AN INTERDISCIPLINARY FRAMEWORK FOR SPATIAL QUALITY
A VERTICAL LIVING KIDS' PERSPECTIVE

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ABSTRACT

Today, many children grow up in different contexts of vertical housing. Even though this type of environment has never been the preferred housing option for families with children in Flanders, it can be expected that the number of children in this type of housing will grow because of a spatial policy that increasingly focuses on densification and urban core consolidation. However, little is known about spatial quality in terms of liveability, meaningfulness and opportunities for self-development according to children and teenagers in vertical housing. To further research this matter, there is a need for a multidisciplinary approach of space, since space cannot be seen as a purely physical layer but has a clear experiential and socio-political layer as well. We found the approach of space as an interaction of mind-, matter- and powerscape by M. Jacobs (2004) to be comprehensive in including the different meanings that can be given to space. Using this framework and further operationalising it, we formulate 18 *building blocks* for spatial quality that can function as a node, tool and forum for analysing a space and intervening in a space.

Keywords: SPATIAL QUALITY, CHILDREN AND TEENAGERS, VERTICAL HOUSING, BUILDING BLOCKS, MIND-MATTER- POWERSCAPE

INTRODUCTION - CHILDREN AND TEENAGERS IN VERTICAL HOUSING: QUESTION AND FACT

Vertical living families in Flanders, Belgium

In Flanders, many families with children live in different contexts and types of vertical housing (numbers vary between 8,8% and 17,3% according to different surveys, **table 1**). Even though this reality is more explicit in cities (e.g. in Ghent 17% of children between the ages of 0 – 18 grow up in apartments, **table 2**, in the centre of Ghent this number rises to 44%), vertical housing is becoming more relevant in rural municipalities as well (CIBweb 2016). At the same time, vertical housing is often considered to be less suitable or safe for families with children than the traditional single family house away from the city (DUSArchitects 2005). Vertical housing is suspected to have an impact on children's individual mobility (Whitzman & Mizrachi 2009) and even health (Oda et al. 1989; Fujiwara et al. 2014). The general attitude towards vertical housing in Flanders is rather reluctant. This can partly be explained by the history of housing in Flanders. Throughout its history, the focus of the Flemish housing policy has mainly been on individual ownership (De Decker & Meeus 2013). Vertical housing has therefore only been scarcely considered as a good housing option, often in times when there was a housing shortage and construction had to be quick. On top of this, failing international vertical housing projects like Pruitt Igoe (Fiederer 2017) or the French 'Grands Ensembles' (Bertho 2014) have been used as arguments against vertical housing. Examples of good Flemish vertical housing projects are rare.

Today, the Flemish housing landscape is mainly shaped by individually owned housing stock: 85% of the property market consists of single family housing, spread out over the entire Flemish area, causing many problems in its turn (Grietens 2009). However, some things are moving on the property market as housing policy is shifting its focus and apartments are becoming an economically interesting alternative for single family housing. We can already see a rise in the building of apartments, mainly by property developers (Departement Omgeving 2016). Ideas of centralisation and densification are

now being put forward as essential strategies in solving the problems caused by decennia of non-planning.

In keeping the left-over open space unbuilt, vertical housing can offer a typological solution. However, the quality of the housing and its environment must be guaranteed (Bouwmeester 2012; Vlaanderen 2018). In the light of these evolutions, we can assume that the number of families with children in vertical housing environments will only grow in the near future. In our research project we focus primarily on the perspective of children and teenagers growing up in these environments, the so called vertical living kids[1].

Spatial quality in vertical housing environments

It is generally recognised that the housing environment of children and teenagers plays a major role in their socialisation, the opportunities they get and even their identity (De Visscher 2008; Hauge 2009; Sacré et al. 2016; Karsten 1995). Taking into account 'liveability', 'meaningfulness' and 'opportunities for self-development' of a space when planning or designing housing environments, should therefore be evident.

