Designing Design Communication

Considering the conditions, effects and opportunities for imaginative visual representation modes in architectural study initiatives

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Abstract. This contribution is intended to explore and discuss the impacts and potentials of different modes of visual communication in architecture by considering it as an issue of *design*.

How we communicate different kinds of formal conceptions and findings has a profound impact upon *own* understanding as well as that of the other involved parties we may be addressing.

To illustrate and illuminate the shifting opportunities for imaginative visualisation in the context of practice, education and research the paper identifies four case studies. Each of these is considered to be exemplary of a Thesis, which is considered briefly in a Discussion section in order to underline the 'design' aspects of design-based communication.

Keywords. Design communication; information design; digital and physical modelling; design driven enquiry; case studies.

Design communication

As the many-faceted discipline of architecture involves the – projective and/or reflective – scrutiny and investigation of *spatial* concepts and structures that are not easily captured and conveyed imaginatively with words, designers and scholars of architecture are inclined to resort to *visual* modes of communication.

Design-based *imaging* (Zeissel, 1984) tends to stimulate the sharing of information, offering different 'actors' in the design or research process conditioned *insights* into the subject matter, thereby triggering individual and collective understandings. Such design 'visions' tend to stimulate intellectual and/or emotional responses and lead to targeted (re)actions, which in turn may influence and even *alter* the composition or conception of the architectural entity under consideration.

This implicit bias towards visual modes of expression is characteristic of architectural Practice and arguably also increasingly design-driven Research, but perhaps most significantly: the 'in-between realm' of design Education.

The representational instrument that frequently tends to be regarded as prominent is the architectural Drawing, which is sometimes even attributed an almost mythical status. Another 'leading medium' is undoubtedly the architectural Model, which in particular ways can be perceptually even more appealing than the drawing.

In recent years the traditional distinction between these two fundamental 'means of communication' has become blurred, with the evolvement and influx of various 'crossover media'. Such design communication devices increasingly incorporate attributes of the model *as well* as the drawing, whereby the emphasis may shift from the picturesque to the symbolic, from the analytical to the conceptual.

In this light the design 'medium' ought not to be considered merely as a message(r) of content: design media have increasingly become the 'matter' of designing. Through the active utilisation of such media mental constructions can be made 'tangible' to such an extent that they may be understood and explored relatively systematically.

As such, design media deserve to be recognised as an intrinsic condition of the *method* of design driven enquiry, whether for the benefit of generating 'form' or for a better understanding of the *workings* of design artefacts and the underlying operations.

Designing design communication

Choosing the proper (combinations of) visual communication format(s) has arguably become an essential aspect of contemporary architectural enterprise. Thereby the communication medium should not to be considered as a 'given', but rather as an intrinsic issue, worthy of concerted evaluation and selection, modification and targeted application within the context of the initiative as a whole. The medium as a *fundamental* condition of design communication: comparable to the evolvement of methodological 'design' for an empirical, scientific experiment.

Clearly, it is a matter of 'designing' not only the architectural object, but also the *means* of (design) communication. Thereby it is worth considering that the selection and application of media not only influences the 'output' of a process, in the sense of communicating its 'results', but that this has a significant effect upon the *outcomes* themselves and the forms they take!

In order to address the conditions, effects and particularly opportunities of the 'means and methods' of architectural communication – proven, emerging and potential – some case studies, carried out in an educational study environment, are considered.

Four cases have been selected as references. Each of these 'specimens' of communication design is introduced by a thesis and subsequently considered in a brief discussion section. The case studies:

Case A: Faculty model developments;
Case B: Architectural variation studies;
Case C: Design presentation education;
Case D: Architectural model exhibition.

