



QUESTIONS, HYPOTHESES & CONJECTURES

DISCUSSIONS ON PROJECTS BY EARLY STAGE
AND SENIOR DESIGN RESEARCHERS

Special Articles by

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IMPRINT

CONTENTS

Foreword /// *Rosan Chow* ————— 07

PART 1 — INTENT OR INTEREST

Seeing the Future through Aesthetics: A Sustainable Approach ————— 16
to Solving Real-world Problems /// *Doaa El Aidi*

“Why do I, as a design researcher, always ————— 24
have to declare myself?” /// *Dennis Oswald*

Questions and Hypotheses: When Design Management ————— 34
Embraces Visualization in the Chinese Context /// *Fan Xia*

PART 2 — WORK-IN-PROGRESS

Plurality in Design – Postmodern or Postmodernized Modern? /// *Rolfe Bart* ——— 46

Improving Communication in Development Processes ————— 54
through Design /// *Mareike Graf and Carmen Hartmann-Menzel*

Mind the Gap: Theories and Practices in ————— 64
Managing Service Design /// *Qin Han*

Matrices & Experiences, a Quest of Looking ————— 76
and Communicating /// *Thierry Lagrange*

Crafting the Space for Change: Towards a New Perspective on Design’s ————— 88
Contribution to Community Development and Democracy /// *Lesley McKee*

Seduction and Healing in Architectural Design: _____	97
Can Contemporary Consumption Spaces Heal? /// <i>Zdravko Trivic</i>	

Designer as Mediator in HCI Design Practice /// <i>Mithra Zahedi</i> _____	112
--	-----

PART 3 — EMERGING QUESTIONS

Pragmatic Semiotics and design: How do the _____	124
artifacts communicate? /// <i>Sarah Belkhamza</i>	

An Approach by Design for Project Management _____	140
and Organizational Design /// <i>Michel de Blois</i>	

Questioning the Student Experience in Design Education /// <i>Stella Boess</i> _____	160
--	-----

The Janus-faced Aspect of Architecture /// <i>Dag Boutsen</i> _____	176
---	-----

Unready-Making Artifacts for Open Interpretation /// <i>Katharina Bredies</i> _____	195
---	-----

Critical Engagement: Design's Role in _____	214
Counter-terror Communication /// <i>Lisa Cresswell</i>	

A New Evaluation and Innovation Framework for _____	227
Sustainable Design: Addressing the Limits of Current Sustainability Assessment Methods /// <i>Carmela Cucuzzella</i>	

Hypothesizing about Design from the Perspective _____	249
of Visual Rhetoric /// <i>Annina Schneller</i>	

Narrative Scenarios in Industrial Design Processes: Selecting _____	264
Opportunities for the Investigation of Design Methods /// <i>Christian Wölfel</i>	

SPECIAL ARTICLES

Searching for Design Research Questions: _____	286
Some Conceptual Clarifications /// <i>Alain Findeli</i>	

On Ducts and Design /// <i>Keith Russell</i> _____	304
--	-----

Contributors _____	314
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Alain Findeli

Searching For Design Research Questions: Some Conceptual Clarifications

1. Mode, purpose, subject-matter and structure of the paper

The dominant tone of this paper is speculative and didactic. Speculative, since it does not rely on recent empirical research or field work; didactic in order to be in tune with the general framework of this conference and its presumed audience. As a result, the style has remained somehow that of the oral presentation. As to the purpose of the paper, it stems from the observed reactions to some previous published works on the

same topic, namely design research methodology and education.¹ Some of the key concepts coined in these works seem to lack clarity, with the consequence that the resulting epistemological and methodological models suffer from misunderstanding and misinterpretation. For this reason, I considered that it would not be superfluous to re-frame these concepts and try to increase their intelligibility and, consequently, their usefulness in actual research situations.

The title of the paper directly mirrors the theme of our conference. In effect, this keynote lecture has been configured like a design proposal, i.e. as a hopefully adequate answer to a design brief; the brief in this case being the *Call for papers*, more specifically its “Why” section. From this section, I mainly retained the aim of being student-centered and the wish to promote “rigor in conceptualizing”, especially in “formulating research questions”, since “it is questions and ideas that give meanings and values to meticulously executed research.”

