school	omg_autoweg	0 = not present 1 = present	
	bicycle lane	omg_fietspad	0 = not present 1 = present	
	public transport	omg_ov	0 = not present 1 = present	
	school zone	omg_schoolzone	0 = not present 1 = present	
	location from buildings	omg_ligging	0 = corner 1 = middle	
entrance	clear view	ing_vrijzicht	1 = not 2 = a bit 3 = much 4 = very much	= 0 = no = 0 = no = 1 = yes = 1 = yes
	number of entrances	ing_aantal_entree	scale	
	supervision entrance	ing_toezicht	0 = no 1 = yes	
	size entrance	ing_omvang	scale	
social	expected growth	verwachting	scale	
	percentage to VWO	VWO	scale	
	percentage to HAVO	HAVO	scale	
	scale bullying	pesten	scale	
	duration bullying	pesten2	scale	
	non western immigrants	color	scale	
exterior	renovation	renovation	0= never 1 = shorter than 5 years ago	

			2 = 5-10 years ago	
			3 = more than 10 years ago	
	harmonious height	ext_hoogte	0 = no	
			1 = yes	
	alignment to buildings	ext_rooilijn	0 = no	
			1 = yes	
	harmonious style	ext_harm_stijl	1 = not	= 0 = no
			2 = a bit	= 0 = no
			3 = much	= 1 = yes
			4 = very much	= 1 = yes
	type of building	ext_type	1 = corridor	
			2 = hall	
			3 = pavilion	
	harmonious color	ext_harm_kleur	0 = no	
			1 = yes	
	harmonious materials	ext_harm_materiaal	0 = no	
			1 = yes	
	special archicture	ext_arch_kenmerken	0 = no	
			1 = yes	
	unity fo the building	ext_arch_eenheid	0 = no	
			1 = yes	
	clustering of functions	ext_clustering_functies	0 = no	
			1 = yes	
	number of floors	ext_aantal_etages	scale	
	perception of size	ext_groot	1 = very small	
			2 = small	
			3 =big	
			4 = very big	
climate	ventilation	ventilatie	1 = not	= 0 = no
			2 = a bit	= 0 = no
			3 = neutral	= 0 = no
			4 = much	= 1 = yes
			5 = very much	= 1 = yes
	cooling	koeling	1 = not	= 0 = no
			2 = a bit	= 0 = no
			3 = neutral	= 0 = no
			4 = much	= 1 = yes
			5 = very much	= 1 = yes
	heating	verwarming	1 = not	= 0 = no
			2 = a bit	= 0 = no
			3 = neutral	= 0 = no
			4 = much	= 1 = yes
			5 = very much	= 1 = yes
	daylight classrooms	daglicht lokaal	1 = not	= 0 = no
			2 = a bit	= 0 = no
			3 = neutral	= 0 = no
			4 = much	= 1 = yes
			5 = very much	= 1 = yes
	daylight corridor	daglicht lokaal	1 = not	= 0 = no
			2 = a bit	= 0 = no
			3 = neutral	= 0 = no
			4 = much	= 1 = yes
			5 = very much	= 1 = yes
	clutter	rommel	1 = not	= 0 = no
			2 = a bit	= 0 = no
			3 = neutral	= 0 = no
			4 = much	= 1 = yes
			5 = very much	= 1 = yes
	windows classrooms	int_daglicht_lokaal	scale	
	windows corridor	int_daglicht_gang	scale	

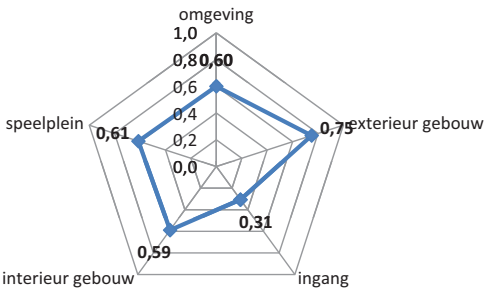
Appendix N

Overview of the assessment of building characteristics

Overzicht waarnemingen ter plekke

Basisschool De Klimboom

BRIN	03QE
Stichting:	Dynamiek
Gemeente:	Horst aan de Maas
Bruto vloeroppervlak	975
Normatief vloeroppervlak	748,27
bouwjaar	1973
aantal leerlingen	109
percentuele leegstand:	23%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	rand
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	heel erg
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	1
is er toezicht op de ingang?	ja
omvang entree (m3)	33,45615
oppervlakte schoolplein (m2)	1327,5

Exterieur gebouw

wat is het type school	gang
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	baksteen
aantal etages	1
oogt de school groot of klein?	heel klein

Interieur gebouw

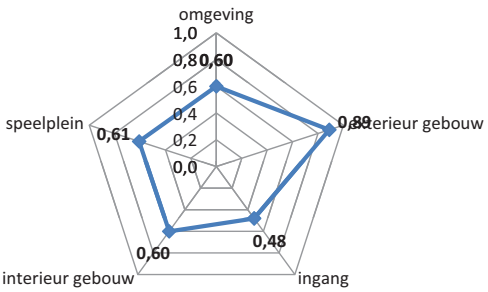
aantal lokalen	5
zijn er aanvullende ruimten?	6
omvang aula (m3)	0
m2/leerling	8,94
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,48
wat is de lokaalhoogte? (m)	2,78
welke kleuren zijn primair gebruikt in de school?	grijs/geel
wordt het gebouw goed schoongehouden?	enigszins
wat is de algehele onderhoudsstaat?	goed
zonwering:	buiten
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

st. Annaschool

BRIN 03QF
Stichting: Dynamiek
Gemeente: Horst aan de Maas

Bruto vloeroppervlak	452
Normatief vloeroppervlak	662,76
bouwjaar	1960
aantal leerlingen	92
percentuele leegstand:	-47%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	heel erg
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	ja
omvang entree (m3)	20,9616
oppervlakte schoolplein (m2)	1408

Exterieur gebouw

wat is het type school	gang
zijn er opvallende architectonische kenmerken?	ja
is het gebouw een architectonische eenheid?	ja
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	staal/bakst
aantal etages	2
oogt de school groot of klein?	klein

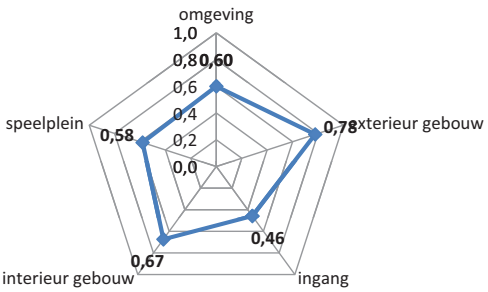
Interieur gebouw

aantal lokalen	5
zijn er aanvullende ruimten?	6
omvang aula (m3)	174,3
m2/leerling	4,91
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,30
wat is de lokaalhoogte? (m)	3,20
welke kleuren zijn primair gebruikt in de school?	geel/bakste en
wordt het gebouw goed schoongehouden?	goed
wat is de algehele onderhoudsstaat?	goed
zonwering:	binnen
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