In our study we don't focus on the question whether or not it is desirable that children live in an apartment, but we start from the observation that an increasing number of children already lives in vertical housing conditions. We are interested in how the 'spatial quality' of these vertical housing environments can be increased, specifically according to children and teenagers themselves. The fact that space in Flanders is becoming a scarce good and the resulting need for spatial densification only add to the importance of this issue. This brings us to the question what exactly can be understood by 'spatial quality'. It is a term that, even though many have written about its meaning (Dauvellier, De Jonge, & Puylaert, 2014; Jacobs & Van Assche, 2003; Janssen-jansen, Klijn, & Opdam, 2009; Segers et al., 2013, etc.), has in some way become vague or even an empty term because it is over-used and often unfounded.

In this paper, we propose a theoretical framework of spatial quality which we believe is comprehensible and can help to create a forum for dialogue between the different stakeholders, professionals and users of a space. Before we can set this framework, we need to define the meaning of 'space' itself. In the first part of this paper we use, adjust and add to Maarten Jacobs' (2004) multidimensional framework of space, which we think is needed to be able to talk about the quality of space. In the second part of this paper, we combine this concept with what we call *building blocks* to create a framework not only for analysis and discussions on spatial quality, but also to intervene in a space.

PART 1 - A MULTIDIMENSIONAL FRAMEWORK OF SPACE

The multidimensionality of space

Space is a concept that is used in many different professions, and each of these can give its own disciplinary meaning to the term. Moreover, each individual person gives a particular meaning to space as well (Khan et al. 2013). This can cause a lot of misunderstanding and confusion in discussions about space. So if we want to talk about the quality of space, we need a clear multidimensional definition of space. In this paper, we will use the framework developed by Jacobs (2004). We believe his suggested way of looking at space is interesting since it approaches space not from a specific (disciplinary) point of view, but as an integrating concept that takes into account physical as well as psychological, sociological and political dimensions of space.

[1] By analogy of Whitzman and Mizrachi (2009) the terms 'vertical living kids' and 'vertical housing environments' are used, referring to any type of 'layered' housing, including low-, medium-, to high-rise environments.

In his conference proceedings for *Metropolitan Landscapes*, Jacobs partly transposes Habermas' (1984) framework of communicative action to a new way of looking at the landscape (space). By analogy of Habermas, there are 3 'dimensions' in which statements can be considered correct: the mind-, matter- and powerscape (**figure 1**). We can give the following meaning to the different scapes:

- **Matterscape**: this is the physical dimension of space. It is the layer of space as it can be observed by the different senses, and it also contains 'factual knowledge' attached to space. It is in some way the objective dimension of space, since it exists outside of the individual and is not affected by cognitive or emotional processes. For example: imagine an oak tree of 20m tall, it casts a shadow and it grows throughout time, it is planted according to a plan or spontaneously grows in a place with specific features. All of this is true in the matterscape.

- **Mindscape**: this is the personal, individual dimension of space, defined by feelings, stories and personal appreciations connected to space. It can be seen as the (inter)subjective layer of space. A feeling for a space can be shared by more persons, but this still remains a very much personal feeling. For example: a child loves the oak tree since he can climb in it and finds it beautiful, his grandmother, however, dislikes the tree since she once slipped over its leaves.

- **Powerscape**: this is the sociological and political dimension of space. It is defined by rules, norms, laws, plans or traditions connected to a space. More than one set of rules can exist in the same space, since it can also be culturally bound or bound to certain groups of people. This dimension defines a lot of the behaviour in space, as some of these norms are explicitly written down and non-obedience can be punished. For example: cutting the oak tree is illegal since there are laws protecting trees whose radius at 1m height is bigger than 1m.

It should be understood that (1) each space holds all three of these scapes, (2) to understand a space therefore, all scapes should be considered, (3) each scape directly or indirectly influences the other scapes, (4) observations in one scape cannot serve as a ground for conclusions in another scape, (5) a 'problem' that occurs in one scape does not necessarily ask for a solution in the same scape. Further use of the term 'space' in this article should be understood as described above.