The structure of the paper into two main parts is inscribed in its main title. First we will focus on the concept of *design research*, with the promise (made in Bern) that there will be no direct and explicit reference to FRAYLING’S categories. The issue of what a *research question* is or should be will then be addressed, so that the following general questions may be answered: 1) Are design research questions very different from other discipline’s research questions? and 2) Is design research such a – reportedly – special case of research? In the conclusion, a general operational model of project-grounded research in design will be presented.

2. Scope and stance: Another definition of design research

“Oh no, not another endless and useless discourse on the definition of design research!” – such may be the expected reaction to my proposal of redefining the field. This is fair enough, but the reason for such an apparently obstinate initiative is that I believe we, in our design research community, are using a somewhat restricted definition of the term. In other words, although I do agree with the members of the Board of International Research in Design that “It is no longer sufficient to merely indulge in either general or specific meta-discussions on methodologies

or even on the fundamental question as to whether design is at all qualified to undertake research,”² I also warn that, bearing with the metaphor of the pudding used by the authors, it is hazardous to look for a proof in the pudding by eating it if it is the wrong pudding that is being served. My remark is meant as a reminder that epistemological vigilance (e.g. to make sure we have the right pudding) is indeed always to the point, as it is – or should be – the rule in other areas of research.

Now why do I find it necessary to open this issue once again? Why am I not satisfied (I actually am) with the acknowledgment that “what is needed now is the publication of relevant *results* from design research,”³ or, to take another recent example, with the current state of the art of design research as reported in a book like *Design Research Now*?⁴ The reason, as will be argued shortly, is that we in the design research community have built our collective design research enterprise on a misunderstanding. The statement of intentions and intellectual program of those we consider, with full right, the pioneers of design research, were so convincingly spelled out that we have followed them ever since in full trust, with an enthusiastic and almost uncontested unanimity.

Let me be more precise. There seems to be a common agreement, in our community, around BRUCE ARCHER’s definition of design research and NIGEL CROSS’ search for a rigorous and compelling definition of his famous “designerly way(s) of knowing.” As reported by GUI BONSIPE and many others in 1980 at the “Design: Science: Method” conference, BRUCE ARCHER mentioned in his talk the following definition: “Design Research is a systematic search for and acquisition of knowledge related to design and design activity.”⁵ The scientific validity of such a general statement can be checked by replacing “design” with any other discipline, for instance: “Economic research is a systematic search for and acquisition of knowledge related to economics and economic activity.” If there is anything problematic with this definition, it lies with the definition of design one adopts. In this context, design is understood as the activity performed by designers.

The same holds, apparently, for NIGEL CROSS’ “Designerly way(s) of knowing.” Looking closer at this central concept, one finds out, first,

that cross alternatively refers to designerly ways of “knowing”, “thinking” or “acting”. As far as I know, he never discussed if he referred to the same epistemic process of “designerly” in all three cases, a task which would be of undeniable interest for the community. Nor does he explain why he alternately uses the plural or the singular. My intent here being mainly epistemological, I will proceed with the designerly way of *thinking* and try to characterize it further. For commodity reasons, I will stick to the singular, a conceptual generalization and risk for which I take all responsibility.

Indeed – and this is the important point – what cross is interested in is the designerly way of thinking *in design*, i.e. in the specific logics and thought processes that designers adopt, individually or collectively, when doing design. In his view, the purpose of design research is then to observe, model, describe, theorize and/or predict these processes in order, for instance, to show their specificity when compared to thought processes in other situations than design situations.

By no means do I mean thereby that cross’ intellectual and scientific program is irrelevant. There is plenty of evidence in the published literature and in the design studios that this endeavor has proven fruitful and valid. However, as we have shown in the article where the so-called “*Bremen Modell*” is introduced and discussed (*Fig. 1*),⁶ the “conception” part is only one of the two main moments or constituents of a design project, the “reception” part being the other one (*Fig. 2*). When cross uses the term “design”, he only refers to the “conception” side, whereas we consider that a model of the design act is incomplete if we do not address what happens to the project’s output once it starts its life in the social world. In this regard, the opening up of the generic model of the design project to the user space is indeed one way of extending the scope of design research. As is witnessed by current research, such opening has proven fruitful.