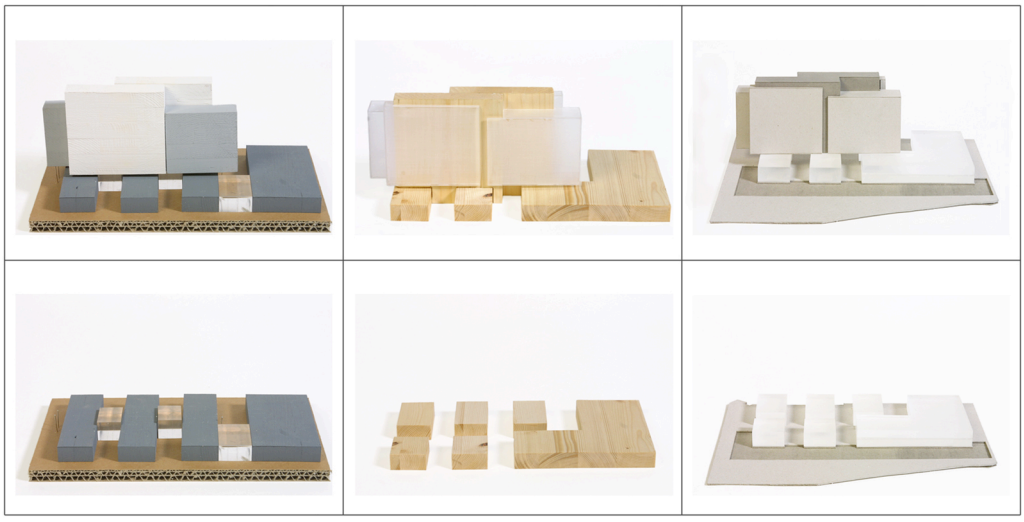

Figure 1
Study models of the former Faculty of Architecture building of the TU Delft showing different interpretations of the overall architectural form.

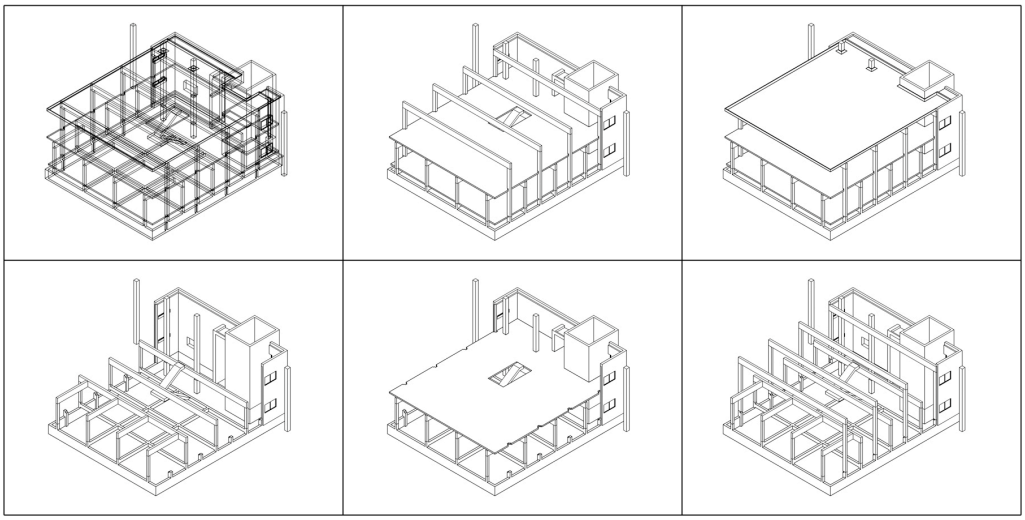

Figure 2
Analytical computer model studies of the expressive load-bearing structure of one of the lower wings of the former Architecture faculty building of the TU Delft.

Case A: Faculty model developments

Thesis:

Focused, imaginative visualisation study of design artefacts contributes to a greater understanding of the object at hand, but also *how* such understandings may be generated and communicated.

Discussion:

Each design process is – by necessity – also a *communication* process. The design does not 'come about' spontaneously, it is the subject of iterative cycles of development, evaluation, refinement, detailing, documentation, alteration, collaboration, assessment, calculation, planning and eventually *realisation* (to name but a few of the issues involved). Each step of a design process has its own kinds of, steadily shifting, communicational requirements.