Towards a definition of spatial quality

The framework of space as presented above can be useful in the analysis of space. It helps, for instance, to understand some disagreements that arise when talking about spatial quality. Conflicting preferences in different scapes of the same space can create disagreement or feelings of injustice, especially in processes of change. Creating a new road connecting two municipalities, for example, can have a clear use in terms of traffic-flow (matterscape), but can be much opposed by people living in the area since it will disrupt the landscape they feel connected to (mindscape). In this example, a proposed intervention in the matterscape conflicts with opinions in the mindscape. To reveal these type of conflicts, discussions about the quality of space should always take into account information about all three scapes and consider them in equal value.

Although the concept of mind- matter- and powerscape has demonstrated its usefulness in giving us a more comprehensive language to analyse, describe and discuss space as an integrating concept, the framework is not readily applicable in practice when working towards an intervention. It will never answer the question on how to actually change space to increase its meaningfulness, liveability or opportunities for self-development. In the following part of this paper, we therefore suggest a way to operationalize spatial quality based on different 'socio-spatial themes' distilled from a literature study. We started to call these 'themes' *building blocks* of spatial quality.

The most important characteristic of spatial quality might be that it will never be reached as a sort of final picture but should always be conceived as a process. Since space itself is constantly changing, as well as its users, stakeholders and their personal preferences, spatial quality itself should be a continuous process as well.

PART 2 - SPATIAL QUALITY AS A FRAMEWORK FOR ANALYSIS AND INTERVENTION

Many different architects, urban planners, sociologists, anthropologists, etc. have already made suggestions on how to increase (specific characteristics of) the quality of space (Blokland, 2009; Coeterier, 1996; Gehl, 2011; Gibson, 2014; Hall, 1988; J. Jacobs, 1961; Kaplan, 1987; Newman, 1972; Segers et al., 2013; Soenen, 2006; Van Damme, Matthyssen and Foré, 2014; Van Damme et al., 2017, etc.). The list below gives an overview of some of these ideas, which we hope can be an anchor or starting point while discussing and deconstructing the complexity of spatial quality.

18 Building blocks of spatial quality

1. **Complexity**: the variation, diversity, amount and density of elements in a space influences its experience. Complexity has a direct influence on the readability (10) of a place.
2. **Useability**: the way in which a space offers opportunities for different uses. Can and may one do in space what one wants to do? It is also the perceived usefulness of space for oneself, others or groups of people.
3. **Coherence**: the way in which different elements in space function as a whole. This means biotic and abiotic elements, as well as the activities and uses of a space: are they in the right place? Coherence can also mean whether a space feels as one coherent entity or not.
4. **Mystery:** the promise for new information when moving through or exploring a space. Depending on the general atmosphere or feelings, mystery can be perceived as positive (a potential new vista in a walk) or negative (an unknown sound in a dark forest at night).
5. **Manageability**: the ease with which a space and its functions can be sustained in a controlled way over time, without asking for excessive maintenance.
6. **Accessibility**: the freedom with which a person can enter, move through, or leave a space. The presence of physical, social, or mental barriers or processes of exclusion. This should always be seen in the light of desirability of accessibility of a space.
7. **Uniqueness**: the way in which a space is different than other spaces; what makes the space a place. Uniqueness is also the (symbolic) meanings a space holds and the stories that are connected to it. Typical physical characteristics as well as the history of a space can also be part of its uniqueness.
8. **Ownership:** the opportunities that a space holds for people or groups of people to be able to (temporarily) claim a space, and the desirability of this opportunity. A sense of ownership helps in creating a sense of responsibility for a space.
9. **Beauty**: beauty has always been recognised as one of the main things to influence the appreciation of space, but is often written off as subjective in discussing space. Beauty might be in the eye of the beholder, but it is certainly something that needs to be considered.
10. **Readability**: the ease with which one can easily orient and move in a space, and with which one can memorise a space. Also: the correlation between the physical manifestation of a space and how one expects a certain space to look.
11. **Green and water**: the presence of natural, green elements, water and organic shapes in a space can improve its appreciation.
12. **Resilience**: the capability of a space to function properly during and after natural, societal or environmental shocks, stresses or changes.
13. **Sustainability**: the way in which a space has use for the current generation, without endangering the needs of future generations. One meaning given to sustainability is putting ‘planet’ before ‘people’ before ‘profit’ in any given question.