What I contend, however, is that the scope of design research and of the designerly way of thinking can be extended much wider still, beyond the mere framework of design situations. I am interested in investigating the potential of a designerly way of thinking in research in

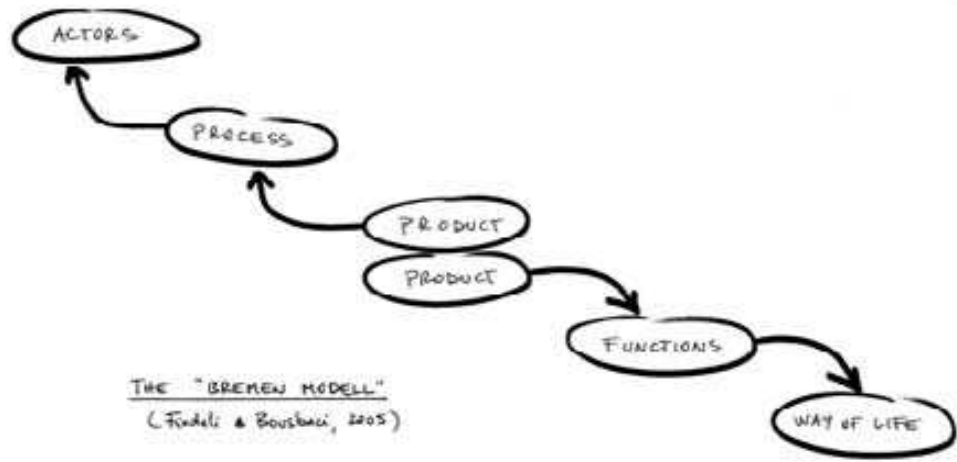


Figure 1: The so-called "Bremen Modell", a model of a general theory of the design project (FINDELI & BOUSBACI 2005)

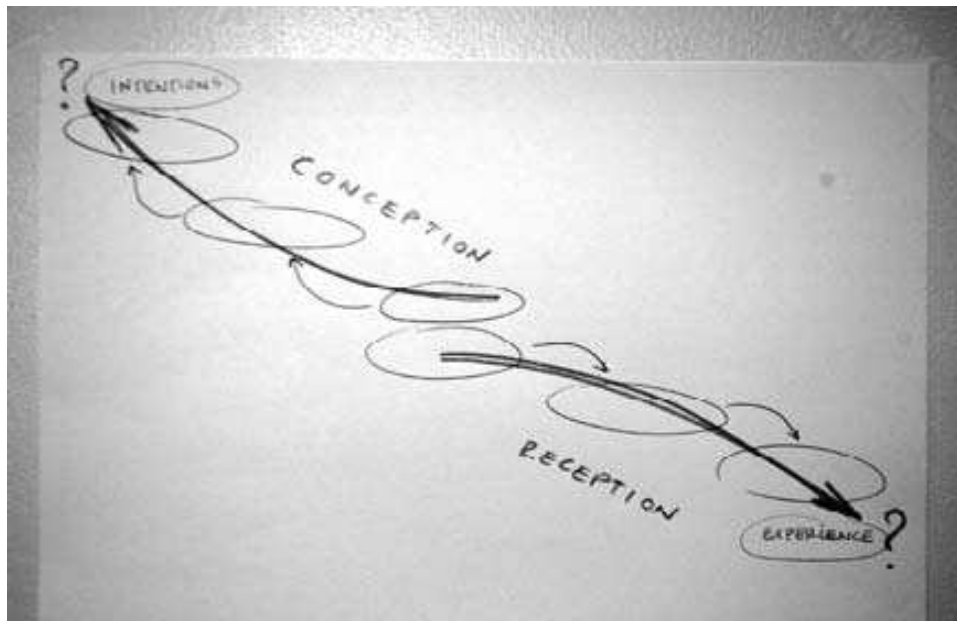


Figure 2: The Bremen Modell with emphasis on the two main moments or constituents of a design project.

general (not only *in design*), in the same way one might be interested in characterizing sociological, chemical, ethnological or other disciplines' ways of thinking in research, i.e. when striving to know or understand the world. This amounts to considering design as a discipline on its own, capable of delivering valid and trustful knowledge about a part of the world considered as its specific field of knowledge. In such a framework, our epistemological inquiry sets the task of determining what are the characteristics, the potential, and the blind spots of our designerly way of looking at the world and what the originality of the corresponding knowledge is. Thus our central question becomes: Does a designerly approach allow design researchers to increase or enrich the intelligibility of the world (or part of it) more or better than other disciplines?

Now that our task has been set as clearly as possible, we must address the following two sets of questions, corresponding respectively to the *scope* and the *stance* of design research:

1) What is the proper subject-matter of design research? What part of the world may design research claim as being of its concern? To the knowledge and understanding of what phenomena is design research equipped to contribute?