Once a building or built environment is completed, the results may be communicated further by using a variety of means such as photographs, drawings, models and texts. In addition a design artefact – built or not – may become the subject of further targeted study in the context of design research and/or education. In the context of such study initiatives, original design documents as well as newly produced visual material may be made instrumental in order to shed a light on a project's compositional qualities and indeed *meaning*…

In addition, such studies may yield information concerning the applied formats of design-based communication, past and present. One such project, which became the subject of extensive design-based enquiry, was the former Architectural faculty building of the TU Delft.

A 'model' faculty in the way it could be 'read' as a demonstration of the state of the architecture of its era and as a learning environment for the architectural engineers of the future. The building had a relatively long history of development (the first designs dated from the mid-fifties, the final design was eventually completed in 1970), as a dynamic functional existence (as a politically charged social- and working environment for generations of students, tutors and researchers). Eventually it had a tragic ending (gutted in an extensive fire and subsequently demolished in 2008). Through the years, the fourteen-storey landmark became an icon of the 'Brutalist' era

and particularly the architectural office of van den Broek and Bakema (Ibelings, 2000), but it also proved to be a valuable 'casus' for composition- and information studies.

In an educational context the building initially played a meaningful part in an experimental, design-driven exercise initiated by the faculty's Form Studies section: the TU Variations project. This project was conceived a 'game' situation, whereby groups of students analysed four major TU Delft faculty buildings and were then asked to come up with strategic proposals towards improving the existing campus configuration. The material which was uncovered concerning the architectural faculty subsequently became the basis of a study that became the central section of an education-based publication (Breen, 2002) and was developed further into an introductory lecture, focusing upon the building's organisation and formal composition, but particularly on the ways in which the (inter)active use of different design *media* may be utilised in order to offer insights into such matters.

The Delft faculty of Architecture building studies may be considered relevant as a design *communication* casus, as it offers insights into the way architectural modes of expression have dramatically changed through the years, as is demonstrated by the architectural drawings and models of the fifties and sixties, the education-based study initiatives of recent years and the hundreds of recent competition proposals for a wholly *new* faculty of architecture.

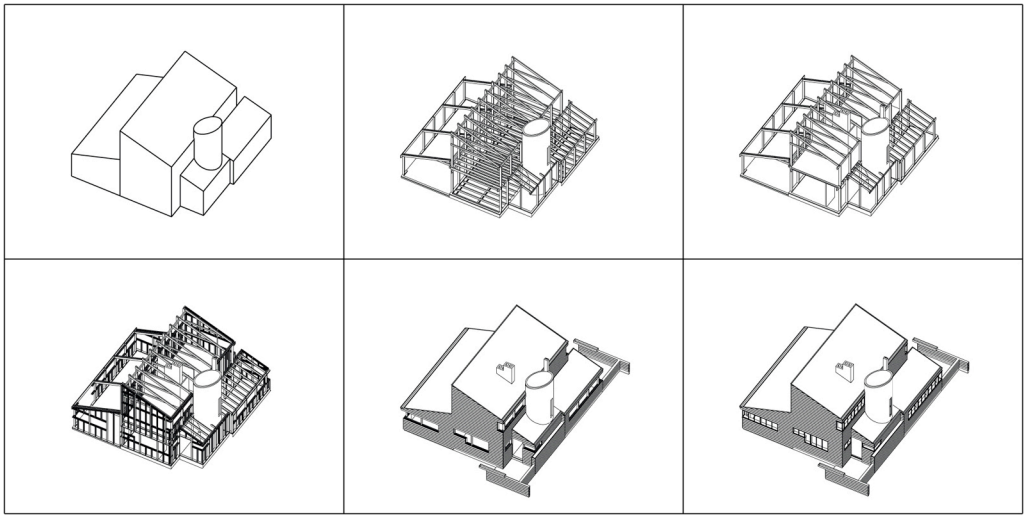

Figure 3
Analytical computer model studies of one of the AA Variations project artefacts: the iconic market gardeners' home by Functionalist architects Duiker and Bijvoet of 1924.

