



Delft University of Technology

## Introduction

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# 1 INTRODUCTION

TAEKE DE JONG  
THEO VAN DER VOORDT

This methodological book describes eight forms of study as they relate to design:

- Naming and describing;
- Design research and typology;
- Evaluating;
- Modelling;
- Programming and optimising;
- Technical study;
- Design study;
- Study by design.

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These eight sections are the spine of the work. Its compartmentalisation is based on the work of two Methodology Committees of the Faculty of Architecture at the Technical University of Delft (in 1990 and in 2000 AD) and establishes, in this sense, the list of the methodological end-terms of the education. The sequencing of the sections and the chapters within them is showing a certain space for conditioning. Design research, for instance, is impossible without a description of the designs to be studied; in its turn describing study pre-supposes that the components and concepts in these designs can be named and retrieved (naming).

## 1.1 OBJECTIVE

The book contains suggestions for making project and study proposals as well as for the scientific design and study work itself. That will always be an inter-play of several methods, systematically explained here. The possibility to refer to this book makes the methodical founding of new study projects operational, transparent and accessible. The book addresses scholars, teachers and students. The scientific ambition and the comments on these forms of design related study have been worded additionally in the following Chapter 'Criteria for Scientific Study and Design' (see page 15).

Each of the eight sections comprises several Chapters, written by some fifty authors of one and the same Faculty in a vocabulary and idiom that is already, for that reason, a common one to a certain degree. A cluster of Chapters is always preceded by an introduction to the section as a whole. These introductions establish together a systematic survey which is not repeated in the present introduction. The reader may start with it and get an idea of the multi-faceted content while leafing through. The book may be considered as a systematically structured encyclopaedia for design related study on the field of architectural, urban and technical design.

Next to this systematic approach the book attains a kind of completeness with some six hundred references to literature on the subject. An effort was made to highlight contradictory and complementary views on design and study in this domain and their contrasts. It is precisely by this that one totality emerges. It is difficult to give, within one book, the floor to people who consider themselves to be in conflict with others. Usually different opinions are published in separate books.

Although two potential authors refused co-operation on these grounds, the power of the book is that it is giving access to different opinions. However, that aspect also created a size that may be rather daunting at first sight. For that reason a lot of attention was given to ease of access and use. By way of cross-references authors are pointing to one another and readers may investigate different opinions or perspectives on the same subject. The book is equipped with some five hundred illustrations, most of them especially drawn, facilitating searching by paging through.

The table of contents of the book as a whole, its detailing at the start of each section and at the start of each Chapter provide a detailed systematic gate of access. The Index (page 531) is an unusually extensive, alphabetical entry to some 10.000 names and terms referring to the first or most important page where the key-word is explained or mentioned in a context relevant to its significance. This Index is not restricted to names and nouns. Adjectives and verbs in various guises have been admitted as well; even parts of sentences. For the technical sciences of designing and making especially, verbs cannot be avoided. This Index provides the book with a source facilitating the methodology and terminology of the empirical and designing study itself as an object of study and debate: 'What does 'typology' mean, according to Leupen, to Van Duin, to Breen?' However, first of all it is functioning as a vocabulary for the first objective of the present book: the facilitating of working scientifically and of cooperating.

Scientific study is facing the task to unmask tacit pre-suppositions in order to make deliberate choices or to lift the blockade of designing. In its turn, it is the scientific task of designing to create from there new possibilities and conceptual spaces; and to initiate therewith renewed study. If this book contributes to broadening the horizon of the true 'Universitas', its second objective has been reached.

This provides the link to its third and final objective: facilitating such a productive cycle between studying and designing: study by design. How are we getting, at the same time, the components as well as the composition as a whole in motion, the objects as well as their context, the means as well as the objective? With this we are not throwing light on one or both, but on their relation. If we just vary the context in order to generalise types that may be employed anywhere (typological research), we are not making as yet a design that can be realised, although the type itself may be the object of study. If we are varying just the object in order to generate the right fit in a given context (design study), we only find incidental solutions, although we may document, analyse and generalise them (design research). If we continue to limp on both thoughts, we are on our way, but not yet at our destination. Also with this book that destination has not yet been attained, but the ingredients are ready. 'Anchors aweigh': there is a chart and there is a rudder.