2) How does design behold the world? Do design researchers observe, describe and interpret the world very differently from, for instance, ethnography, demography, economics or engineering researchers? More precisely still: Suppose design researchers are interested in the same phenomenon as the above disciplines (which may often be the case, especially in interdisciplinary research); in which way does their intellectual culture and their "designerly" approach color the phenomenon? Does this "coloring" constitute a hindrance or an asset? Conversely, to which aspects of the phenomenon will design researchers remain blind due to their designerly ways of thinking?

There are enough questions here to fill in a whole PhD project, so I will confine my answers to the essential at the risk of skipping some important and necessary justifications.

2.1 *The scope or field of design research*

It is generally accepted that the end or purpose of design is to improve or at least maintain the “habitability” of the world in all its dimensions: physical/material, psychological/cognitive/emotional, spiritual/cultural/symbolic. The terminology may vary according to authors, but the idea remains more or less the same.⁷ Habitability is best defined in systemic terms: it refers to the interface and interactions between individual or collective “inhabitants” of the world (i.e. all of us human beings) and the world in which we live (i.e. our natural and artificial environments, which includes the biocosm, technocosm, sociocosm and semiocosm). The discipline that studies these systemic relationships is *human ecology*: “Ecology is the science of relationships between living organisms and their environments. Human ecology is about relationships between people and their environment [...] [It] is useful to think of human-environment interaction as interaction between the human social system and the rest of the ecosystem. The *social system* is everything about people, their *population* and the psychology and social organization that shape their behaviour.”⁸ Following such general definitions, who would deny that human ecology constitutes a core knowledge field for design?

The above conclusion brings us back to one of our previous questions: What distinguishes ecologists’ and designers’ claim that their central field of knowledge is the “relationships between people and their environment”? If there is no difference, then we should conclude that design research is or should be the same as research in human ecology. If there is a difference, then what is it?

In my view, the difference lies in two aspects. The first is anthropological (in the philosophical sense) and would deserve a longer discussion. Due to its rooting in biology, human ecology has a tendency to adopt a contextualist, determinist view of the human being; in this sense, human ecology is but an extension of animal ethology. For the purpose of design, the field of human ecology should be extended to the cultural and spiritual dimensions of human experience, and consequently of the human-environment interactions, yet without neglecting the other

dimensions. This is why I prefer to speak of a *general* human ecology. Keeping this important reservation in mind and using BRUCE ARCHER'S original phrasing as a template, we may redefine design research in the following terms:

Design research is a systematic search for and acquisition of knowledge related to general human ecology

The second aspect is epistemological. Design researchers' view of human ecology differs from ecologists' in what can be called their stance, i.e. in the way they look at the human-environment interactions. This important distinction will allow us to complete the above definition.

2.2 The stance or epistemological bent of design research

The aim of human ecologists is to construct a theory of human-environment interactions; their stance is descriptive and mainly analytical. Conversely, the aim of designers is to modify human-environment interactions and to transform them into preferred ones. Their stance is prescriptive and diagnostic. Indeed, design researchers, being also trained as designers – a fundamental prerequisite – are endowed with the intellectual culture of design; they not only look at what is going on in the world (descriptive stance), they look for what is going wrong in the world (diagnostic stance) in order, hopefully, to improve the situation. In other words, human ecologists consider the world as an object (of inquiry), whereas design researchers consider it as a project (of design). Their epistemological stance may thus be characterized as *projective*.

The validity of the ecologists' descriptive/analytical stance derives from the grounding of their models, methods, and conceptual frameworks in their mother science, biology, the scientificity of which no longer needs to be assessed and asserted. But what is the scientific validity of the normative, diagnostic, prescriptive and projective position of design researchers, a stance which requires their subjective involvement? Are we not confronted here with one of the capital sins of scientific inquiry: lack of objectivity? What is indeed the value of a protocol

which implies value judgments and includes the possibility that two different researchers will not yield the same conclusion?

Fortunately enough for design researchers, such epistemological scruples are no longer timely in the scientific community. Recent developments in human and social sciences have dealt extensively with the issue of objectivity as a possible and desirable horizon in research. The interpretive or hermeneutic turn has shown that objectivity is not a relevant and fruitful criterion for research in those disciplines, and that rigorous inquiry is nevertheless possible without diving into extreme relativism or skepticism. On the other hand, the pragmatist epistemological tradition – where the involvement of the researcher is also required – may also be invoked to propose a robust epistemological framework for design research, not to mention action research (re-named “project-grounded research” in design research) as one of its incarnations in methodological applications.