Case B: Architectural variation studies

Thesis:

Architectural modelling – virtual as well as physical – is an essential and steadily developing instrumental mode for the study and perception concerning the *workings* of architectural compositions.

Discussion:

Aesthetic paradigms in architecture tend to be closely linked to *cultural* and *technical* conditions of building. Although the complex networks of design considerations that underscore a building's development from 'scratch' to buildable concept are often characterized as an impenetrable 'black box' it is worthwhile – and *educational* – to

study what kinds of formal issues make a building 'tick' systematically on a compositional and perceptual level. One worthwhile approach is to carry out comparative analyses by varying particular attributes of a design. Such 'designerly' (Archer, 1981; Breen, 2005) approaches are explored in the ongoing AA Variations study cycle.

The design artefacts forming the basis of the AA Variations study are all to be found within one Dutch market gardening community. The project as a whole encompasses the compositional study of some 10 freestanding buildings in the municipality, spanning a period of over a century. These projects were selected for the AA case-study programme on the basis of their varying architectural qualities, more or less as representatives of different architectural 'styles'.

In this project students and research assistants were stimulated to unravel the compositional issues of a collection of design artefacts using 'designerly' modes of enquiry. In such an undertaking, the utilisation of (combinations of) media techniques ought to be considered as an indispensable attribute of the research methodology.

The active 'design like' approach proved worthwhile in the exploration of the kinds of compositional features and themes that figure prominently in architectural design and perception. Apart from physical modelling (increasingly involving computer-aided production techniques), the integration of – more and more 'tangible' – computer aided 'sketch' modelling techniques proved to be a particularly useful instrument for systematic exploration and imaginative communication.

Essentially, such an approach involves iterative cycles of de-composing and re-composing the project at hand. In this context one of the most indispensable qualities of these kinds of modelling software is the ability to 'construct' the model in different *layers* which can be (de)activated at will, offering different 'views' of the object which can then be compared systematically and sequenced for the benefit of presentation and evaluation. An important asset of such – new generation – modes of 3D modelling software is the directness and intuitive sensibility, comparable to 'traditional' techniques, such as free hand sketching. Working within the 'environment' of the computer, yet with the possibility of appealing – line – *drawings* as output.

Again it is the modus operandi of study – the visual communication instruments of various types of *models* – that may be considered to be fundamental to the kinds of intellectual findings, which the project has so far brought forth.

Case C: Design presentation education

Thesis:

In architectural education, it is not merely a matter of generating knowledge, insights and skills in the subject of architecture as such, but also the *communication* of design conceptions as a creative process.

Discussion:

It is frequently postulated that a bad design cannot be improved by a good, even by a 'great' *presentation*. However, it is arguably just as true that a truly good design's reception may be seriously handicapped by an inadequate presentation. This is not only the case in design practice, but also in education and research.

Clearly, it is of eminent importance that students of architectural design become acquainted with various aspects of design-based communication. Indeed there is much to be said for the claim that they will need to become *experts* in this field if they want their intentions and findings to come across properly. This underlying thought has shaped an ongoing design *presentation* course, which has been offered – and steadily developed and fine-tuned – over a period of some ten years.

