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## Case Transfer vs Case Study: An Evaluation of Case Study as a Method for Design Research

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*In a short article published recently in the Design Issues, Breslin and Buchanan [2008] reflect on the significance of the Case Study method for Design. According to them, Case Study explores the space between theory and practice and therefore it is useful in design. I argue that although Breslin and Buchanan have helpfully reviewed existing practices of the Case Study method, they have overlooked and have failed to articulate a form of Case Study that is particular and significant for Design Research. Using Krippendorff's model of Design Research, I contend that the types of questions in Design Research are fundamentally different from those that traditional Case Study is designed to address. Furthermore, I use Jonasian Toolbox to argue that traditional Case Study is only useful for the analytic phase of designing but it leaves the projective phase untouched. To address the lack, I propose a form of case study, tentatively named Case Transfer. The proposal aims to use cases for design to its full potential and to supplement the attempts made by Breslin and Buchanan. I cannot claim that the proposal is well established and leaves no room for debate. Rather I maintain that the proposal opens a new window for examining Case Study in a designistic way.*

## 1. Introduction

In a short article published recently in the Design Issues, Breslin and Buchanan [2008] reflect on the significance of the Case Study method for Design. According to them, Case Study explores the space between theory and practice and therefore it is useful in design. They briefly survey Case Study in teaching and research in various fields including law, business, medicine and social sciences. They point out that the significance of Case Study lies in 'connecting student to social phenomena, real life experience, and existential situations in a way that helps to sharpen thinking and inform decision-making'. They also gently criticize that 'designers have not made a leap to writing and using case studies as an important part of design education and research development' to its full potential. Certainly, the Case Study method is not new to design researchers, but credits must be given to both authors for opening discussion by reflecting seriously on a taken-for-granted topic. My intention here is to continue with their reflections.

### 1.1 Aims & Values

Focusing on Case Study as a research tool, I will argue that although Breslin and Buchanan have helpfully reviewed existing practices of the Case Study method, they have overlooked and have failed to articulate a form of Case Study that is particular and significant for Design Research. Using Krippendorf's model of Design Research, I will contend that the types of questions in Design Research are fundamentally different from those that traditional Case Study is designed to address. Furthermore, I will use Jonasian Toolbox to argue that traditional Case Study is only useful for the analytic phase of designing but it leaves the projective phase untouched. To address the lack, I will propose a form of case study, tentatively named Case Transfer that holds promise for advancing Design Research. The proposal aims to use cases for design to its full potential and to supplement the attempts made by Breslin and Buchanan. I cannot claim that the proposal is well established and leaves no room for debate. Rather I maintain that the proposal opens a new window for examining Case Study in a designistic way.

## 1.2 Assumptions

My arguments and proposal are naturally biased in the sense that they are based on beliefs and values that might not be held by others including Breslin and Buchanan. I believe it important for Design Research to have its own paradigm of inquiry, distinct from that of Sciences and Humanities. This belief has its sympathizers such as Clive Dilnot, Wolfgang Jonas, and Klaus Krippendorf, among others. Dilnot [1998] has from early on argued for the potentials of Design Research to fill the gap left open by the Sciences and Humanities. Jonas (2000, 2001, 2002, 2006) has over the years contributed to articulating/designing a model of design research. Krippendorf [2006] has recently written 'The Semantic Turn' to weave together many issues about design research with the notion of meanings. These design thinkers understand that in order for Design Research to contribute significantly to knowledge generation for the benefits of society, design researchers must develop their own agendas, paradigms and methods and cannot uncritically borrow from other disciplines. Only those who share the same beliefs and assumptions will find relevance and values in the arguments and proposal made. This paper contributes to establishing Design Research as an independent field.

## 2. Mismatch between Case Study and Design

### 2.1 Yin's Case Study

As pointed out by Breslin and Buchanan, Case Study is a research tool well established in the Social Sciences and exists in various forms. Since they refer to Robert Yin's *Case Study Research: Design and Methods* [2003], and Yin is well received in Social Sciences, we should take Yin's for our discussion. To begin, it is necessary to mention that Yin's position on Case Study as a research tool is somehow different from how it is described by Breslin and Buchanan. Yin [2003 p.3] particularly states that Case Study is a strategy, not a method as how Breslin and Buchanan present it. Contrary to them, Yin claims that in Case Study one might collect and use both qualitative and quantitative data and Case Study should not be confused with data collecting methods such as ethnography. Despite these differences and though not mentioned by Breslin and Buchanan, Case Study in Social Sciences is used to explore, describe and explain contempo-

rary events and phenomena. Besides, 'Case study, like experiments, are generalizable to theoretical propositions, not to populations or universe. In this sense, the case study, like the experiment, does not represent a 'sample' and in doing a case study, your goal will be to expand and generalize theories (analytic generalisation) and not to enumerate frequencies (statistical generalization)' [Yin 2003 p.10]. In sum, Case Study is aimed at achieving the basic goal of science, namely seeking generalisable knowledge to describe, explain and predict phenomena. This is what I find inadequate about Case Study for Design Research.