Mariaschool

BRIN	03QI
Stichting:	Dynamiek
Gemeente:	Horst aan de Maas
Bruto vloeroppervlak	680
Normatief vloeroppervlak	768,39
bouwjaar	1960
aantal leerlingen	113
percentuele leegstand:	-13%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	veel
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	ja
omvang entree (m3)	0
oppervlakte schoolplein (m2)	582

Exterieur gebouw

wat is het type school	gang
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	ja
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	baksteen
aantal etages	1
oogt de school groot of klein?	heel klein

Interieur gebouw

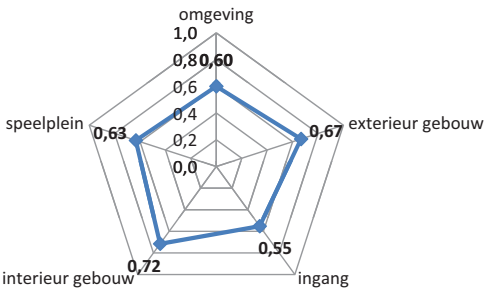
aantal lokalen	5
zijn er aanvullende ruimten?	6
omvang aula (m3)	255,0492
m2/leerling	6,02
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,49
wat is de lokaalhoogte? (m)	3,26
welke kleuren zijn primair gebruikt in de school?	geel
wordt het gebouw goed schoongehouden?	goed
wat is de algehele onderhoudsstaat?	goed
zonwering:	buiten
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

Basisschool Megelsheim

BRIN 03QJ
Stichting: Dynamiek
Gemeente: Horst aan de Maas

Bruto vloeroppervlak	1855
Normatief vloeroppervlak	1195,94
bouwjaar	1976
aantal leerlingen	198
percentuele leegstand:	36%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	rand
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	veel
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	nee
omvang entree (m3)	9,55
oppervlakte schoolplein (m2)	1740

Exterieur gebouw

wat is het type school	paviljoen
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	ja
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	staal/beton
aantal etages	2
oogt de school groot of klein?	groot

Interieur gebouw

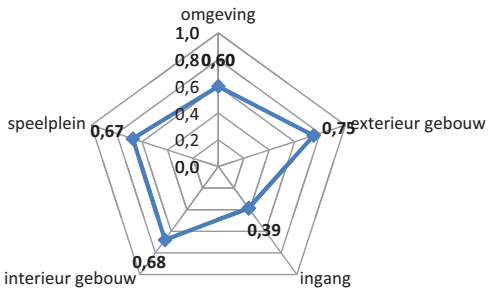
aantal lokalen	10
zijn er aanvullende ruimten?	8
omvang aula (m3)	174,3
m2/leerling	9,37
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,50
wat is de lokaalhoogte? (m)	2,89
welke kleuren zijn primair gebruikt in de school?	wit/blauw
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	goed
zonwering:	buiten
ventilatiesysteem:	en
koelingssysteem:	mechanisch
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

RK Bs Onder de Wieken

BRIN 03UW
Stichting: Dynamiek
Gemeente: Horst aan de Maas

Bruto vloeroppervlak	1198
Normatief vloeroppervlak	843,84
bouwjaar	1981
aantal leerlingen	128
percentuele leegstand:	30%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	veel
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	nee
omvang entree (m3)	10,207944
oppervlakte schoolplein (m2)	1795

Exterieur gebouw

wat is het type school	paviljoen
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	beton
aantal etages	1
oogt de school groot of klein?	klein

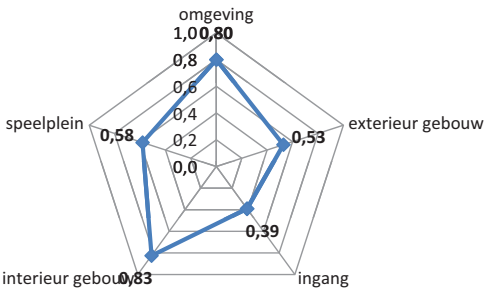
Interieur gebouw

aantal lokalen	6
zijn er aanvullende ruimten?	5
omvang aula (m3)	0
m2/leerling	9,36
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,50
wat is de lokaalhoogte? (m)	3,50
welke kleuren zijn primair gebruikt in de school?	oranje/ rood/wit
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	buiten
ventilatiesysteem:	mechanisch
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

Basisschool De Brink

BRIN	03UY
Stichting:	Dynamiek
Gemeente:	Horst aan de Maas
Bruto vloeroppervlak	1339
Normatief vloeroppervlak	1150,67
bouwjaar	1985
aantal leerlingen	189
percentuele leegstand:	14%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	ja
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	nee
is het gebouw in harmonie qua stijl?	enigszins
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	nee
omvang entree (m3)	14,85
oppervlakte schoolplein (m2)	900

Exterieur gebouw

wat is het type school	gang
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	baksteen/st
aantal etages	1
oogt de school groot of klein?	groot

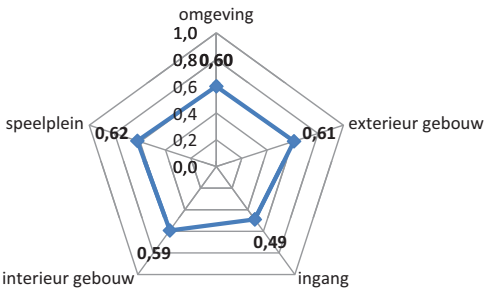
Interieur gebouw

aantal lokalen	10
zijn er aanvullende ruimten?	5
omvang aula (m3)	667,035
m2/leerling	7,08
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,50
wat is de lokaalhoogte? (m)	3,00
welke kleuren zijn primair gebruikt in de school?	geel/blauw
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	binnen en
ventilatiesysteem:	en
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

Basisschool De Wouter

BRIN	03VA
Stichting:	Dynamiek
Gemeente:	Horst aan de Maas
Bruto vloeroppervlak	1383
Normatief vloeroppervlak	879,05
bouwjaar	1971
aantal leerlingen	135
percentuele leegstand:	36%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	veel
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	ja
omvang entree (m3)	29,04
oppervlakte schoolplein (m2)	1280

Exterieur gebouw

wat is het type school	gang
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen/gevelplaat
wat is het bouwmateriaal van de constructie?	staal
aantal etages	2
oogt de school groot of klein?	groot

