Dynamic Perspective:
The Media Research Program

Jack Breen

Delft University of Technology, The Netherlands

Abstract

The media research objectives at the Faculty of Architecture for the coming years have been brought together with an overall project: "Dynamic Perspective". The "dynamic" quality may be interpreted both as movement (visual displacement and registration) and as change (the effects of different options). The four projects which together make up this research program deal with perception (understanding) and conception (designing and imaging) of urban space: "the architecture of the city". Specific aspects are the effects of primary and secondary spatial boundaries and the systematic structuring of simulation of visual information. The program will further concentrate on the development and implementation of relevant techniques (besides "traditional" ones such as the drawing and the architectural model, on multimedia techniques such as endoscopy, computer visualization and development of virtual reality systems), both in education and in design practice. By means of analysis, the creation of visual models of choice and the setting up of experiments, the program aims at the furthering of theoretical knowledge and at acquiring better insights into the effects of design decisions at an urban level, both for designers and for other participants in the design process. Further development of existing laboratory facilities towards a comprehensive *Design Simulation Laboratory* is an important aspect of the program.

Introduction

This contribution focuses on the topic of *design simulation* using multimedia techniques, and in particular on the aspects that have to be taken into consideration when attempting to create visual images of architectural or urban concepts. This theme is explored in relation to the Delft Media research program entitled "Dynamic Perspective" and the research goals that have been set for the coming years within this program.

Design

Designing is to a very large extent an act of *composition* taking part simultaneously on different levels, concentrating for instance on functional, structural or aesthetic aspects. It may be viewed as a form of creative organizing. The different parts of a design and the respective solutions devised for these
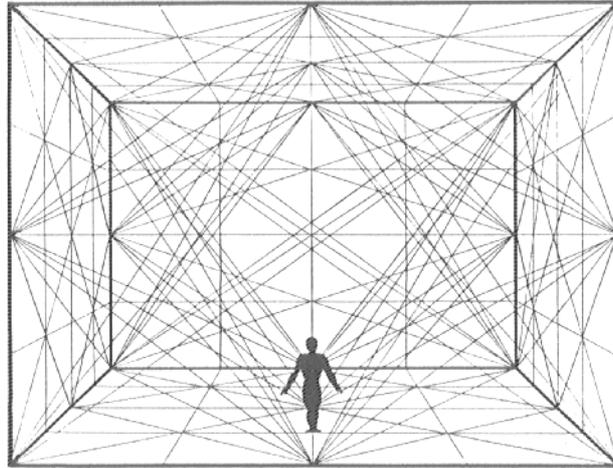
Fig. 1 Oskar Schlemmer: Figur und Raumlineatur (1924).

should not be considered as separate entities. A truly successful design is more than the sum of its parts but forms a synthesis. To quote Leon Battista Alberti paraphrasing Vitruvius [1]:

> "Beauty consists in a rational integration of proportion of all the parts of a building, in such a way that every part has its fixed size and shape, and nothing could be added or taken away without destroying the harmony of the whole."

The myth of design being a form of "devine inspiration" in which everything falls into place as if by magic and the artist only has to put everything on paper does not hold true. Designing is an often painstaking search comparable to hunting (in this case for the proper solution). Design is empirical in that it follows a path of trial and error in which intermediate design results are weighed in order to consider the merits of solutions and determine the further design strategy. Design is, however, not scientific in that there is not one "correct" outcome, but instead there are many possible solutions, each with specific advantages and disadvantages.

The media which are applied within this process of creation and evaluation are principally visual. Zeisel has called this activity *imaging* and has emphasized the iterative quality of the design progression, developing and specifying ideas. A process which he symbolizes as a spiralling line: moments of decisionmaking, reflecting on the results of the previous phase and anticipating the next [2]. I would argue that, when looking for ways to create insights which may benefit design development, it is important to focus on choice in design and composition [3]. Rather than concentrating on the end product of design, it is necessary to find ways of discerning and visualizing different design options, which may be weighed, selected or jettisoned and subsequently, refined step by step towards an integral design. H.P. Berlage, architect and urban designer, stated in 1908 that [4]:

> "The aim of our creations is the art of space, the essence of architecture"

Space in this context is not endless, undefined space, but space which is shaped and defined by boundaries. It may be relevant to consider spatial experience not so much in terms of time and (infinite) space but as the appreciation of place. In the words of Aldo van Eyck: the experience of "place and occasion" [5].