As a consequence, with the warranty of careful and constant epistemological scrutiny, we may consider that a designerly way of looking at human-environment interactions, i.e. at human experience in terms of general human ecology, is not only a valid but also a valuable epistemological stance. In such conditions, design research has the potential of delivering original and relevant knowledge about the world, according to the following completed definition:

Design research is a systematic search for and acquisition of knowledge related to general human ecology considered from a designerly way of thinking, i.e. a project-oriented perspective.⁹

3. Conclusion: Searching for research questions

If one adopts our redefinition of design research, the issue of the research question becomes more straightforward. For this purpose, the central distinction that needs to be made is between a *research question* and a *design question*. Our final model (Fig. 3c) will make this distinction

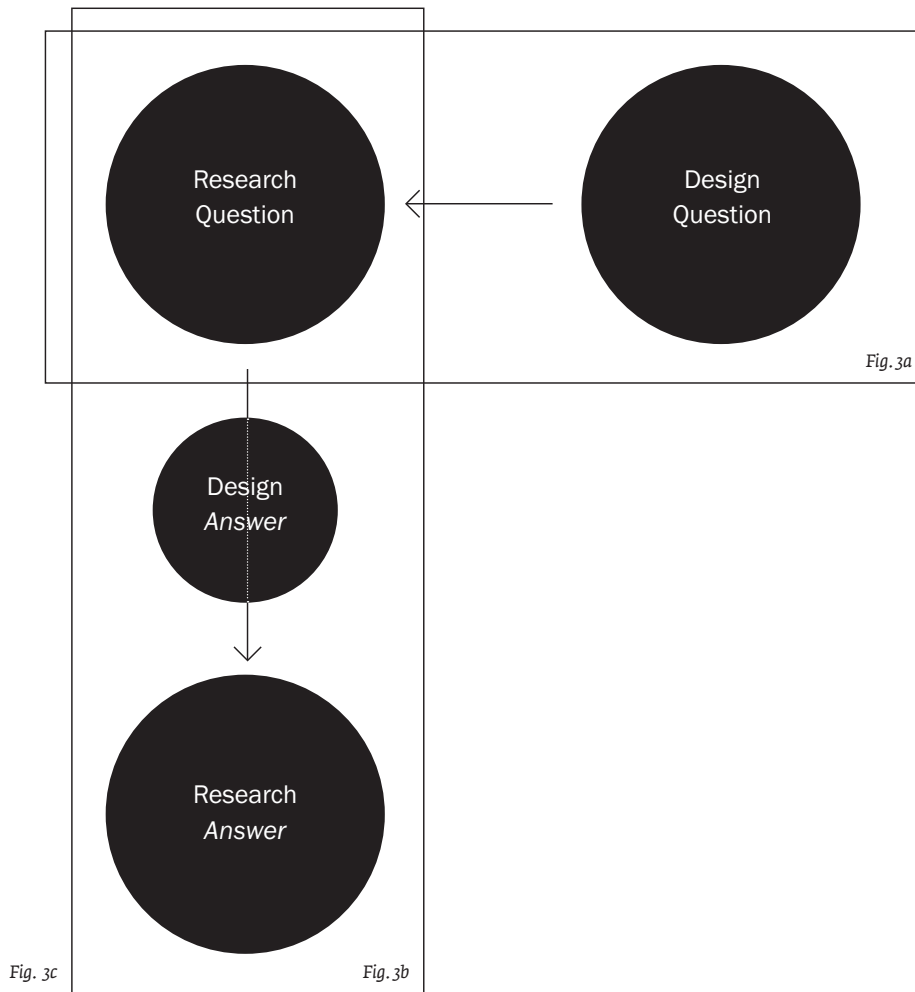


Figure 3a, b, c: Operational and methodological model of a PhD design research.

clear by showing how, in a doctoral research situation, these two questions relate to each other.

