

The design research text and the poetics of foundational definitions

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Introduction

One view on results in design research is that of suggestions for change of practice, in terms of methods, techniques and programs. Such results come in different forms, from guiding examples to more general conceptual frameworks; objects, photos, text, interventions displaying, telling, expressing and presenting. Foundational definitions play a central role in this context, i.e. that which lays out the foundation for new practice. Foundations are something we wish to revisit for support and help, and precision is a key issue.

You perform a series of experiments to explore the expressiveness of a design material. You present design examples. So where is the result? What is the conclusion? The text often goes astray looking for something to prove, something to evaluate, looking for a propositional precision that is not there. If the experiments go deep enough, there is a non-trivial result hidden somewhere, and somewhat implicit, in the examples. But what is it, and how do we make it explicit and precise? What is the role of the text presenting and discussing the results?

Say we perform a series of design experiments in order to rediscover the meaning of functionality; what is a doorbell, what is a bicycle... Given the experiments and the resulting designs, what is the role of the text? We want to interpret the experiments by saying something about them, about the result of the experiments. What do they say about the meaning of functionality? Programmatic slogans such as 'form follows function' or 'functionality resides in the expression of things' can be seen as foundational definitions displaying general results inherent in the examples. We certainly strive for precision in such definitions. It is a precision poetic in nature, and the text explaining the meaning of these definitions relates, in a certain sense, to the poetics and hermeneutics of foundational definitions; design methodology builds on references to certain explanations and understandings of the poetry intrinsic to the given foundational definitions.

For propositional results, the text is all about proofs; the text builds and explains, a proof of the given proposition. This is what scientific methodology is all about. For definitional results, the text is all about interpretations; the text builds and explains an interpretation of the given foundational definition.

The design research text often describes and explains empirical studies; we prove the solution to a given design problem in terms of evaluations or user studies. There is something of a gap here. Methods, techniques, and programs as outcome of design

experiments, are results in their own right. The result in this case is not a series of propositions open for proof; it is rather the foundation on which the set up of empirical studies and proofs builds. There is a serious need to further develop and cultivate the design research text in reference to the poetics and hermeneutics of foundational definitions.

The design research result

From a logical point of view it seems reasonable to make a distinction between research results as proposition and as definition. In the former, the result is all about evidence in support of the given proposition. This is also what we normally view as scientific results (now we know more about X). A proposition is something that is true or false and something we strive to prove or refute. But the proposition and evidence we present rests on conceptual foundations that ensure precision in what we present. Thus we might view the definitions building these conceptual foundations as results of research in their own right (now we see X better).

You could argue against such a view, saying that foundations are just that, and not end results. The problem with such an argument is that we then only recognize 'proofs' as results, and not the concepts that provide foundations for the precision and rigor proofs rests on.

It is true that a theory, as a conceptual framework for development, is a suggestion, but it is a suggestion that is the result of research work.

This type of research dwells in the interplay between explorative work – to find guiding examples, and conceptual work – to formulate principles and foundations. Outcome and results provide theoretical and methodological foundations for further research work.

There is an important duality in forms of research that somehow follows from the duality between the research result as proposition and as definition:

- methods for proofs – how to search for evidence with propositional precision
- methods for design – how to search for gestalt with definitional precision

If we view design research from the perspective of explorative and experimental work to further and develop design practice, then there is something strange about the idea of research as mainly a matter of searching for propositional evidence. Results come typically in the form of suggestions introducing:

- design techniques – changes in technology for working with various materials and techniques as design materials and design techniques etc
- design methods – changes in methodology for design thinking
- design programs – changes in directions for design work.

It is a matter of experimental work to explore techniques, materials and directions. In the first case we define techniques as design techniques, in the second case we define materials as design materials and in the third case we define directions as design directions. In all three cases we define something by displaying the expressional strength of that something. It is a matter of definitions laying out the aesthetic foundations for design work.

Such results are typically definitional in nature, they introduce suggestions for changes in practice and thus new foundations for design practice. As a foundation for practice, such work opens up not only for changes in design practice, but also for empirical studies on changes in design practice. Successful empirical design studies can clearly provide results of great importance for design practice, but they can never provide proofs for the foundations of practice. The foundational definitions introducing techniques, methods, and programs are main results in their own right.

The idea of design as problem solving, as opposed to expressing things (form giving), can be somewhat misleading. If the design is a solution to a given problem, then it is perhaps tempting to see a proof of the solution as the real result. To design a solution to a problem is to give the solution a form. To prove that the solution solves the problem does not mean that we prove the design.

The somewhat narrow characterization of design as defining products for industrial mass production, which makes design distinctively different from art and craft, is perhaps a basic source for ideas about proving and validating a design as the basic results in design research.

If we on the other hand view design more freely as the craft of defining, expressing things, then art as well as craft involves components of design.

Foundational definitions

A foundational definition is a definition that introduces some of the basic notions we use to build a certain practice. This is what we in practice, implicitly or explicitly, refer to as our foundation in design process communication.

Typical examples are various color classification systems such as the Natural Color System (Cf. NCS Colour Centre 2010) or the Pantone Color Matching System (Cf. Pantone 2010).