## 1.2 PROBLEM

As a whole the book embodies a classical empirical problem formulation: a hypothesis; and it facilitates the oldest method to operate at the frontiers of science: fair debate. They are addressed in the following.

If design is left to creative powers and does not need to comply with scientific criteria, each and every university design education lacks its right to exist. The Faculty's Methodology Committee and the editors of this book state as a central hypothesis, that a form of scientifically based designing exists, transferable to education and not exclusively based on empirical or logical knowledge. It is the duty of technical universities to lay the foundations for this. If they do not appear to be able to do this, the assumption that design courses are not at home in the university is as justifiable as the certitude that they do belong there.

The implicit question is: Are the current logical-empirical methods and research techniques generally accepted everywhere in the university world, satisfactory for study by design, the production of a design or design variants and the studying of the effects? Priemus answers this question in this book in the affirmative (see page 249) and offers a null-hypothesis:

*'For many decades a generally accepted research methodology, for behavioural sciences and for technical sciences has been in existence, which has been taught in scientific education faculties and institutions for many decades. In all those educational programmes the letters M&T form a permanent part of the foundation courses; research methods and techniques are part of the standard equipment of every student, and certainly of every graduate.'*

The Architecture Faculty of the TU Delft, in the year 2000, is pursuing a personal methodology for architecture, in other words: its very own design methodology. Up until now this did not take place using knowledge of and reference to the classic research methodology from other faculties, nor jointly with faculties in other countries where architecture is also being taught and design skills are adopted, nor jointly with other TUD- (sub) faculties where construction (CiTG) and/or designing (IO) is central, nor even jointly with their sister- Architecture Faculty of the TUE.

Is this sensible? No. Is this effective? No. Are there good reasons for such a self-containing eccentric approach? No.'

The international character of the Faculty from which this book originates belies the isolationism suggested by Priemus. However, the dividing line is genuine and international. It runs straight through the Faculties, albeit with extensive boundaries. Therefore, there is sufficient reason to study primarily its polarity in that diverse tension area. The criticism that the world of designers takes no interest in accepted scientific business is being taken seriously here.

Equal amounts of attention are paid to the empirical-scientific methods, of importance for architectural designing, and to authors firmly convinced that these methods are insufficient to learn designing. Some people even think that such methods can impede the design thought and that, maybe, new scientific opportunities can, and must, be developed. The onus lies with them to prove this. However, in order to do this, they must be able to understand empiricists and their methods. The antithesis is required in order to be conclusive. This is a purpose of this book. Methodology means understanding and valuing each other's methods. New scientific possibilities do not necessarily contradict empirical research; they can also be complementary, or place empirical research in a broader context.

### 1.3 FAIR DEBATE

Fair debate is founded on a division of responsibilities between *proponent* and *opponent*. This division prevents a case where two propositions are substantiated in turn without any empathising with, and intervention into, the other person's proposition. This substantiation may seem like an attack on the other proposition, but, in essence, it is not (consider the 'talking at cross-purposes' we see in our television debates). The division of tasks between proponent and opponent has two important hygienic consequences: the proponent is not identified with the proposition that he is defending, and the opponent steepes himself in the other's proposition. Thus the process becomes a mutual investigation into the question whether this proposition is 'defensible'. If the proponent loses the debate, he is not considered a suspect; he simply participated in an investigation.

#### *Counter-examples*

Thus, the above is the first pre-condition of fair debate. The technique is also based on a sequence of steps that should not be deviated from. The first is that the proponent explains his proposition. Experience teaches that the most foolish thing the opponent can do at this point is attack immediately, since there is not yet any communal foundation for dismissing this proposition. This opponent has to elicit this communal foundation.

His first question towards this end should be: "Do you mean, by this proposition, that...?", often based on counter-examples. With questions like these, he establishes that proponent and opponent are talking about the same thing. If the opponent presents the most extreme and implausible interpretation of this proposition in the opening question, it is wise to give the proponent the opportunity to *specify* his proposition through denial ("No, that's not what I mean" – "Then what do you mean?").