A simple logical approach may already shed some light on this distinction. One may ask, for instance, if design questions constitute a subset of research questions or vice-versa, if research questions are a subset of design questions.⁹ Or one may ask if research questions might be deducted from design questions (my viewpoint, with a reservation on “deducted”) or vice-versa (my viewpoint also, with the same reservation). It may be wiser to ask oneself what the relationships between both

realms of questioning are, in other words how different such questions “sound” or “taste”, epistemologically and phenomenologically speaking of course. A quicker way to grasp the distinction is to look at how different the *answers* are to these questions. One notices, for instance, that design answers are presented in glossy design magazines with plenty of pictures and in sometimes very chic downtown galleries, whereas research answers are found in academic journals with as few pictures as possible in the typical grey literature and in – sometimes as trendy – academic conferences. More seriously, one could also compare the criteria used to evaluate both types of answers, an exercise that has been carried out quite extensively lately within our research community. At any rate, the distinction needs to be made in order not to confound or reduce a (design) research project with or to a design project.

A steady observation reveals that PhD candidates in design usually tackle their subject matter in the form of a design question. The latter usually originates either from some dissatisfaction in their professional practice, or from the wish to deepen one aspect that has puzzled them in their professional education. This reflex is quite normal, but the next and important step that needs to be made then is to *transform their design question into a research question*. I posit that this is always possible since every design question raises, at least potentially, many more fundamental issues related to human experience in the world or, following our terminology, related to general human ecology. However, it is wrong and unfair to request from PhD candidates that they manage this transformation by themselves; this is the task, indeed the duty, of their supervisors, since in general, the intellectual and disciplinary knowledge and culture acquired by the candidates in their previous education and/or professional experience do not equip them with the necessary competence to switch from the realm of design questions to the realm of research questions. Only research experience and scholarship can provide the necessary intellectual mastery.

As hinted at above, the progression from a design question to a research question is not automatic or deductive. It is a matter of construction, of design. There are usually many potential research questions

hidden in a design question, for the simple reason that design deals with the most banal of all phenomena: daily human experience. Who, except designers, is interested in such a prosaic and ordinary subject matter? For their inquiries, human and social sciences have a tendency to choose situations of exceptional and non-ordinary character: chess playing, social deviance, psychological distress, crime, economic crises, exotic cultural practices, etc. The daily life of ordinary humans has only recently raised some interest within academic circles (e.g. consumer studies, ethnography of contemporary societies, history of the present, popular culture, etc.). But this apparent banality of daily human experience conceals a rich complexity, well known by designers who are working in experience, service, or social design. Indeed, every daily human activity (work, going to school, taking a vacation, being at the hospital, going shopping, being retired, etc.) is an entanglement of various interrelated dimensions and values (economic, social, psychological, cultural, geographical, historical, technological, semiotic, etc.), with each dimension being due a systematic inquiry and interpretation. The often proclaimed interdisciplinarity of design and design research and the inherent complexity of design situations is precisely a consequence of that.

An ideal design research question would thus be one that uncovers and emphasizes the complex interdisciplinarity of the specific anthropological experience that is at stake in a design question. In systemic, human ecology terms, we may consider each experience as the consequence of the interaction of two multi-layered systems: the human (individual or collective) and his/her context or environment. A simple combinatory calculation shows that the scope of this complexity is out of reach of the usual conditions in which a PhD must be carried out." A choice has therefore to be made within all the possible research questions, an operation that requires a set of criteria. These are mainly circumstantial and situation-specific: academic setting (a large university with a vast choice of departments and disciplines or an isolated design institution), personal experience of PhD candidate, scholarship of the supervisor, surrounding research teams and laboratories, expectations

of non-academic research partners (private or public), and of course personal inclination and intellectual project of the candidate (and supervisor). These criteria need to be matched with the management constraints of the PhD research project: time, cost, availability of resources, nature of field work, etc. In short, the “search” problem of our title is not so much for the candidate to find a research question at all (there are way too many!), but to make sure to settle for a *good* research question.