## 2.2 Projective Nature of Design Questions

Since Herbert Simon who wrote the well cited book 'The Sciences of the Artificial' in which he distinguished design from Science, scholars in Design have argued that the goals and objectives of sciences are not the same as those of Design. Most recently Krippendorf elaborates and sums up this position in 'The Semantic Turn'. Krippendorf [2006 p.265] emphasizes that design is concerned not with describing and explaining the present or the past but with creating possible futures. To put it simply, design questions are fundamentally projective: 1 what is possible, 2 what should be done, 3 how it should be accomplished. In contrast, Case Study addresses analytical questions of the why and the how of present or past events. According to Jonas, projection asks different questions and requires different methods from those that serve analysis. He and colleagues [Hugentobler et. al. 2004] have developed a generic model, nicknamed Toolbox, to describe the design process, [Fig. 1 ↪ 50]. According to them, the design process is a hypercyclic combination of the macro and the micro processes. The macro process has three domains of knowing: Analysis, Projection and Synthesis. Each domain of knowing is composed of a micro process which has four steps: research, analysis, synthesis and realization. Each step has its own methods and tools to answer its own questions. The process is facilitated by communication.

## 2.3 Need for Redesigning Case Study

Toolbox shows that traditional Case Study is only suitable for the analytical domain but not for the projective domain of the design

process. It can not be overemphasized that projection is the most distinctive aspect of designing. Without taking care of this domain, Case Study is of important but limited value for Design Research. Having said that, let us not forget all research methods are artifacts. Although traditional Case Study does not support design projection, it does not mean that it cannot be redesigned. My intent here is to take up this task. Certainly, there are already a good number of methods for projection and one can merely refer to the Toolbox to find out. However, few capitalize on existing design cases. This is unfortunate because as Jonas [2000] argues, Design is a historical discipline and the design knowledge base is the artifacts that have been created before. Artifacts are informational sources. They are exemplars and templates allowing copying, imitating and most importantly transferring. His is in sync with the idea of 'memes' which Langrish [2004] has explored in some depth. I will therefore, propose a form of Case Study, tentatively termed Case Transfer which makes use of existing cases for design and which holds promise for supporting design projection.

## 3. Case Transfer vs Case Study

### 3.1 Projection vs Analysis

Case Transfer shares the basic assumption that underlies Case Study: individual cases are knowledge sources. However, in order to support projection, its aim must be different from Case Study. Case Transfer should not be aimed at general theories or principles for the purpose of prediction, but rather at transferred designs for anticipation. To support this claim, we need to examine the nature of generalization and its incompatibility with projection. How is a general theory or principle arrived? In Brief, it is induced and abstracted from different (and effective) particular cases of design through analysis. For example, if one is interested in communication artefacts, one might propose, observe and test various good designs to abstract the underlying principles. One might then use the principles as a guide for designing more communication artefacts. Induction, deduction and prediction sound indeed very logical. However, a general principle is induced from past cases and deducing from a general principle only result in producing a variation of past cases.

In other words, as argued by the American Philosopher Charles Peirce [Davis 1972], induction and deduction create nothing new. Creating nothing new is antithesis to design projection. One might of course argue that principles are often sufficient to guide most design practices, especially if the principles are very broad. Besides, new is after all relative. However, the values of a principle are proportional to the stability of the context to which it is applied. The simpler and the less changing are the variances, the more stable is the context and the more applicable is the principle. But these conditions are not always available. Because 1. Contextual factors critical to design do change, such as changes in values, ethics, tastes and climate. The adopted value of sustainability runs contrast to the principle of economical growth, for example. 2. Deviation & difference are desirable, as in the arts, design and technology in general. People appreciate and want novelty. The greater the deviation from principle, the higher the degree of the novelty. 3. Anomaly or exception which problem lies outside the reach of principle. Often designers must adjust principles to fit specific changing and new situations. Furthermore, ironically a general principle, once abstracted from cases, becomes a goal of designing. The main User-Centered Design principle: designing for the users and their tasks is an aspiration to be aimed at, but is not a specific design solution. In sum, firstly following principle is by nature conservative. Secondly, it is weak in dealing with changing contexts. Finally, it is part of a design brief and not a design itself. However, projection is about the 'ideal – how it could be' and requires knowledge that is 'liberal', helps anticipate changing contexts and is concrete and actionable. In conclusion, if Case Transfer is to aid projection, then it should not be aimed at general principle, but rather, I propose, transferred designs. With this note, the concept transferability needs to be introduced.

