Quel impact de l'aménagement des quartiers sur les choix de modes de déplacement? Etude des pratiques des professionnels de l'urbain.

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Introduction and research objective

From the neighbourhood to the city, urban travels are part of everyday life (Ascher 1995; Glaeser 2012; UN Habitat 2013). Unfortunately, these daily mouvements also contribute gravely to global greenhouse gas-emissions (GHG-emissions), which are the primary source for global warming and the resulting climate changes (IPCC 2014). One approach towards limiting emissions are to reduce the travelled distances, and to increase the use of sustainable mobility modes[1] (Givoni and Banister 2013; Mees 2010; Tennøy 2012). Urban planning can be a means to achieve this, building on the reciprocal relationship between the built environment[2] and people's travel behaviour (Forsyth and Krizek 2010; Naess 2006; Tennøy 2012). Travel behaviour is defined as i) The distance covered and ii) The chosen travel mode. It is influenced by macro-level social factors as well as elements of the built environment (transportation system, urban structure, etc.) (Naess 2006). At the city level, distance from the residence to the city center seems to be the most important element with regards to travel behaviour (idem). At the neighbourhood level however, the situation becomes less clear and the individual preferences seemingly more important. With regards to walking and biking, for instance, the presence of sidewalks and elaborate bike infrastructure, appears to be more important for kids and the elderly then for adults (Forsyth and Krizek 2010; Saelens and Handy 2008). To promote sustainable mobility we need a more nuanced picture of the impact of the design of a neighbourhood on its inhabitants' choice of

[1]Per today the most sustainable mobility modes are walking, biking, and public transport that runs on zero- or low-emission fuels, and/or has a high level of occupancy.

[2] Here the built environment (in particular at the neighbourhood level) signifies the physical structures that surround the urban inhabitant such as streets, pavements, buildings, public plazas, the urban form, etc.

mobility modes. Recent years have seen an increase in the number of scientific studies on this topic, but much remains to uncover and new approaches are needed (Ewing and Handy 2009; Forsyth and Krizek 2010).

Exploring the practices of urban designers

This communication presents initial results from an ongoing thesis that explores the knowledge and insights of urban design professionals regarding the relationship between neighbourhood design and its inhabitants' use of different mobility modes. Jane Jacobs (1961) and Kevin Lynch (1960), in their highly influential works, demonstrated the importance of observing the city and its inhabitants in order to comprehend how people live in it, and move around in it. Urban designers are practitioners who do just so. Based on our impression of their practices, we hypothesize that i) The knowledge and experience of design practitioners represents a source of insight to and understanding of the described relationship, complimentary to the scientific knowledge, and ii) Combing the knowledge of practice and research can contribute to developing neighbourhoods that encourage and facilitate the use of sustainable mobility modes. The findings presented here stem from a series of design workshops held in Toulouse, France, that simulated a typical design situation. The participants worked on a proposal for a neighbourhood in Toulouse, and the design sessions were analyzed looking at how the designers considered and solved mobility. The results provide an initial insight into the designers' knowledge, and into their design principles, with regards to urban mobility. We conclude on future perspectives for the ongoing thesis.

Theoretical framework

An urban development project consists of several phases, from the initial command to the finished constructions. We here focus on the design phase, where the designer develops a proposal that should respond to the client's command (internal constraints), and to external elements such as the cultural or physical context (external constraints) (Lawson 2006). The designer's previous experience, various knowledge, and design principles influences how issues are perceived and prioritized, or which and how solutions and measures are considered (Kirkeby 2012; Lawson and Dorst 2009; Tennøy 2012). The designer's principles, or *governing principles* (Lawson 2006), are of particular interest in our context as they represent a designer's values and beliefs, experience and overall objectives. Lawson (2006) calls them the "intellectual

luggage" of the designer.

Methodology: Design workshops to observe 'in situ'

In the context of an ongoing research project, CapaCity, two design workshops were organized in in Toulouse, France, in May and June 2015. They were part of a series of consultations with urban practitioners, aiming to assess their design practices and design knowledge (Dubois et al. 2016). The design workshops had a total of 18 participants, and the main activity was a 'mise en scene' of a design situation. In groups of 3-4 the designers had 2,5 hours to produce a (relatively with respects to time) detailed project proposal for a refurbished neighbourhood, based on a simplified design command. Although a hypothetical design situation, the designers 'went all in', and confirmed the activity's resemblance to a real design process. Each group was filmed and recorded, and this was analyzed qualitatively looking at the applied solutions and the designers' discussions. A theoretical framework for analysis was established, based on decades of design research (Cross 1982; Darke 1979; Kirkeby 2012; Lawson 2013; Lawson 2006; Schön 1983; Skogheim 2007). For the thesis a similar approach was undertaken, but focusing on mobility. The aim was to explore how mobility is solved within an urban design project, its relation to other design issues, and how the designers consider and regard the reciprocal relationship between the built environment of a neighbourhood and its inhabitants' mobility behaviour.