Let us take a concrete example from this conference. In a previous presentation, a PhD candidate in architecture with obviously many years of professional experience explained us that, in social co-housing projects, one of the main obstacles to the realization of the architectural project is mistrust arising between partners and stakeholders. He presented the problem as a very practical architectural question, which has been answered (or not, in the case of failure) diversely according to the singular situations. The presentation was very convincingly supported by slides and documented case studies by the speaker. Considering the wish of this architect to embark upon a PhD project, a possible starting recommendation could be to consider “trust” as his central concept of inquiry. The research question would then need to be worked out appropriately with the designerly (or architectural, in this case) way of thinking in mind. Concretely, this means that the idea is not to question what the concept of trust is or entails in general (a philosophical inquiry), or what mental processes are activated in a situation of trust (a cognitive psychological inquiry), or how the brain reacts to simulations of trust and mistrust (a neurobiological approach), or else what architectural historians and theoreticians have written on the concept of trust (provided they have), etc. Although all these aspects are indeed important and should ideally be addressed in the research, a more targeted (i.e. designerly) way of approaching the phenomenon could be with the following question: “Which facet of the general phenomenon of trust does an inquiry reveal that is actively engaged in an architectural project?” In other words, we take it for granted that the project-grounded approach to the phenomenon of trust will contribute to the knowledge already provided by other disciplines that have studied the

phenomenon of trust (law, ethics, religious studies, social psychology, anthropology, etc.). The title of the dissertation could thus read: “The contribution of architecture (or design) to a theory of trust.”

The general model of this approach is what I have called project-grounded research in design, elsewhere usually called research through design. It derives from the pragmatist maxim (the “gospel of design research”): “If thou wantest to understand a phenomenon, put it into project.”¹² The overall model is illustrated in *Figure 3c*, and the instructions read as follows:

Fig. 3a: First ask your supervisor to help you transform the design question into a research question. Then, remembering your PhD methodology seminar, conceive a research strategy corresponding to this question in order to reach a satisfactory research answer.

Fig. 3b: Select a research method where the designerly way of thinking is central to the research process to make sure you are in a design (i.e. not sociology, economics or engineering, etc.) research situation. For this purpose, use the design project as your research field as recommended in project-grounded research.

And good luck !

Notes

1. Reference is made here to the following publications:
 - A. FINDELI. “Die projektgeleitete Forschung: eine Methode der Designforschung,” in *Erstes Designforschungssymposium*, edited by R. Michel. Zurich: SwissDesignNetwork, 2005, 40–51;
 - A. FINDELI, and R. BOUSBACI. “L’éclipse de l’objet dans les théories du projet en design.” *The Design Journal* 8, no. 3 (2005): 35–49. (with a long English abstract);
 - A. FINDELI, and A. COSTE. “De la recherche-cr ation   la recherche-projet: un cadre th orique et m ethodologique pour la recherche architecturale.” *Lieux Communs* 10 (2007): 139–161;
 - A. FINDELI, D. BROUILLET, S. MARTIN, CH. MOINEAU, and R. TARRAGO. “Research Through Design and Transdisciplinarity: A Tentative Contribution to the Methodology of Design Research,” in *Focused – Current design research projects and methods*, edited by B. Minder. Bern: SDN, 2008: 67–94.
2. BIRD, “Transition and Experience as Perspectives of Design Research.” Foreword to U. Brandes, S. Stich, and M. Wender. *Design by Use*. Basel: Birkh user, 2009: 4.
3. *Ibid.*, my emphasis.
4. R. MICHEL, ed. *Design Research Now*. Basel: Birkh user, 2007. For a review of this title, read D. DURLING in *Design Studies* 30 (2009): 111–112.
5. C. BONSIPE. “The Uneasy Relationship between Design and Design Research,” in *Design Research Now*, Op. cit., edited by R. Michel: 27. In fact, BONSIPE’s report of ARCHER’s paper is misquoted and misleading. On p.31 of the original paper, ARCHER writes that he finds the following definition of design research too narrow (notice the exact quote): “Design Research [with “a big D and R”] is systematic enquiry into the nature of design activity.” He discusses instead two other possible definitions composed of the definitions of Design and design, on one hand, and of research (“with or without big R”), on the other hand. The first one he finds “impossibly broad”: “Design Research is systematic enquiry whose goal is knowledge of, or in, the area of human experience, skill and understanding that re-

flects man's concern with the enhancement of order, utility, value and meaning in his habitat." He is "still uncomfortable with the vagueness of [the] focus" of the second one, even though it "seems to be a better description of the matter which design researchers are actually investigating": "Design Research is systematic enquiry whose goal is knowledge of, or in, the embodiment of configuration, composition, structure, purpose, value and meaning in man-made things and systems." See B. ARCHER. "A View of the Nature of Design Research," in *Design, science, method, proceedings of the 1980 Design Research Society Conference*, edited by R. Jacques, and J. Powell. Guildford: Westbury House, 1981: 30–47.