Other typical examples are working methods and techniques that we use from time to time in various phases of the design process. It can be rather precise techniques, such as different pattern cutting techniques in fashion design, or methodological guidelines for idea generation, such as different brainstorming methods.

In these cases we build a foundation for work by introducing a logical framework that guides the way in which we work; foundational definitions define the form of practice.

The form of the definition itself is important; this is where the logic of the notion we introduce lives. Precision and rigour in research connects not only to precision and

rigour in ways of conducting experiments and studies, but also to precision and rigour in formulating the results. In design research, this relates in a certain sense, to precision and rigour in the design of foundational definitions, which in this case in the refinement of a duality of forms (the duality between the logic of intended practice and the logic of a given definition).

We cannot prove the result, but we can be precise in the way in which we express the forms of change in the practice we suggest.

Methods are supposed to suggest systematic, and perhaps, new ways of working in different phases of a design process. The difficulties involved in defining working methods are, in some sense, similar to problems involved in writing a recipe.

If we don't see the basic logical foundations in, or through, the definition of the method, or the recipe, then in the worst cases, what is left is a set of mechanical instructions that lack any form of deep interpretation. The result of following these instructions will be, more or less, random, as there is no basic understanding of what that it is supposed to be produced.

It is true that methods, as well as recipes, can rely on very detailed technical information based on specific material properties, but without any knowledge of the overall logic involved, detailed technical information doesn't mean very much in the context of designing or cooking.

The design example, as a result, can be used to display possibilities in using certain materials and techniques, as design materials and design techniques. There is a thin line to walk here. Is the example a solution or a clumsy product prototype lacking in both artistic depth and aesthetic finish? Or what?

In design research results, both the method and the example illustrate and display some underlying foundational definitions.

The method and the example are results in their own right, they are true propositions. But a proof of the proposition gives deeper understanding why it is true. Analogously the logic of the foundational definition gives deeper understanding of what it is that the method in the example displays.

A proof relies on the precision provided by certain foundational definitions. Such definitions must, on the other hand, rely on the elementary type of precision found in what we see as just 'precise' formulations, i.e. poetic precision.

Poetic precision should be understood as the expressional precision of the definition and its motivation, that it is precise as text in a deeper sense. This is what we look for in legal texts, in philosophical texts, or in mathematical texts, etc - the precision of good poetry. We can argue about the interpretation, but we see that it is a clear and definite formulation of something.

Poetic precision

Where does the precision in good poetry come from, the type of elementary precision that is its own explanation and motivation?

The notion of ‘good poetry’ is used here in the same sense as we use the notion of a ‘good proof’, i.e. a floating notion indicating that ‘we’ recognise a certain elementary precision.

One way to understand the notion of poetic precision is that of refinement of the relation between expression of forms and form of expressions. Exactness and precision is then all about refinement of formal dualities.

We can draw a circle in many different ways. In all these cases we express a form, i.e. the circle as an abstract geometric form. But there is also a way in which we do this in each case (the forms of concrete expressions). Refining and playing with this duality is what poetic precision is all about.

Canonical examples are classical poetic forms. Take for example the sonnet and consider how a given sonnet expresses form at the same time as the form builds the sonnet. The precision lies in the way in which the poetry defines this duality of forms. This careful relation between an underlying form and the way in which it is being expressed is present in good poetry, even if this underlying form is more ‘free’.

We all know what a circle is, don’t we? But how do we define the notion of a ‘circle’ in a precise manner? By drawing a ‘circle’; pointing to it, saying that “this is a circle”; or by introducing a general definition?

The definition in Euclid’s *Elements* is as follows:

“A Circle is a plain Figure, contained under one Line, called the Circumference; to which all Right Lines, drawn from a certain Point within the Figure, are equal.”
(Euclid 1772.)

Another, a bit different, example is the way in which Krakel Spektakel define the notion of a circle:

- A CIRCLE – something that begins everywhere and ends nowhere.
- A cat, chasing its own tail, but without cat and without tail. (Hellsing 1984) (My translation)

This is, in a certain sense, the problem we face in presenting design research results; there are somewhat general conceptual frameworks we have to make precise, by example and by definition. Precision in presentation can take many forms, but if there is any result at all, we have to have some faith that there is precision to be found, one way or another.

The design research text

Let us say I compose music, and that I have been working for a long time developing ideas for a new piece of music. Now the technical work starts, I need to compose the

piece, I need to design the concrete musical expression.

Design research that focuses on compositional techniques could help me.

There is, as a matter of principle, no basic difference between this type of research and research in developing techniques for, say, designing chairs. There is a big difference in application and in characteristics of construction techniques, but in both cases it is a matter of developing design techniques.

How do we present, publish such research? What is the role of the text?

The design example is certainly of central importance here.

With respect to composition techniques, a good historical example is Johann Sebastian Bach's *Das Wohltemperierte Klavier* (von Dürr 1998) displaying results of exploration and development of the fugue techniques, just as Johannes Ockeghem's *Missa Prolationum* (Reese 1954) displays results of exploration and development of the canon technique. Or canonical examples of serial techniques developed around the Darmstadt school (Borio, Danuser 1997), or spectralism (Anderson 2000), developed at IRCAM in Paris...