Results

We first analyzed how the designers worked with and 'solved' mobility; looking primarily at the solutions and measured they considered and/or applied (Rynning 2016). Improving the life-context of a neighborhood's inhabitants is often the overall objective for an urban design professional (Tennøy 2012). We found that mobility measures and solutions were constantly considered with regards to this, for instance how the organization of major arteries would influence on the orientation of buildings and thus the dwellings. We also observed that mobility was evoked early in the process, providing an initial structure to the design, and that choices regarding mobility (e.g. how to organize it, modes to prioritize) tended to structure the project (Rynning 2016).

Secondly, we studied how the designers considered mobility with regards to qualitative aspects of a neighbourhood as the life-context of its inhabitants. To do so we explored the designers' governing principles (Lawson 2006) by studying their

discussions, as well as their voiced views and opinions. For the most part, the designers had similar observations. The site was described as “closed and isolated”, and its urban form “a patchwork, a collage with introvert lots” and with a “lack of permeability”. The big transportation arteries that border the site were said to reinforce the detachment from the surrounding neighbourhoods. This lack of connection to “its context, to the urban network”, was the “point noir” of the neighbourhood. Furthermore, the streets were described as without “value” (character), and without a proper urban façade. The limited number of people frequenting the streets and public places apparently contributed to a perception of insecurity. The professionals pronounced that combined, these elements would discourage circulation within and out of the neighbourhood, thereby eluding encounters and exchanges between inhabitants and with ‘external people’. According to some of the designers this isolation and lack of order could potentially be “a source for social problems”, reducing the sense of community and the social cohesion.

When discussing how to remedy such effects and consequences, the designers prescribed a need to create a “well-organized network”, with a high level of “porosity” or “permeability” (street connectivity), and with clearly defined public spaces (streets, public places, paths, etc.). They should be “at the human scale”[3] and have an identifiable purpose, which would give them a “proper character” and create an identity of space. This would provide an urban “system” that people “could assume”[4]. Such notions parallel the works of Gehl (2010) and Lynch (1960). The latter defined the term *imagibility* as the quality of a place that makes it distinct, recognizable, and memorable. Imagibility can for instance aid a person in finding their way in a city (Lynch 1960), or in this case in a neighbourhood. The features the designers described seem to create such imagibility, and would, according to the designers, increase the circulation within, out of, and towards the site (for instance crossing it to get to the metro). Thereby enabling encounters important for social interaction and structures, and for the (perceived) security of the site, creating a feeling of safety. The latter resonates with what Jacobs (1961) called the “eyes on the street”: having more people looking on to or being out in the public realm to increase its level of safety.

In sum, the designers aimed at creating a more structured and defined public space, in order to increase the level of mobility, which again could contribute to solve

[3] How the physical features of the built environment “match the propositions of humans”, as well as human speed of walk (Ewing and Handy 2009).

[4] Translation of the French term “s’approprier”, meaning that they can relate to it and understand it

issues such as social ones. This could in return lead to more circulation, in other words an iterative circle. It seems that mobility was seen as both a means and an objective. Interestingly the kind of mobility in question was primarily walking and biking, as the site was deemed to be of a walkable size with “no need for cars in the neighbourhood”. It might be then, that the positive effects of increased mobility the designers expressed here, corresponds to what they in general see as positive effects of more walking and biking at the neighborhood level. And that the features they aimed at creating, are characteristics – physical and qualitative – they see as necessary to encourage walking and biking.

Conclusion: Further perspectives

These observations provide an initial insight in to the relationship between the design of a neighbourhood and the use of various mobility modes, as seen by the urban design professional. The reciprocity of this relationship seems well understood by the designers, and well incorporated in to their practices. The designers’ motivation to increase mobility was to a very tittle degree related to sustainable development, but rather to improve the neighbourhood as a life-context. The observed measures to encourage and facilitate mobility modes such as walking and biking might therefore be design actions complimentary to previous findings from research. This is in line with our hypotheses regarding the insights and knowledge of urban practitioners. However, these preliminary results are just that, preliminary. Further examinations of the practices and knowledge of urban designers are needed, for instance to explore the effects of the qualitative features evoked by the designers on choice of mobility modes, or the effect of walking on the neighbourhood as a life-context.

A series of consultations with urban design professionals are therefore planned, through a survey and interviews. Collectively, these consultations might provide more insight in to their knowledge and principles regarding neighborhood design and mobility, but also in to their design practices. In a bigger context, the latter is important with regards to reinforcing and improving the dialogue between research and practice. In order to change people’s travel behaviour towards sustainable modes knowledge from the two must be combined. Hopefully, our investigations will contribute to making such effort easier and more efficient.

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