Interieur gebouw

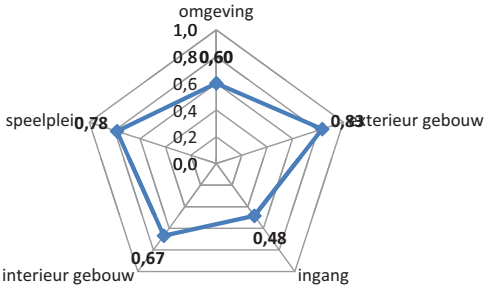
aantal lokalen	8
zijn er aanvullende ruimten?	7
omvang aula (m3)	443,52
m2/leerling	10,24
is de school toegangelijk voor invaliden?	rolstoel
is er vrij zicht op de gangen vanuit de lokalen?	nee
wat is de ganghoogte? (m)	2,90
wat is de lokaalhoogte? (m)	2,90
welke kleuren zijn primair gebruikt in de school?	oranje/wit
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	goed
zonwering:	buiten
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

Basissch Onder De Linde

BRIN 03YW
Stichting: Dynamiek
Gemeente: Horst aan de Maas

Bruto vloeroppervlak	1120
Normatief vloeroppervlak	1100,37
bouwjaar	2001
aantal leerlingen	179
percentuele leegstand:	2%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	heel erg
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	ja
omvang entree (m3)	24,36
oppervlakte schoolplein (m2)	2132

Exterieur gebouw

wat is het type school	gang
zijn er opvallende architectonische kenmerken?	ja
is het gebouw een architectonische eenheid?	ja
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	baksteen
aantal etages	1
oogt de school groot of klein?	klein

Interieur gebouw

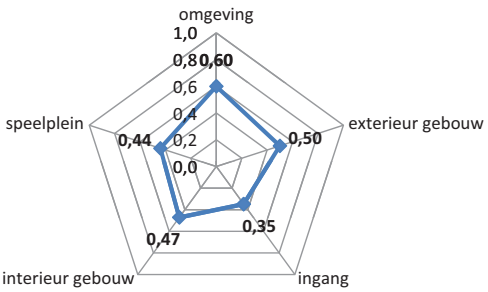
aantal lokalen	9
zijn er aanvullende ruimten?	6
omvang aula (m3)	440,18025
m2/leerling	6,26
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,40
wat is de lokaalhoogte? (m)	3,50
welke kleuren zijn primair gebruikt in de school?	wit/bruin
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	buiten
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

RK Basissch De Schakel

BRIN 05GC
Stichting: Dynamiek
Gemeente: Horst aan de Maas

Bruto vloeroppervlak	1209
Normatief vloeroppervlak	932,15
bouwjaar	2013
aantal leerlingen	145
percentuele leegstand:	23%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	niet
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	ja
omvang entree (m3)	13,52
oppervlakte schoolplein (m2)	1014

Exterieur gebouw

wat is het type school	gang
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	ja
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	staal
aantal etages	2
oogt de school groot of klein?	groot

Interieur gebouw

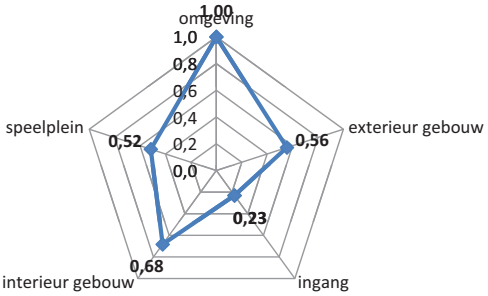
aantal lokalen	6
zijn er aanvullende ruimten?	7
omvang aula (m3)	106,81415
m2/leerling	8,34
is de school toegangelijk voor invaliden?	rolstoel
is er vrij zicht op de gangen vanuit de lokalen?	nee
wat is de ganghoogte? (m)	5,35
wat is de lokaalhoogte? (m)	2,20
welke kleuren zijn primair gebruikt in de school?	wit/blauw
wordt het gebouw goed schoongehouden?	enigszins
wat is de algehele onderhoudsstaat?	goed
zonwering:	buiten
ventilatiesysteem:	en
koelingssysteem:	mechanisch
verwarmingssysteem:	rming

Overzicht waarnemingen ter plekke

Het Anker

BRIN 05MU
Stichting: VCO de Kring
Gemeente: Brielle

Bruto vloeroppervlak	1253,666667
Normatief vloeroppervlak	1290,68
bouwjaar	2008
aantal leerlingen	216
percentuele leegstand:	-3%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	ja
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	rand
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	**niet**
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

is er vrij zicht vanaf de openbare weg?	ja
hoeveel ingangen zijn er?	1
is er toezicht op de ingang?	ja
omvang entree (m3)	21,28
oppervlakte schoolplein (m2)	594

Exterieur gebouw

wat is het type school	paviljoen
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	beton
aantal etages	2
oogt de school groot of klein?	groot

Interieur gebouw

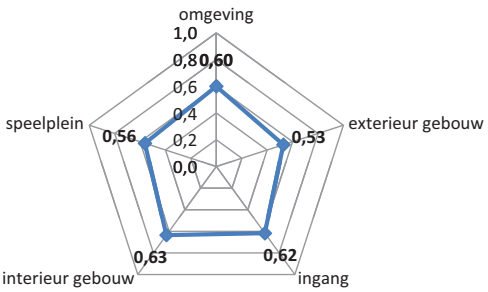
aantal lokalen	9
zijn er aanvullende ruimten?	7
omvang aula (m3)	292,248
m2/leerling	5,80
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,80
wat is de lokaalhoogte? (m)	2,80
welke kleuren zijn primair gebruikt in de school?	blauw/wit/ oranje
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	buiten
ventilatiesysteem:	mechanisch
koelingssysteem:	natuurlijk
verwarmingssysteem:	rming

Overzicht waarnemingen ter plekke

Basissch De Samensprong

BRIN 05ZU
Stichting: Akkoord
Gemeente: Horst aan de Maas

Bruto vloeroppervlak	926
Normatief vloeroppervlak	1004,8
bouwjaar	1995
aantal leerlingen	160
percentuele leegstand:	-9%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	nee
is het gebouw in harmonie qua stijl?	veel
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	3
is er toezicht op de ingang?	nee
omvang entree (m3)	12,48
oppervlakte schoolplein (m2)	1122

Exterieur gebouw

wat is het type school	hal
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	baksteen
aantal etages	1
oogt de school groot of klein?	klein