6. A. FINDELI, and R. BOUSBACI. "L'éclipse de l'objet dans les théories du projet en design." *The Design Journal*, Op. cit. A long English abstract summing up the core argument is presented in the introduction of the article.
7. The concept of "habitability" has, to my knowledge, first been used in the early 1980's by the Italians (BRANZI, MANZINI). Its origin is sometimes attributed to a famous text by HEIDEGGER, *Bauen Wohnen Denken* (1951). HERBERT SIMON's terminology ("To transform a situation into a preferred one") is also quite popular within our community. One could also mention MANZINI's most recent proposal that design should contribute to "enable people to live as they like, while moving toward sustainability." Indeed, within such wide frameworks, more local purposes of design activity may be identified. Examples of such lists may be found in BONSIPE (1990, 34) or A. FINDELI. "De l'esthétique industrielle à l'éthique: les métamorphoses du design." *Informel* 3, no. 2 (Summer 1990): 72.
8. The definition is taken from a standard textbook: G. MARTEN. *Human Ecology*, London & Sterling, Earthscan, 2001 (emphases in original text). Such a systemic model has first been used to describe what I considered to be the Urmodell (in its Goethean phenomenological sense) of design activity. A. FINDELI. "Design, les enjeux éthiques," in *Sciences de la conception: perspectives théoriques et méthodologiques*, edited by R. Prost. Paris: L'Harmattan, 1995: 247–73.

9. It is quite important to notice that the project-oriented perspective is not only required in the “conception” constituent of design activity (CROSS’ program), but also in its “reception” constituent. It follows that users are not to be considered as mere “receptors” of the output of the design project (product, service, etc.), but as endowed with a project, namely the project of inhabiting the world in a meaningful, comfortable, functional, aesthetic, sustainable, etc. way. The terms “reception” (borrowed from art history and theory) and “users” are somewhat misleading in this respect. In his own way, Bernard Stiegler makes a relentless and radical critique of the service economy and its concept of user. See his website: www.arsindustrialis.org.
10. RANULPH GLANVILLE has addressed this problem as wittily as usual in various papers. His standpoint is that research situations are a special case of design situations.
11. Only considering a threefold anthropological model (physical, psychological and spiritual dimensions of the individual human being) and the previous fourfold partition of the environment (biosphere, technosphere, socio-political sphere, cultural/semiosphere), we are already in the presence of twelve possible binary relationships to investigate, each one being in principle the specific domain of a scientific discipline. The complexity increases when ternary relationships are considered, since the subsystems are not independent from each other. A possible model may be found in *Human Ecology* Op. cit., 2. HERBERT SIMON’S somewhat behaviorist model has become an icon in our community. For an even more sophisticated systemic-anthropological approach, see D. BODACK. “Wie beurteile ich Architektur- und Designqualität?” *Mensch+Architektur* 41 (April 2003): 2–15 (with English translation in annex).
12. See our “Research through Design and Transdisciplinarity.” Op. cit.

Afterword

Due to a technical bug, the video recording of the presentation could not be saved, so that we lost access to the questions from the audience and their tentative answers. I tried to integrate into the text whatever my memory has stored from the discussion period.

There were many more questions than I could answer in the given time frame, among them some by CLIVE DILNOT. He took the trouble to write them down on a piece of paper that he very friendly handed to me to meditate over. I thought it would be interesting to reproduce them here. I hope CLIVE will not mind.

1) How do we cope with *uncertainty* in relation to research which is so grounded on certainty? Can research cope with what is uncertain?

2) Is “research” the real focus here, or knowledge, or, even better, understanding?

3) Do we translate the design question into a research question or into a question about what understanding/knowledge we “need” to know? So is the first translation “design question” to “knowledge/understanding” question, then to research question?

4) There is then the question of *translation*. How do we translate the design question into the knowledge/understanding question and then into a series of research hypotheses/questions/methods?

5) This question of translation opens up the genuine problem of the radical incommensurability of artifacts and realm of knowledge/research. Big question here is the adequacy, or rather inadequacy, of language in respect of the areas that design wishes to understand.

6) Final point is the ultimate contribution of the PhD to ... what exactly? What is a PhD really trying to help us comprehend?

The next day, we spent a couple of hours together trying to answer these questions. It would take another paper to document this conversation here, and I wish that we had brought a tape recorder! Inevitably, we raised another bunch of fundamental questions, among them the fact that we lack an adequate aesthetics in design. What a good topic for a future design conference!