#### *Rebuttal*

After specifying the proposition, which may involve various steps, it is again foolish for the opponent to open his attack immediately, since only a part of the communal foundation has been established at this point. Thus the second kind of question for the opponent is: "Do you agree with me that...?" This usually involves a more general proposition from which, on the basis of a particular postulation, a possibly implausible conclusion can be derived. This phase may also involve various steps, whereby the proponent can make the reservation that he agrees just for the duration of this part of the debate.

#### *Tenability of a proposition*

Only after a communal foundation has been laid this way should the opponent open his attack by demonstrating a contradiction between the proposition (or an implausible derivation from it) and that which has been agreed upon. If he manages this, he should give the proponent the opportunity to return to his reservation. If he does this, the proponent must look for another communal foundation. If he does not, the opponent must give him one more chance: "Was the specified proposition actually what you meant?" If the proponent says "yes", he has lost, or rather the debate has demonstrated that this proposition is not defensible. If he says "no", the proponent must switch to a new specification so that the debate can be repeated from that point onwards. This may result in a formulation that is indeed defensible. In this case, everyone has the feeling that this debate helped science, technology or politics to take a step forward.

Science entails translating reality into transferable thought, while design and technology is translating thoughts into reality. This book concerns the possibility of these human projects in urban, architectural and related technical design. Dijkhuis' contribution addresses the possibilities and pitfalls of translation as such.

## 2 LANGUAGES

### FOREWORD BY THE TRANSLATOR

WILLEM DIJKHUIS

This book is the result of a concentrated effort to harness knowledge, insight, expertise, lore and (sometimes, perhaps) the wisdom of some four dozen professional Europeans on the topic of design & study in architecture for the benefit of a truly international audience. None of the contributions was written in English by a native English speaker, although every single author is steeped in reading it: the text is a translation into that most peculiar language: English.

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The Dutch translator of this book, who is not a native speaker of English, was asked to translate and edit in terms of language the heterogeneous mass of Dutch sources (design, technology, science, humanities and social sciences) as precisely as possible into a uniform English; whilst using the same words consistently for the same meanings to enhance retrieving from the index. In this way the text should become readable and comprehensible for non-native speakers and users in scientific practice. It should create a common language to different scientists from the same school.

The translator insisted of course, being a non-native speaker himself, that his toil should be reviewed extensively and carefully by a native speaker of English, qualified to perform that vital function. David Baynton, a retired British Headmaster and a native of Kent, England, played that rôle with precision and prudence. In that way the text was cleansed from mistakes and inconsistencies in English usage, grammar and idiom; approximating better a *Lingua Franca* for an international audience.

#### 2.1 LINGUA FRANCA

Above the gate allowing entrance to Plato's place in the country, '*Academia*', where he taught pupils, a motto was chiselled into the stone lintel, reading: '*Without Mathematics let no one pass*'.

Similarly, above the gate allowing entrance to understanding foreign communities, a hundred human generations later, a motto may be chiselled into a digital lintel, reading: '*Without English let no one pass*'. That language is deemed to be the '*Lingua Franca*' of the third millennium of the era. Before the Second World War, in a smaller world, German provided that communicative function from the time of the Romantic Movement.

'*Lingua Franca*' – literally 'a free tongue' – hails from the Latin. After the decline and fall of the Roman Empire and the so-called 'Dark Ages' a scholarly, artificial Latin emerged. One millennium ago, thorough academic learning could not be attained in Europe without the Latin tongue; in both languages: that of the ear, speaking, and that of the hand, writing.

The Latin of Vitruvius, secular Patron of Architecture, but also of Cicero and Virgil had ceased to be the mother tongue for anyone. No one using Latin in order to come to grips with his peers in the sub-continent could use the language as 'native speaker', since it was nobody's mother tongue. The academic '*lingua franca*' of places of learning in olden days was perfectly egalitarian, not discriminating between peoples, regions and nations. Any two 'students' or 'scholars' – the indications being roughly equivalent at that time – say, one from Cracow, the other from Oxford - capable of understanding one another using Latin, had acquired that facility by formal education; by studying and imitating schoolmasters rather than their mothers.

In this respect the Latin of the start of the second millennium differs profoundly from the English of the start of the third; regardless of the immense value of having access to that language in writing and speaking. Native speakers of the English language presently enjoy - and will for the foreseeable future – unique intellectual, political and cultural advantages.