The metal ashtrays, tea and coffee services, and lamps by Marianne Brandt (Brockhage, Lindner 2001) at the Bauhaus school, the tubular steel armchairs and laminated wood furniture by Marcel Breuer (Droste M., Manfred L. 1992), the experimental product design by Hella Jongerius (Schouwenberg, Jongerius 2003), and the experimental textile design by Anni Albers (Albers 2001) and Reiko Sudo (Millar, Kawashima 2005), are in the same way prominent examples that display new design techniques and new design programs.

In all these cases it is clearly a matter of displaying design research by examples. The examples say: 'see what it means'. Good examples demonstrate the power inherent in the techniques. In that sense they are suggestive and inspiring.

But examples of what? As a presentation of research results there is something missing here. This is not a question we can answer by analysing the given examples; it is not a question for musicology, or art and design theory.

To deepen the examples-as-research results, we need foundational definitions expressing the underlying logic of intended practice. Such definitions, on the other hand, need suggestive and inspiring examples to become visible.

It is here that the text and the issue of poetic precision becomes important.

Paul Hindemith, for instance, did not only present his compositional ideas by examples, such as his *Ludus Tonalis*, but also through text in his *Unterweisung im Tonsatz* (Hindemith 1937-40). (Cf. also Stockhausen 1952-84 and Xenakis 1971).

The way in which Anthony Dunne and Fiona Raby present their work, on a program for critical design in *Design Noir* (Dunne, Raby 2001), is a good example of where poetic precision in presentation is present in recent design research.

Another example is the way in which Bill Gaver and Heather Martin suggests ways

to change the direction of interaction design research by presenting somewhat extreme alternatives to, what was the then 'standard', ways of conducting Human-Computer-Interaction (HCI) studies (Gaver, Martin 2000).

Manifestos in art, architecture and design are the typical examples where poetic precision has always been an issue. There is a suggestion of change in practice that is defined in the manifesto and illustrated by artwork. The suggestiveness of the manifesto depends on the precision in relating the logic inherent in the manifesto itself with the logic of intended practice as this is displayed through examples, i.e. a matter of refinement of a duality of forms.

Le Corbusier's manifesto *Five Points Towards a New Architecture* (Le Corbusier 1985), in relation to the Villa Savoye, is perhaps, a typical example.

Another basic example is the slogan *form follows function*, which goes back to Louis Sullivan's, "That form ever follows function":

It is the pervading law of all things organic and inorganic, of all things physical and metaphysical, of all things human and all things superhuman, of all true manifestations of the head, of the heart, of the soul, that the life is recognizable in its expression, that form ever follows function. This is the law. (Sullivan 1896).

We derive *Form follows function* from this, but also that Function resides in the expression of things (Hallnäs, Redström 2002) which gives examples of foundational definitions for design work.

The design process starts typically with a brief of some sort – it can be a commission to me/us as industrial designer(s) or architect(s), or something I/we set out to do as free artists.

Design research that focuses on methodology for opening up the design brief, could provide help and inspiration here.

How do we present, publish such research? What is the role of the text?

There is lots of work published in this area, from the Design Methods Movement to recent work on methodology in new media and interaction design (cf. Jones 1972, Laurel 2003). It is an area where the issue of results of research are very visible.

Let us say we present a working method for some design context to suggest changes in ways of working. Is it the method we present that is the result of research, or is it only a validation, a proof, of the method that can count as a result of research?

The proof, validation, of what? What is important in presenting working methods is to bring forth ideas, not mechanical schemata. In this respect, poetic precision in instructional performance art is interesting; just rethink design work as the art of expressing things, then the design of specific work methods or a design program can be seen as a form of instructional performance art.

Consider the following Snow piece by Yoko Ono:

Think that snow is falling. Think that snow is falling everywhere all the time.
When you talk with a person, think that snow is falling between you and on the
person. Stop conversing when you think the person is covered by snow.
(Ono 1970)

In a similar manner we could rephrase design methods as pieces of instructional performance art. Here is one example:

As you use a given thing,
pretend that you do something else.
Focus your attention on the expressions of use.
Then re-design it.
(cf. Interaction relabeling in Djajadiningrat, Gaver, Fres 2000 and Gestalt
substitution in Hallnäs, Redström 2006. Cf. also Thornquist 2010.)

The poetics of foundational definitions

Design research as artistic research, in the sense of exploring and developing techniques, methods and programs, is not a new area of research. It follows the history of art, architecture, craft, and in recent times, various forms of industrial design. But it is an area of exploration and development that has not been traditionally recognised as 'academic research' and the notion of research results is, to some extent, still an issue.

It is also in this context that the poetics of foundational definitions as a source of inspiration for formulating results and writing the research text could give a valuable contribution to the theoretical foundations of design research. There is a vast open archive of examples, and perhaps this an area of theoretical work where design research as artistic research and design research as art theory, can build fruitful co operations.

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