Interieur gebouw

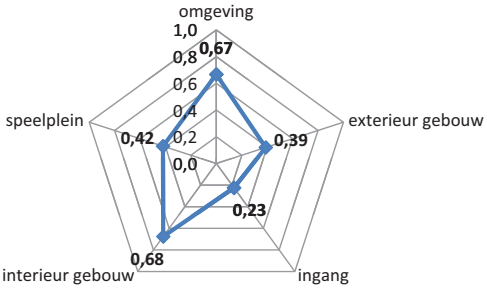
aantal lokalen	8
zijn er aanvullende ruimten?	6
omvang aula (m3)	122,512
m2/leerling	5,79
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,67
wat is de lokaalhoogte? (m)	3,37
welke kleuren zijn primair gebruikt in de school?	wit
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	goed
zonwering:	buiten
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

Basisschool Weisterbeek

BRIN 06MM
Stichting: Dynamiek
Gemeente: Horst aan de Maas

Bruto vloeroppervlak	1776
Normatief vloeroppervlak	1794,51
bouwjaar	1980
aantal leerlingen	317
percentuele leegstand:	-1%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	nee
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	nee
is het gebouw in harmonie qua stijl?	heel erg
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	ja
omvang entree (m3)	15,6
oppervlakte schoolplein (m2)	580

Exterieur gebouw

wat is het type school	gang
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	ja
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	baksteen
aantal etages	2
oogt de school groot of klein?	zeer groot

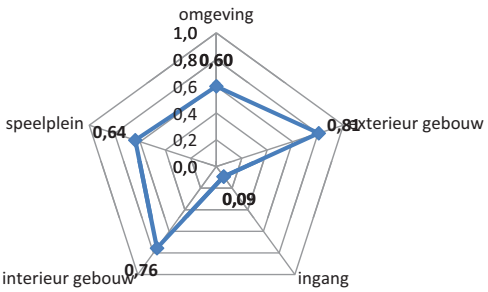
Interieur gebouw

aantal lokalen	13
zijn er aanvullende ruimten?	4
omvang aula (m3)	358,37672
m2/leerling	5,60
is de school toegangelijk voor invaliden?	niet
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,86
wat is de lokaalhoogte? (m)	2,95
welke kleuren zijn primair gebruikt in de school?	wit/bakste en
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	buiten
ventilatiesysteem:	en
koelingssysteem:	mechanisch
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

RK Basisschool De Bottel

BRIN	06OR
Stichting:	Dynamiek
Gemeente:	Horst aan de Maas
Bruto vloeroppervlak	1130
Normatief vloeroppervlak	924,32
bouwjaar	1963
aantal leerlingen	144
percentuele leegstand:	18%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	heel erg
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	1
is er toezicht op de ingang?	nee
omvang entree (m3)	28,704
oppervlakte schoolplein (m2)	1965

Exterieur gebouw

wat is het type school	gang
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	ja
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	beton
aantal etages	2
oogt de school groot of klein?	groot

Interieur gebouw

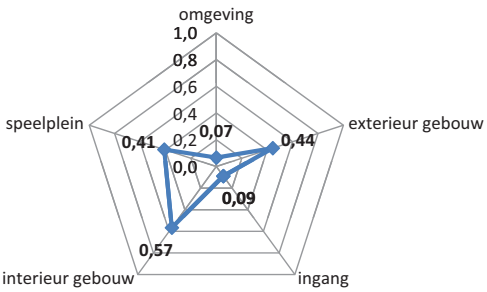
aantal lokalen	8
zijn er aanvullende ruimten?	7
omvang aula (m3)	183,352
m2/leerling	7,85
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	3,00
wat is de lokaalhoogte? (m)	2,60
welke kleuren zijn primair gebruikt in de school?	geel/oranje
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	buiten
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

Geuzenschip

BRIN 09BQ
Stichting: VCO de Kring
Gemeente: Brielle

Bruto vloeroppervlak	597
Normatief vloeroppervlak	758,33
bouwjaar	1930
aantal leerlingen	111
percentuele leegstand:	-27%



Omgeving

is er een doorgaande autoweg bij de school?	nee
is er een fietspad bij de school?	nee
bereikbaar met het OV	nee
genoeg parkeerplekken	nee
is er een schoolzone	nee
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	**niet**
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

is er vrij zicht vanaf de openbare weg?	**nee**
hoeveel ingangen zijn er?	1
is er toezicht op de ingang?	nee
omvang entree (m3)	24,48
oppervlakte schoolplein (m2)	374

Exterieur gebouw

wat is het type school	gang
zijn er opvallende architectonische kenmerken?	ja
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	baksteen
aantal etages	1
oogt de school groot of klein?	heel klein

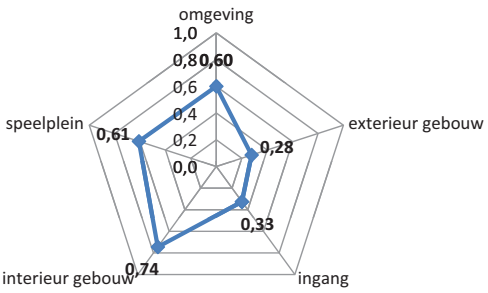
Interieur gebouw

aantal lokalen	5
zijn er aanvullende ruimten?	3
omvang aula (m3)	0
m2/leerling	5,38
is de school toegangelijk voor invaliden?	niet
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,90
wat is de lokaalhoogte? (m)	3,90
welke kleuren zijn primair gebruikt in de school?	grijs/mozaiekvloer
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	buiten
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

Basisschool De Kameleon

BRIN	09MO
Stichting:	Dynamiek
Gemeente:	Horst aan de Maas
Bruto vloeroppervlak	1413
Normatief vloeroppervlak	1382,05
bouwjaar	2014
aantal leerlingen	235
percentuele leegstand:	2%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	nee
is het gebouw in harmonie qua stijl?	**niet**
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

is er vrij zicht vanaf de openbare weg?	**nee**
hoeveel ingangen zijn er?	1
is er toezicht op de ingang?	nee
omvang entree (m3)	12,4992
oppervlakte schoolplein (m2)	651

Exterieur gebouw

wat is het type school	hal
zijn er opvallende architectonische kenmerken?	ja
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	hout en baksteen
wat is het bouwmateriaal van de constructie?	staal
aantal etages	1
oogt de school groot of klein?	groot

Interieur gebouw

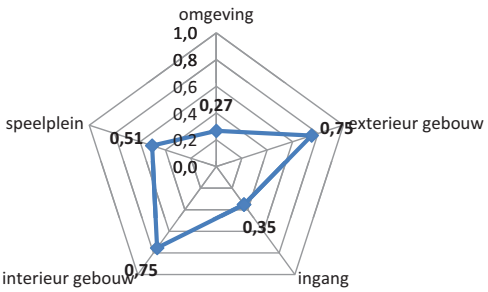
aantal lokalen	10
zijn er aanvullende ruimten?	5
omvang aula (m3)	1667,7
m2/leerling	6,01
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	3,00
wat is de lokaalhoogte? (m)	3,60
welke kleuren zijn primair gebruikt in de school?	wit/blauw
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	buiten
ventilatiesysteem:	en
koelingssysteem:	mechanisch
verwarmingssysteem:	rming