14. **Sensory qualities:** the experience of space is not only visual but multi-sensory. If a space can offer a pleasing experience in all of the senses, this adds to the appreciation of it. A negative experience of one sense can diminish the quality of the multi-sensory experience.
15. **Social contacts**: whether or not a space creates, supports or denies desired opportunities for social contact of different kinds, influences the appreciation of a space.
16. **Vitality**: the amount of 'activity' or 'life' in a space, not only caused by human activity but also movement by fauna, flora or abiotic elements like water. Appreciation depends on the desired amount of activity: is there need for a quiet, still place or rather a stimulating, vibrant place?
17. **Scale / context**: the way in which a space is tuned to its broader context, and the way the smaller elements of a space are well adjusted to each other (A house for example cannot be seen as a detached entity, but needs to be considered in relation to its broader environment and the facilities provided). A correct scale also means attuning the proportions of a space to its use and users (the human scale).
18. **Safety**: the objective or experienced safety of a space has a direct influence on the appreciation of a space and people's behaviour.

Building blocks as node, forum and tool for analysis and intervention in space

Figure 2 shows the position of the building blocks as a (1) node, (2) forum and (3) tool for analysis of space and intervention in space.

1. The building blocks can be considered as **nodes** between the analysis of space and the intervention in space. Their specific meaning in a space can be defined by all three scapes.
2. The building blocks can also be seen as a **tool** for analyses and intervention. On one hand, a building block can be used to investigate a place as it is currently perceived and appreciated. On the other hand, the theories from which a building block is composed can be used to formulate interventions in order to achieve higher spatial quality. An intervention in a space does not need to be physical (matterscape), but can also be regulatory (powerscape), activities or change of perception (mindscape).
3. Intervening in a space usually involves or affects many stakeholders. Because all building blocks focus on a certain aspect or characteristic of space, they can be useful as an interdisciplinary and participatory **forum** for dialogue. Different perspectives and ideas, can be brought together for discussion by all users, stakeholders and professionals involved. This means that the content of each building block needs to be understandable by all parties involved.

CONCLUSION AND FURTHER RESEARCH

We started this paper by stating the need for meaningful, livable and supporting environments, especially for the so called vertical kids. Since we are interested in how to increase the 'spatial quality' of these vertical housing environments, we have suggested the use of a multidimensional framework of space (Jacobs, 2004) and subsequently explained our building blocks of spatial quality for analysis and intervention in a space.

In the next steps of our research, we plan to give these generic building blocks for spatial quality a more context-specific interpretation by conducting participatory research with children and teenagers living in vertical housing environments. By coding these conversations, we will further refine and adjust the building blocks, so they will become more applied to these types of environments and the children

and teenagers residing in them. We hope this applied framework of space and spatial quality can contribute to the meaningfulness, liveability and opportunities of vertical housing environments.

TABLES AND FIGURES

Table 1. Amount of families with children and teenagers in Flanders according to 2 different surveys

GWO 2013		Type of households		Total
		Households with children (-18)	Households without children	
Housing Type	Single family house	1 362	1 962	3 324
	Appartements (including service flats)	**284 (17,3% of total households with children)**	1 177	1 461
Total		1 646	3 139	4 785

Woonsurvey 2005		Type of households		Total
		Households with children (-18)	Households without children	
Housing Type	Single family house	1 959	2 360	4 319
	Appartements (including service flats)	**190 (8,8% of total households with children)**	633	823
Total		2 149	2 993	5 142

Note: due to the small numbers of respondents involved in these surveys, it is necessary to interpret these numbers with a margin of error of 8%. The tables were acquired on the 8th of May 2018, in an email exchange with a policy officer of the Flemish agency of housing – department of strategy and research.

Table 2. Amount of children per housing typologies in the city of Ghent

	Other	Buildings and flats with apartments	Commercial buildings	Row houses	Half-open houses	Single houses	Undefined	Total
Total	836	**8 556 (17%)**	2 124	26 060	6 497	5 414	43	49 530

Note: the original table contains information about each individual area in the city of Ghent, which is not included in this abbreviated version of the graph. This made it possible to calculate the percentage of children and teenagers in vertical housing the 19th century area of the city. The table was acquired on the 24th of April 2018, in an email exchange with an officer of the department data and information of the city of Ghent.