Architectural elements such as floors, walls, roofs (and on an urban scale buildings) and their respective sizes, shapes and relative proportions are primary determining factors shaping our perception of built environments. These primary aspects, however, make up only part of the story as far as the
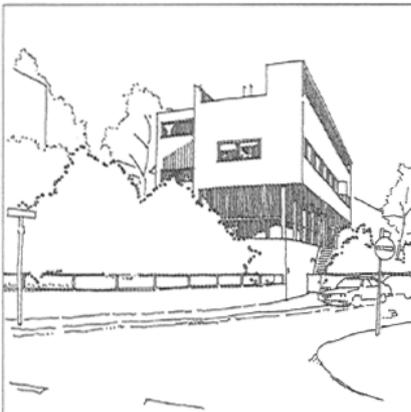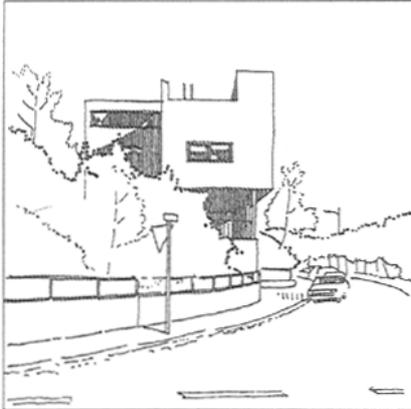
Fig. 2 Three views of one of Le Corbusiers' designs for the Weissenhofsiedlung,

experience of our surroundings is concerned. There is an immense range of factors which color our visual impressions. Although they may be viewed as secondary from the viewpoint of the designer they are probably experienced more acutely than the underlying primary spatial concept, which organizes the design. Our perception is dynamic (illustrated by the sequence of Le Corbusiers' Weissenhof design) and is also selective in the way in which we absorb spatial impressions. Some elements will stand out more prominently in our mind than others (as everyone knows who has at some point taken a photographic picture which when printed showed visual information which was not noticed at the time).

One could say that the impression of space is primarily influenced by the size, shape and proportions of the elements. This goes for the objects themselves (on an urban scale generally buildings) but also for that which is between: the resulting space. It is obvious that this only a small part of what we perceive. If we attempt to simulate designs for new or altered environments, the dynamic quality of perception and the influence of both primary and secondary spatial factors has to be taken into consideration. A good example of the secondary aspects which influence our appreciation of urban ensembles is the absence or presence of trees and the way in which these can create a spatial *sub-scale* within a larger ensemble, f.i. illustrated by the Place des Vosges, Paris. In the same way in which the *feel* of a place is altered by elements situated within its contours (furniture in an interior, trees and other elements in a cityscape) the make up of the objects themselves influences our experience.

An important factor is the articulation of building façades. A building can take on a completely different appearance when the planes of its basic volume (or the sub-volumes which make up the whole) are articulated in different ways. How an architectural *gestalt* is perceived depends largely on the graphic and plastic treatment of its façades [6]. Façades are compositions in themselves, but should be developed together with the other parts of the built environment with which they interact. The underlying arrangement of façades often consists of a pattern, which may be regular (grids, repetitions of openings, horizontal or vertical bands etc.) or irregular (accentuating specific features or creating compositional tension). The resulting impression of wholeness and contrast, is shaped by the choices made by the designer [7]. Of course, façades and other features which form the characteristic boundaries of designed environments, consist of more than just patterns and lines. Differences in plasticity, in color and texture for instance will alter the visual impact of a building dramatically.
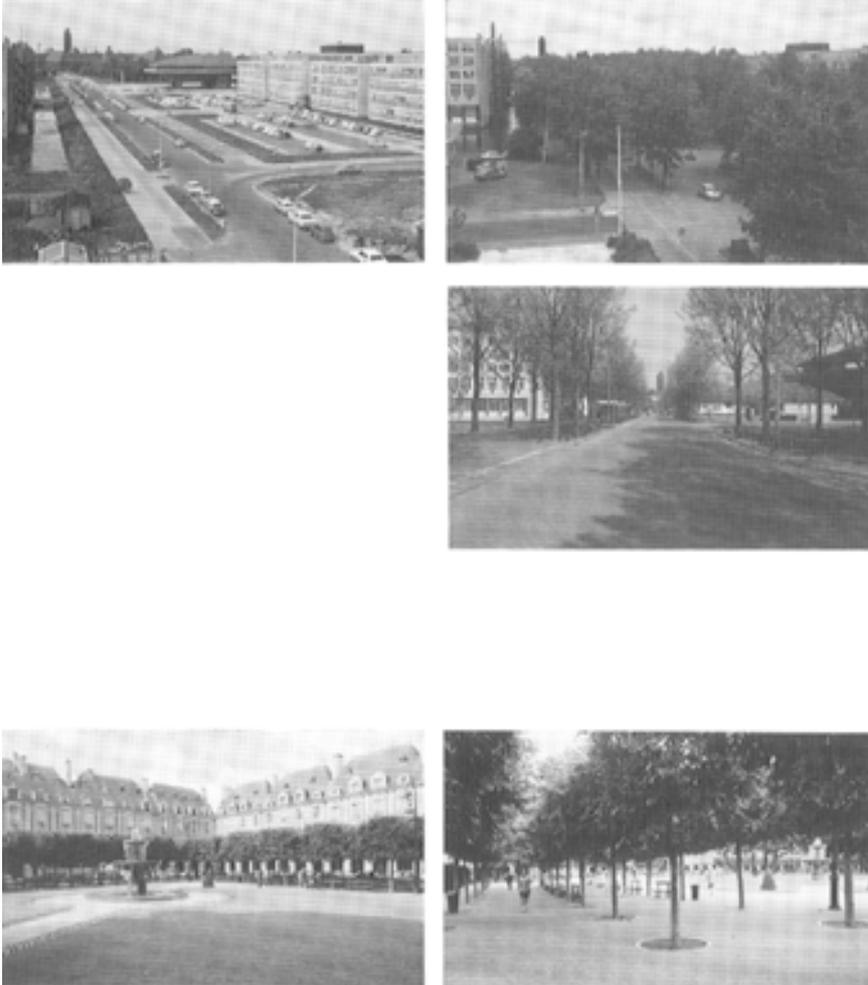
Fig. 3 The influence of trees as secondary elements: the
TU Delft in the 1960's and 1990's and Place des Vosges.