Overzicht waarnemingen ter plekke

De Ploegschaar

BRIN 11PQ
Stichting: CPOW
Gemeente: Purmerend

Bruto vloeroppervlak	1297
Normatief vloeroppervlak	813,66
bouwjaar	1977
aantal leerlingen	122
percentuele leegstand:	37%



Omgeving

is er een doorgaande autoweg bij de school?	nee
is er een fietspad bij de school?	nee
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	nee
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	veel
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	ja
omvang entree (m3)	17,46
oppervlakte schoolplein (m2)	456

Exterieur gebouw

wat is het type school	paviljoen
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	beton/baks
aantal etages	1
oogt de school groot of klein?	klein

Interieur gebouw

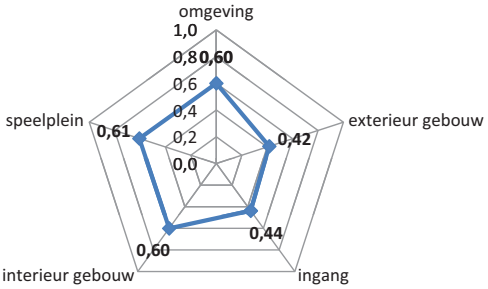
aantal lokalen	9
zijn er aanvullende ruimten?	6
omvang aula (m3)	573,87
m2/leerling	10,63
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,70
wat is de lokaalhoogte? (m)	3,00
welke kleuren zijn primair gebruikt in de school?	wit/gele deuren
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	goed
zonwering:	buiten
ventilatiesysteem:	natuurlijk
koelingssysteem:	mechanisch
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

RK Basissch de Kroevert

BRIN 12BH
Stichting: Dynamiek
Gemeente: Horst aan de Maas

Bruto vloeroppervlak	852
Normatief vloeroppervlak	733,18
bouwjaar	2012
aantal leerlingen	106
percentuele leegstand:	14%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	nee
is het gebouw in harmonie qua stijl?	heel erg
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	1
is er toezicht op de ingang?	nee
omvang entree (m3)	231,934
oppervlakte schoolplein (m2)	1462

Exterieur gebouw

wat is het type school	hal
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	beton
aantal etages	2
oogt de school groot of klein?	groot

Interieur gebouw

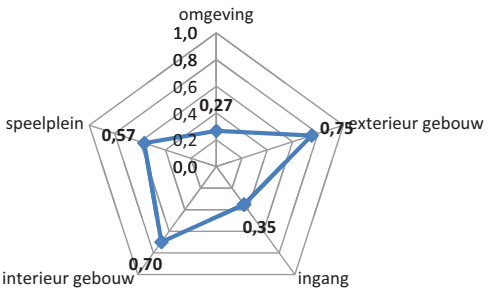
aantal lokalen	6
zijn er aanvullende ruimten?	4
omvang aula (m3)	0
m2/leerling	8,04
is de school toegangelijk voor invaliden?	niet
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,80
wat is de lokaalhoogte? (m)	2,80
welke kleuren zijn primair gebruikt in de school?	wit/oranje/ blauw
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	buiten
ventilatiesysteem:	mechanisch
koelingssysteem:	mechanisch
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

De Smidse

BRIN 12BP
Stichting: CPOW
Gemeente: Purmerend

Bruto vloeroppervlak	1281
Normatief vloeroppervlak	1779,42
bouwjaar	1977
aantal leerlingen	314
percentuele leegstand:	-39%



Omgeving

is er een doorgaande autoweg bij de school?	nee
is er een fietspad bij de school?	nee
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	nee
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	veel
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	ja
omvang entree (m3)	17,46
oppervlakte schoolplein (m2)	1190

Exterieur gebouw

wat is het type school	paviljoen
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	beton/baks
aantal etages	1
oogt de school groot of klein?	klein

Interieur gebouw

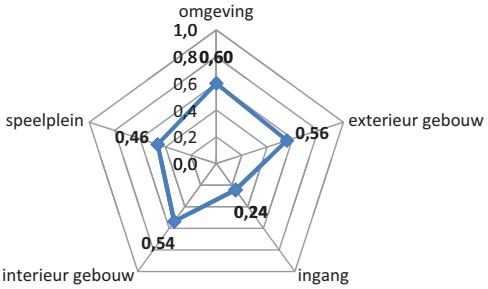
aantal lokalen	13
zijn er aanvullende ruimten?	4
omvang aula (m3)	573,87
m2/leerling	4,08
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,70
wat is de lokaalhoogte? (m)	3,00
welke kleuren zijn primair gebruikt in de school?	wit/gele deuren
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	goed
zonwering:	buiten
ventilatiesysteem:	natuurlijk
koelingssysteem:	mechanisch
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

Basisschool De Horizon

BRIN 12KN
Stichting: Dynamiek
Gemeente: Horst aan de Maas

Bruto vloeroppervlak	1750
Normatief vloeroppervlak	1422,29
bouwjaar	1955
aantal leerlingen	243
percentuele leegstand:	19%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	nee
is het gebouw in harmonie qua stijl?	veel
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	1
is er toezicht op de ingang?	nee
omvang entree (m3)	52,896
oppervlakte schoolplein (m2)	900

Exterieur gebouw

wat is het type school	hal
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	ja
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	beton
aantal etages	2
oogt de school groot of klein?	groot

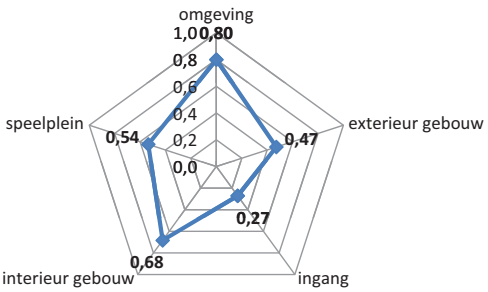
Interieur gebouw

aantal lokalen	0
zijn er aanvullende ruimten?	0
omvang aula (m3)	0
m2/leerling	7,20
is de school toegangelijk voor invaliden?	rolstoel
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	3,90
wat is de lokaalhoogte? (m)	3,80
welke kleuren zijn primair gebruikt in de school?	blauw/groen
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	goed
zonwering:	buiten
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

Klim Op

BRIN	12KT
Stichting:	CPOW
Gemeente:	Purmerend
Bruto vloeroppervlak	2398
Normatief vloeroppervlak	2433,32
bouwjaar	1976
aantal leerlingen	444
percentuele leegstand:	-1%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	ja
genoeg parkeerplekken	ja
is er een schoolzone	nee
wat is de ligging van de school?	rand
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	**niet**
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