Figure 1. Space as mind-, matter- and powerscape

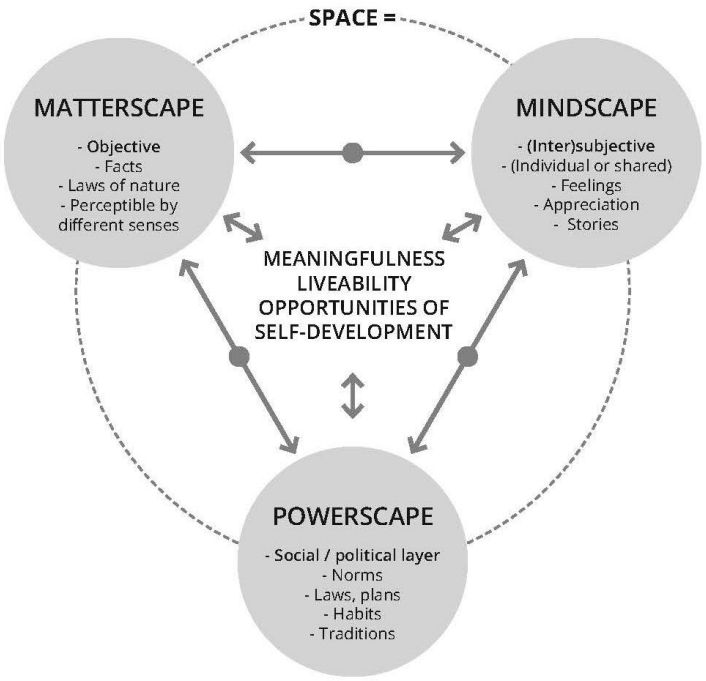
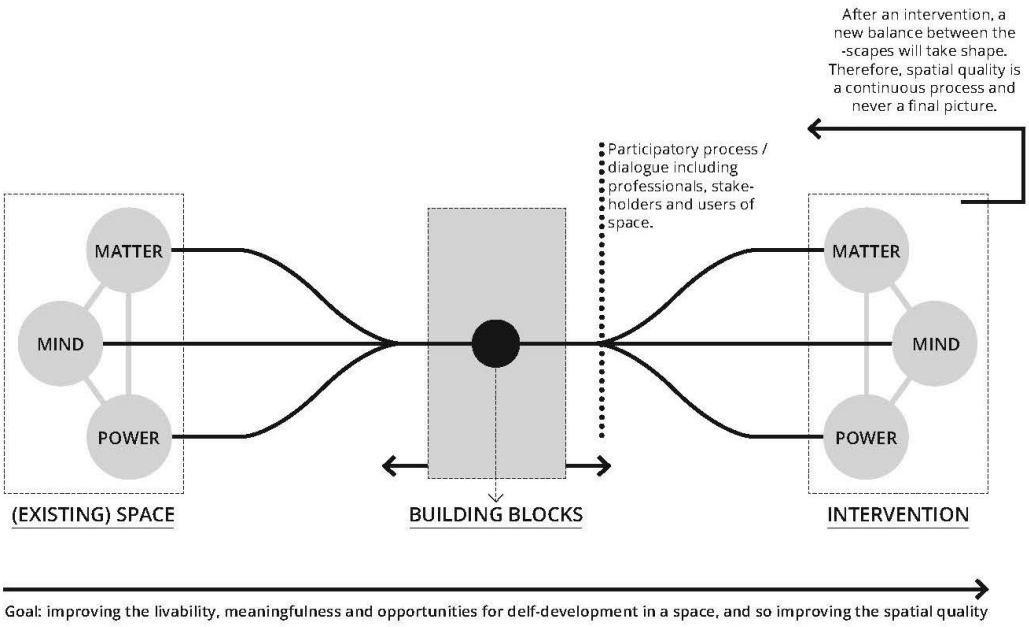


Figure 2. Building blocks as node, forum and tool for analysis and intervention in space



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