Structuring Visual Information

In the same way that perception is selective - certain information getting prominent attention and other information being taken more or less for granted or even ignored until it catches our attention - so the activity of imaging is selective. A designer shifts his or her attention, discerning what is important for the progression of the design and focuses on it. Other actors in the design process generally are not as concerned with specific (problematic) details as the designer, but need to acquire an overall impression of where the design is going. Such non-professional participants expect the visual information to be realistic. The object presented is, however not yet finished, not all is known. How much or how little should be shown to such participants for them to understand the design at its current state? There is a tension between the abstraction in the images used by the designer and the reliability expected by the involved parties. The sketch is an instrument of design reflection, the content can be changed quickly (interactively) while an image for presentation in the design process, though an intermediate result, may seem more definite than it really is, leading to misunderstandings.

Urban concepts are notoriously difficult to communicate. They are essentially frameworks which allow the architects creating the specific buildings in the next step a certain amount of freedom. However, models which offer no information about architectural scale and secondary articulation are insufficient as instruments for interdisciplinary discussion. It may therefore be worthwhile to devise a structure of elementary visual types which can be used in the simulation of urban projects. Although the final image cannot be shown, the intentions of the design and the implications of different design options that are still open might be better understood and debated. Structuring visual information for this aim makes it necessary to classify, using a system of typological characteristics. One of the most effective structuring devices is traditionally the architectural style. The Renaissance fell back on the classic architecture of the Romans and Greeks, leading to a set of stylistic rules. Modern architecture never really produced a *style* in this sense and the *postmodern* movement has not created a renaissance of stylistic clarity, on the contrary. The present design practice is fastmoving and pluriform and recognizes no universally accepted style, no set of rules.

The Media Program

The research program of the Media sector at Delft University of Technology will in the coming years concentrate on urban concepts: "The Architecture of the City" and on the ways in which the consequences of varying design decisions may be understood and simulated. One of the ambitions of this

Fig. 4 Variations on the basis of Ludwig Wittgenstein's house (Vienna, 1929).

program is the development of an interactive expert system which could create better insights into urban design concepts, before the *decision to build* has been made. Dynamism in terms of motion and change - both in perception and in the process of design - is a central, binding theme. In this phase the different projects focus on a number of items such as:

- analysis of the effects of landscaping concepts in modern urban designs, in particular the influence of planned natural elements;

- further understanding of the (spatial) perception of designed, urban surroundings and the relationships between perception, design imaging and simulation;

- developing technologies and possible implementations which may lead to the creation of interactive, virtual environments.

The results of these projects should contribute to the evolvement of an instrument for urban design simulation, either on a technological level or as a contribution to the planned project database. Departing from relatively elementary, basic types the database should, for instance allow the user to interactively select a variety of specific façade patterns and possibly incorporate color, aspects of textural and/or material expression plus certain (meaningful) details. This research is primarily concerned with the interface between architectural and urban design and might in future be of benefit for the design practice and for education in these fields.

References

[1]   Wittkower, R. *Architectural Principles in the Age of Humanism.* Tiranti, 1952, p. 6.
[2]   Zeisel, J. *Inquiry by Design: Tools for Environment - Behaviour Research.* Cambridge: Cambridge University Press, 1984.
[3]   Breen, Jack. *The Concept of Choice in Learning and Teaching Composition.* Proceedings ACSA 1995 European Conference, Washington.
[4]   H.P. Berlage quoted in: Cornelis van der Ven, *Space in Architecture*, Assen: van Gorkum, 1978.
[5]   A.E. van Eyck quoted in: Strauven Francis. *Aldo van Eyck, relativiteit en verbeelding.* Amsterdam: Meulenhof, 1994. In the German language the word for space is "Raum", corresponding to "room".
[6]   Prak, Niels L. *The Visual Perception of the Built Environment.* Delft: Delft University Press, 1977.
[7]   The effects of different hypothetical design choices are illustrated by variations on the Vienna Kundmanngasse house, inspired by Wijdeveld, P. *Ludwig Wittgenstein*, London: Thames & Hudson, 1993.