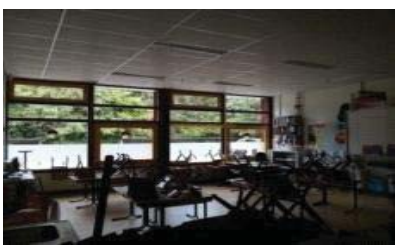
is er vrij zicht vanaf de openbare weg?	ja
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	nee
omvang entree (m3)	77,952
oppervlakte schoolplein (m2)	1400

Exterieur gebouw

wat is het type school	paviljoen
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	**ja**
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen+k unststof
wat is het bouwmateriaal van de constructie?	staal
aantal etages	1
oogt de school groot of klein?	zeer groot

Interieur gebouw

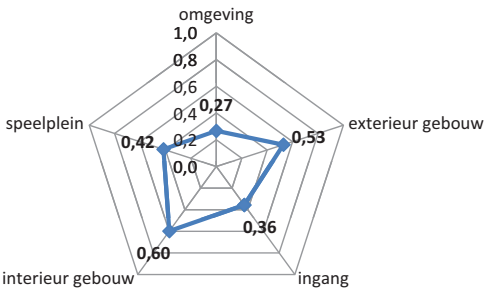
aantal lokalen	19
zijn er aanvullende ruimten?	7
omvang aula (m3)	717,706
m2/leerling	5,40
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,40
wat is de lokaalhoogte? (m)	3,20
welke kleuren zijn primair gebruikt in de school?	oranje/wit
wordt het gebouw goed schoongehouden?	enigszins
wat is de algehele onderhoudsstaat?	goed
zonwering:	buiten
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator



Overzicht waarnemingen ter plekke

t Want

BRIN	12UE
Stichting:	PRIMOvpr
Gemeente:	Brielle
Bruto vloeroppervlak	1291
Normatief vloeroppervlak	904,2
bouwjaar	1966
aantal leerlingen	140
percentuele leegstand:	30%



Omgeving

is er een doorgaande autoweg bij de school?	nee
is er een fietspad bij de school?	nee
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	nee
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	**heel erg**
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	**nee**
hoeveel ingangen zijn er?	4
is er toezicht op de ingang?	nee
omvang entree (m3)	98,4
oppervlakte schoolplein (m2)	766

Exterieur gebouw

wat is het type school	paviljoen
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	ja
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	staal
aantal etages	1
oogt de school groot of klein?	groot

Interieur gebouw

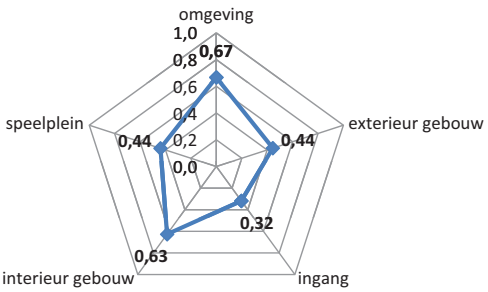
aantal lokalen	8
zijn er aanvullende ruimten?	4
omvang aula (m3)	344,1
m2/leerling	9,22
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,50
wat is de lokaalhoogte? (m)	3,30
welke kleuren zijn primair gebruikt in de school?	wit/blauw
wordt het gebouw goed schoongehouden?	enigszins
wat is de algehele onderhoudsstaat?	enigszins
zonwering:	binnen en
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

De Tiende Penning

BRIN	13AK
Stichting:	PRIMOvpr
Gemeente:	Brielle

Bruto vloeroppervlak	1129
Normatief vloeroppervlak	798,57
bouwjaar	2011
aantal leerlingen	119
percentuele leegstand:	29%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	nee
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	**niet**
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

is er vrij zicht vanaf de openbare weg?	ja
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	ja
omvang entree (m3)	44,2
oppervlakte schoolplein (m2)	766

Exterieur gebouw

wat is het type school	hal
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	staal
aantal etages	2
oogt de school groot of klein?	groot

Interieur gebouw

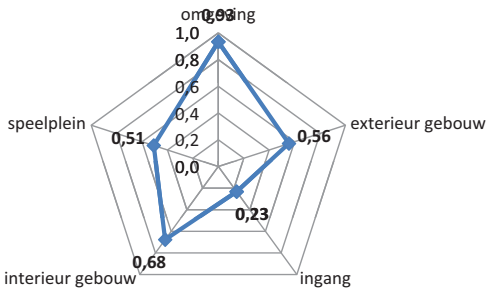
aantal lokalen	0
zijn er aanvullende ruimten?	0
omvang aula (m3)	0
m2/leerling	9,49
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,60
wat is de lokaalhoogte? (m)	2,60
welke kleuren zijn primair gebruikt in de school?	wit/creme
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	binnen
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

De Branding

BRIN	13LE
Stichting:	PRIMOvpr
Gemeente:	Brielle

Bruto vloeroppervlak	1253,666667
Normatief vloeroppervlak	1443,81
bouwjaar	2008
aantal leerlingen	247
percentuele leegstand:	-15%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	fietsstrook
bereikbaar met het OV	ja
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	rand
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	**niet**
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

is er vrij zicht vanaf de openbare weg?	ja
hoeveel ingangen zijn er?	1
is er toezicht op de ingang?	ja
omvang entree (m3)	22,62
oppervlakte schoolplein (m2)	495

Exterieur gebouw

wat is het type school	paviljoen
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	beton
aantal etages	2
oogt de school groot of klein?	groot

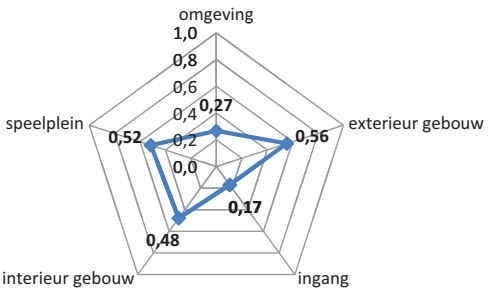
Interieur gebouw

aantal lokalen	11
zijn er aanvullende ruimten?	6
omvang aula (m3)	242,846
m2/leerling	5,08
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,90
wat is de lokaalhoogte? (m)	2,90
welke kleuren zijn primair gebruikt in de school?	wit/blauw
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	buiten
ventilatiesysteem:	mechanisch
koelingssysteem:	natuurlijk
verwarmingssysteem:	rming

Overzicht waarnemingen ter plekke

Meester Eeuwout

BRIN	13XH
Stichting:	PRIMOvpr
Gemeente:	Brielle
Bruto vloeroppervlak	1198,7
Normatief vloeroppervlak	828,75
bouwjaar	1984
aantal leerlingen	125
percentuele leegstand:	31%