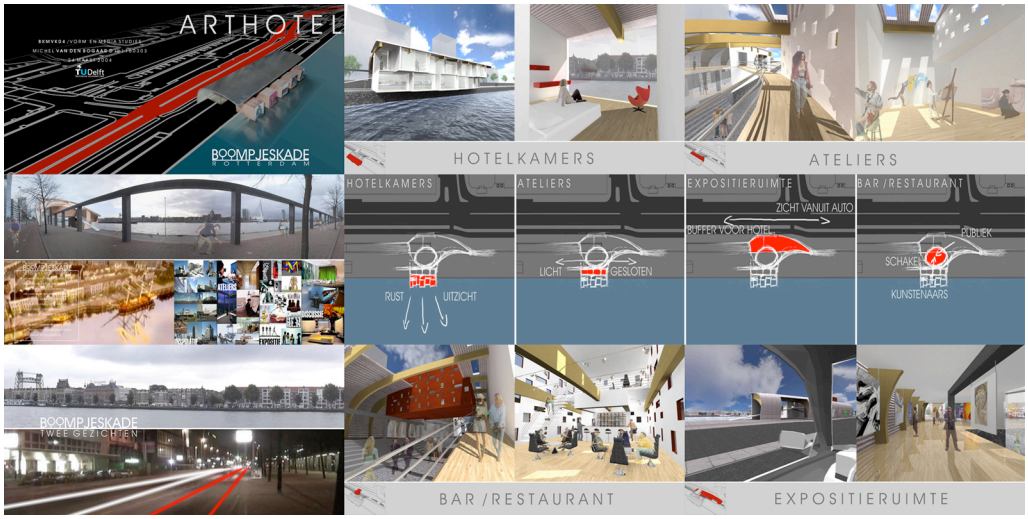

Figure 4
Collage of presentation images from one of many AR0040 Form and Media Studies student presentations.

One of the interesting things about this international presentation course (dubbed the 'D11' module), in which students work steadily for two months on a presentation of a design they have made *previously*, has been to recognize how much the modes of expression and communication have shifted over a decennium. Whereas originally the slide/overhead presentation tended to be pre-eminent, this was position was subsequently taken over by PowerPoint and digital film montage platforms. Whilst computer images were initially still somewhat of a novelty, computer renderings using texture mapping soon became the norm. Uninterrupted animated image sequences were initially considered to be compelling, these have steadily been replaced by more intelligent 'filmic' image sequencing, for instance using stills enhanced by 'post production' image manipulation. Recently there has been a renewed interest in more tangible, 'individual' modes of expression such as sketch drawings, collages and conceptual modelling. What is interesting that different media are increasingly used in conjunction, a culture of playful 'multi-media' communication whereby the initial fascination for 'seductive' imagery has increasingly become replaced by more emphasis upon intellectual *content*, rather than (re)presentation for its own sake.

Perhaps the most pertinent aspect of the ongoing D11 experience has however been to discover that by letting students focus on the 'design' their presentation, they tend to become much more aware of the actual *qualities* of their design and thereby considerably more *eloquent* in expressing the conceptual and compositional aspects of thereof to a group of professionals using *combinations* of media techniques.

Case D: Architectural model exhibition

Thesis:

Sharing insights and understandings concerning architectural artefacts in the broadest sense – such as in exhibitions and publications – requires an *imaginative* approach to design communication.

Discussion:

A good model is not only a thing of beauty, but also an important instrument for the generation of insights and understandings, particularly in a 'non-verbal' discipline, such as architecture. Models have always played an important role in architectural education and are arguably still acquiring more 'dimensions'.

Figure 5
Panorama images of the extensive Models exhibition, end of 2005, at the former Architecture faculty building of the TU Delft.

When considering the capacities of 'models in architecture', one might be inclined to think primarily of traditional, physical *scale* models. However, in recent years we have witnessed a steady expansion of modelling applications such as: information models; virtual environment models; ecological models, building process models as well as imaginative structural models.

Whereas (costly and time-consuming) physical models tended to be reserved primarily for the presentation 'finished' design products, they have increasingly become an essential part of the actual design development and testing process. This development was given an important impulse by the steady influx of computer-based applications. Early computer modelling applications tended to have inherent shortcomings on a perceptual level due to the 'flatness' of the screen/keyboard interface (an effect which was not truly redressed by the promises of 'immersive' VR). However, recent applications offer more perceptual 'tangibility'. This is particularly the case with improved computer aided manufacturing techniques, such as 2D laser techniques, 2,5D milling and 3D printing. Such applications have created important new opportunities for imaginative modelling with spatial, physical output. In addition, such modelling and manufacturing techniques have stimulated new kinds of formal explorations, which would have been inconceivable a few years ago, such as our experimental 'Ornamatics' exercise cycle (Breen, Stellingwerff, 2005).