Omgeving

is er een doorgaande autoweg bij de school?	nee
is er een fietspad bij de school?	nee
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	nee
wat is de ligging van de school?	rand
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	heel erg
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	nee
omvang entree (m3)	42,25
oppervlakte schoolplein (m2)	1444

Exterieur gebouw

wat is het type school	paviljoen
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	staal
aantal etages	1
oogt de school groot of klein?	klein

Interieur gebouw

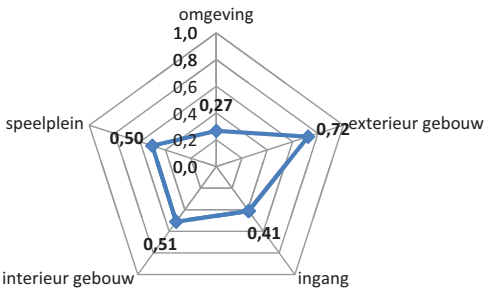
aantal lokalen	6
zijn er aanvullende ruimten?	6
omvang aula (m3)	360,36
m2/leerling	9,59
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	nee
wat is de ganghoogte? (m)	0,00
wat is de lokaalhoogte? (m)	0,00
welke kleuren zijn primair gebruikt in de school?	grijs/gele deuren
wordt het gebouw goed schoongehouden?	goed
wat is de algehele onderhoudsstaat?	goed
zonwering:	buiten
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

OBS De Ranonkel

BRIN 16HK
Stichting: OPSO
Gemeente: Purmerend

Bruto vloeroppervlak	2450
Normatief vloeroppervlak	1693,91
bouwjaar	1978
aantal leerlingen	297
percentuele leegstand:	31%



Omgeving

is er een doorgaande autoweg bij de school?	nee
is er een fietspad bij de school?	nee
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	nee
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	veel
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	nee
omvang entree (m3)	92,16
oppervlakte schoolplein (m2)	2080

Exterieur gebouw

wat is het type school	paviljoen
zijn er opvallende architectonische kenmerken?	ja
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	staal
aantal etages	2
oogt de school groot of klein?	groot

Interieur gebouw

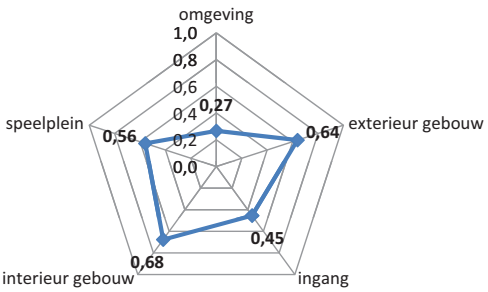
aantal lokalen	18
zijn er aanvullende ruimten?	7
omvang aula (m3)	636,48
m2/leerling	8,25
is de school toegangelijk voor invaliden?	rolstoel
is er vrij zicht op de gangen vanuit de lokalen?	nee
wat is de ganghoogte? (m)	2,60
wat is de lokaalhoogte? (m)	2,70
welke kleuren zijn primair gebruikt in de school?	blauw/geel /wit
wordt het gebouw goed schoongehouden?	goed
wat is de algehele onderhoudsstaat?	enigszins
zonwering:	buiten
ventilatiesysteem:	mechanisch
koelingssysteem:	mechanisch
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

OBS De Boemerang

BRIN 16UC
Stichting: OPSO
Gemeente: Purmerend

Bruto vloeroppervlak	1145
Normatief vloeroppervlak	1170,79
bouwjaar	1983
aantal leerlingen	193
percentuele leegstand:	-2%



Omgeving

is er een doorgaande autoweg bij de school?	nee
is er een fietspad bij de school?	nee
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	nee
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	veel
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	nee
omvang entree (m3)	35,397
oppervlakte schoolplein (m2)	1554

Exterieur gebouw

wat is het type school	paviljoen
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	staal
aantal etages	1
oogt de school groot of klein?	klein

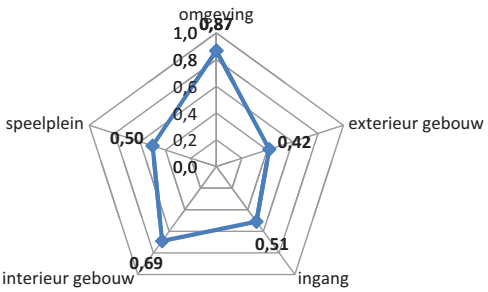
Interieur gebouw

aantal lokalen	8
zijn er aanvullende ruimten?	5
omvang aula (m3)	326,368
m2/leerling	5,93
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,80
wat is de lokaalhoogte? (m)	2,90
welke kleuren zijn primair gebruikt in de school?	wit/grijs
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	buiten
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

Het Baken

BRIN	22FC
Stichting:	CPOW
Gemeente:	Purmerend
Bruto vloeroppervlak	1180
Normatief vloeroppervlak	1105,4
bouwjaar	2014
aantal leerlingen	180
percentuele leegstand:	6%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	nee
bereikbaar met het OV	ja
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	**niet**
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

is er vrij zicht vanaf de openbare weg?	**nee**
hoeveel ingangen zijn er?	3
is er toezicht op de ingang?	ja
omvang entree (m3)	48,3
oppervlakte schoolplein (m2)	724

Exterieur gebouw

wat is het type school	hal
zijn er opvallende architectonische kenmerken?	ja
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	beton
wat is het bouwmateriaal van de constructie?	beton
aantal etages	2
oogt de school groot of klein?	klein

Interieur gebouw

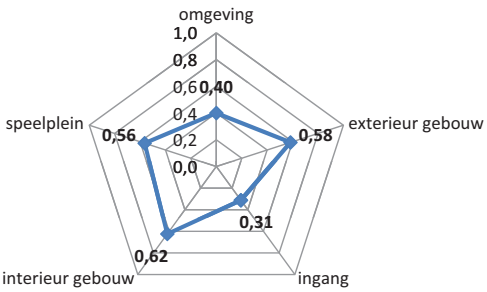
aantal lokalen	8
zijn er aanvullende ruimten?	4
omvang aula (m3)	405
m2/leerling	6,56
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	4,70
wat is de lokaalhoogte? (m)	2,90
welke kleuren zijn primair gebruikt in de school?	oranje/wit
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	buiten
ventilatiesysteem:	en
koelingssysteem:	mechanisch
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

OBS De Krullevaar

BRIN 22JP
Stichting: Akkoord
Gemeente: Horst aan de Maas

Bruto vloeroppervlak	1030
Normatief vloeroppervlak	974,62
bouwjaar	2006
aantal leerlingen	154
percentuele leegstand:	5%



Omgeving

is er een doorgaande autoweg bij de school?	nee
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	nee
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	nee
is het gebouw in harmonie qua stijl?	enigszins
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	1
is er toezicht op de ingang?	nee
omvang entree (m3)	115,70416
oppervlakte schoolplein (m2)	841,5

Exterieur gebouw

wat is het type school	hal
zijn er opvallende architectonische kenmerken?	ja
is het gebouw een architectonische eenheid?	ja
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	staal
aantal etages	1
oogt de school groot of klein?	groot

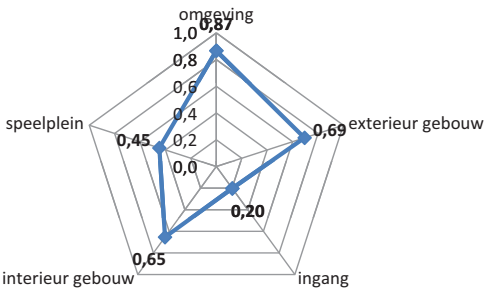
Interieur gebouw

aantal lokalen	6
zijn er aanvullende ruimten?	7
omvang aula (m3)	309,624
m2/leerling	6,69
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,80
wat is de lokaalhoogte? (m)	2,80
welke kleuren zijn primair gebruikt in de school?	rood/wit/creme
wordt het gebouw goed schoongehouden?	zeer goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	buiten
ventilatiesysteem:	mechanisch
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

De Vlieger

BRIN	23TB
Stichting:	CPOW
Gemeente:	Purmerend
Bruto vloeroppervlak	1338
Normatief vloeroppervlak	1784
bouwjaar	1991
aantal leerlingen	315
percentuele leegstand:	-33%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	nee
bereikbaar met het OV	ja
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	rand
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	enigszins
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	ja
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	nee
omvang entree (m3)	14,4
oppervlakte schoolplein (m2)	1352

Exterieur gebouw

wat is het type school	hal
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	staal
aantal etages	2
oogt de school groot of klein?	groot

Interieur gebouw

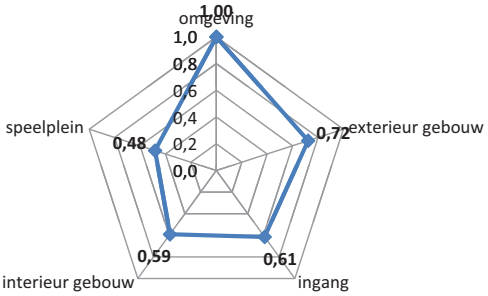
aantal lokalen	12
zijn er aanvullende ruimten?	8
omvang aula (m3)	901,796
m2/leerling	4,25
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	2,50
wat is de lokaalhoogte? (m)	2,70
welke kleuren zijn primair gebruikt in de school?	blauw/wit/ geel
wordt het gebouw goed schoongehouden?	goed
wat is de algehele onderhoudsstaat?	goed
zonwering:	binnen en
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

OBS De Koempoelan

BRIN 26AP
Stichting: OPSO
Gemeente: Purmerend

Bruto vloeroppervlak	1902
Normatief vloeroppervlak	1935,35
bouwjaar	1998
aantal leerlingen	345
percentuele leegstand:	-2%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	ja
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	veel
is het gebouw in harmonie qua kleur?	nee
is het gebouw in harmonie qua materiaal?	nee

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	1
is er toezicht op de ingang?	nee
omvang entree (m3)	48,36
oppervlakte schoolplein (m2)	2183

Exterieur gebouw

wat is het type school	paviljoen
zijn er opvallende architectonische kenmerken?	ja
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	nee
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	staal
aantal etages	2
oogt de school groot of klein?	groot

Interieur gebouw

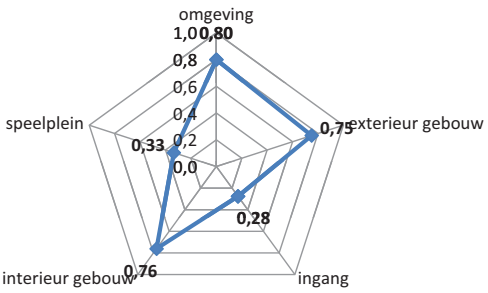
aantal lokalen	14
zijn er aanvullende ruimten?	6
omvang aula (m3)	326
m2/leerling	5,51
is de school toegangelijk voor invaliden?	rolstoel
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	3,00
wat is de lokaalhoogte? (m)	3,00
welke kleuren zijn primair gebruikt in de school?	geel/blauw
wordt het gebouw goed schoongehouden?	goed
wat is de algehele onderhoudsstaat?	goed
zonwering:	buiten
ventilatiesysteem:	en
koelingssysteem:	mechanisch
verwarmingssysteem:	radiator

Overzicht waarnemingen ter plekke

Basisschool de Marimba

BRIN	26AR
Stichting:	CPOW
Gemeente:	Purmerend

Bruto vloeroppervlak	2854
Normatief vloeroppervlak	2554,04
bouwjaar	1999
aantal leerlingen	468
percentuele leegstand:	11%



Omgeving

is er een doorgaande autoweg bij de school?	ja
is er een fietspad bij de school?	apart fietspad
bereikbaar met het OV	ja
genoeg parkeerplekken	ja
is er een schoolzone	ja
wat is de ligging van de school?	midden
sluit het gebouw aan bij de omgeving in hoogte?	ja
is het gebouw in harmonie qua stijl?	enigszins
is het gebouw in harmonie qua kleur?	ja
is het gebouw in harmonie qua materiaal?	ja

Toegang

is er vrij zicht vanaf de openbare weg?	nee
hoeveel ingangen zijn er?	2
is er toezicht op de ingang?	nee
omvang entree (m3)	24
oppervlakte schoolplein (m2)	952

Exterieur gebouw

wat is het type school	gang
zijn er opvallende architectonische kenmerken?	nee
is het gebouw een architectonische eenheid?	nee
is er clustering van functies?	ja
wat is het bouwmateriaal van de gevel?	baksteen
wat is het bouwmateriaal van de constructie?	beton
aantal etages	1
oogt de school groot of klein?	groot

Interieur gebouw

aantal lokalen	18
zijn er aanvullende ruimten?	5
omvang aula (m3)	655,424
m2/leerling	6,10
is de school toegangelijk voor invaliden?	krukken
is er vrij zicht op de gangen vanuit de lokalen?	ja
wat is de ganghoogte? (m)	5,50
wat is de lokaalhoogte? (m)	5,00
welke kleuren zijn primair gebruikt in de school?	grijs
wordt het gebouw goed schoongehouden?	goed
wat is de algehele onderhoudsstaat?	zeer goed
zonwering:	buiten
ventilatiesysteem:	natuurlijk
koelingssysteem:	natuurlijk
verwarmingssysteem:	radiator