On the basis of studies of architectural artefacts (notably dwellings) in an educational setting we have over the last years been able to 'reconstruct' a number of historically meaningful design artefacts for research purposes, thereby building up an extensive collection of architectural models. This collection became the basis of a concise models exhibition in the context of our faculty-wide Models in Architecture research incentive (Breen, Nottrot, Stellingwerff, 2007).

One of the things this Models exhibition enterprise made clear was to which extent such a modelling approach needs to be considered as a 'design' issue, if it is to succeed. First of all, the exhibition itself is a matter of design, creating spatial order and structure, thematic clustering and a spatial and material 'personality'. Also, if the collection is not just to be experienced as an incomparable 'overkill' of form, there need to be pre-conceived constraints and strategies for the exhibited material to be *comparable* and as such: *understandable* to various individual members of the public at large. This too is a meaningful – and not to be underestimated – aspect of the

'designed' communication modes underpinning academically ambitious undertakings such as the Models in Architecture project.

Design communication perspectives

The intention of this Communicating (by) Design contribution is to stress the need for the advancement and study of design communication modes in practice, education and research. The four case studies presented and discussed here as 'circumstantial evidence' to support the claim that design communication in architecture should actually be considered as a *design* issue.

These four case studies, each in their own way, are used to state the 'case' of design communication as a design issue. A brief summary of the case studies from our own academics experience:

Case A: Faculty model developments: design communication as a condition for bringing across understanding and as a subject in its own right;
Case B: Architectural variation studies: design communication considered as a methodological condition of 'design-driven' formal studies;
Case C: Design presentation education: design communication as a basis for the design-driven generation of insights as well as presentation;
Case D: Architectural model exhibition: design communication as a condition for exhibition and necessarily as a creative process.

Naturally, these are but four – relatively specific – 'samples' of explorative design communication approaches and their potentials for intellectual and professional enquiry. Various other such cases might be considered in order to shed a different kind of light on the perspectives of communication by design and design by communication. It would be interesting to not only continue practicing and teaching design communication in our different institutes as a 'given', but to pool our insights and resources for the benefit of the further advancement, consideration and improved understanding of the 'designerly' aspects of design communication…

References

Archer, Bruce, 1981: A View of the Nature of Design Research: in: Design : Science : Method, Proceedings of the 1980 Design Research Society Conference, IPC Science and Technology Press, London. Note: in this paper, Archer introduced the concept of 'designerly' enquiry.

Breen, J.L.H., 2002: De Wand, Publicatiebureau Bouwkunde, TU Delft, Delft. Note: In this Dutch language publication an extensive appraisal of the faculty buildings as a composition was given, as well as of the TU Variations study in an educational context.

Breen, J.L.H., 2005: Design, Designerly Enquiry and Design Research, in: Achten, Dorst, Stappers, de Vries, (eds.): Design Reserch in the Netherlands, Eindhoven University Press, Eindhoven.

Breen, J.L.H., M.C. Stellingwerff, 2005: Towards Ornamatics, in: The Quest for New Paradigms, 23rd eCAADe Conference Proceedings, Lisbon. Note: this was the first article outlining the ambitions of the Ornamatics project, which was followed by articles with findings and conclusions and results in the 2007 and 2008 eCAADe Conference Proceedings.

Breen, J.L.H., R.J. Nottrot, M.C. Stellingwerff, 2007: The Models in Architecture Exhibition, in: Henco Bekkering et al (eds.): The Architecture Annual 2005-2006, Delft University of Technology, 010 Publishers, Rotterdam.

Ibelings, H., 2000: Van den Broek en Bakema 1948 – 1988: architectuur en stedebouw: de functie van de vorm, NAi Publishers, Rotterdam. Note: to this day this Dutch language publication remains the only available retrospective of the extensive and influential oeuve of van den Broek and Bakema.

Ziessel, J., 1984: Inquiry by Design: Tools for Environment – Behavior Research, Cambridge University Press, Cambridge. Note: in this publication introduced the concept of Imaging in design and research.