### 3.2 Transferability vs Generalisability

I use transferability to describe the quality of knowledge generation and application in design projection and it is meant to be different from generalisability. Generalisability is the quality measure for the relevance and validity of knowledge and it is assumed that knowledge generation and application is free from context. This assumption has been much contested in the post-modern discourse, and as

it has been argued above, it does not fit with design projection. Transferability is a more appropriate concept, I propose.

In various fields of research, there is no definite meaning attached to transferability or at least not as widely agreed and understood as generalisability. Sometimes transferability means applicability and sometime it even means generalisability. However, the following usages are found. Transferability was used by Lincoln and Guba [1981] in social scientific research when they questioned the positivistic approach to social research and proposed 'naturalistic inquiry' as an alternative. In defence of their proposal, they developed four alternative research criteria to match the positivist ones: credibility; transferability; dependability and confirmability. Transferability replaced generalisability for measuring relevance and validity. Later on they considered these as still trapped in positivistic thinking and proposed a completely new set of criteria. Besides social research, transferability is used often in Health Promotion. Health Promotion researchers talk about transferability when they seek to understand whether and how a successful health promotional program developed in one context can be used in another context. This type of research focuses on evaluating the effectiveness of specific program and the extent to which it can be transferred. Besides these usages, the most widely use of the term transfer in research literature is knowledge transfer. Knowledge transfer means bringing (spreading) knowledge developed through/in research to practice. It connotes knowledge utilization.

In all these different usages, one finds only the Wittgensteinian 'family resemblance'. Transferability seems to imply recognition of contextual differences and the demands on specific knowledge application. It also implies an incomplete use and change of knowledge during the transfer. In sum, it implies that knowledge is not wholesaley generalisable but must be used creatively and partially and often the knowledge used is specific rather than general. There is much appreciation in the specificity, complexity, uncertainty of contexts in which knowledge is generated and applied, to the degree that it is more accurate to talk about transfer rather than generalize. All these meanings resemble my own. I hypothesize that when study-

ing cases for design projection, we take knowledge from one context to another context piecemeal to create something new. This taking is what I call transfer. And to evaluate the quality of knowledge, I use the concept transferability. Space does not allow elaboration but transfer is highly related to the better known concepts analogy, metaphor and abduction. All these are related to creation of the new.

## 4. Designing Case Transfer

### 4.1 Sketching

To recap, to support projection, we aim not for general principle but alternative designs to anticipate changes. I propose that to achieve this aim we might study existing design cases and transfer the knowledge therein to create these alternatives. This kind of study, I call Case Transfer. In Case Transfer knowledge is not induced from case(s) but abduced across cases in the same, similar and different domains. I see transfer in design as being similar and yet different to existing practice in other fields, [Fig.1 ↪ 50]. Transfers in Social Research and Health Promotion are existing practices but transfer in Design Research is my own imagination.

In Social Sciences, transferable knowledge is achieved by 'purposive sampling' and 'thick description' of research context. In Health Promotion, detailed comparison of the source context and the target context is also done. However, for design projection, Case Transfer must not only describe design cases, but it must also transfer cases because to a great extent, knowledge is made transferable. Transfers in other fields are done within domains or between similar domains. Following Dunbar<sup>1</sup>, we name them local and regional transfers respectively. Besides local and regional transfers, transfer might be done across domains; and this is called long-distance transfer.

### 4.2 Prototype Testing

I have prototyped and tested a three-step procedure for Case Transfer: First, collect existing design cases; second, analyze these cases and third, transfer these cases to create new cases. In the tests, a designer (K) and a design student (J) have collected, analyzed and transferred (1) mobile phones, (2) mobile objects, such as books,

buses, pistol, fast-food packaging, etc and (3) avant-garde objects, such as street arts, architectures, sculptures, etc to create a variety of mobile communication devices. Here, we were interested in finding out the forms the analyses take and the differences in transferability among the local, regional and long-distance sources, [Fig.2 ↪ 51]. For our purpose here, I should summarize that the analyses took the form of specific 'design elements' including function, physical and sensual form, character, context of use, and the condition or association that the object creates or affords. All these were transferred to create new ideas. By this small study, I am encouraged that studying cases of design systematically for projection is possible and useful. At the moment, we are replicating the study and also studying service design transferability.

## 5. Conclusions

We have learned that traditional Case Study is more useful for the analytical phase of designing and Case Transfer holds more promise for supporting projection. We have also seen an early prototype of Case Transfer. However, there remain open questions ranging from theoretical to practical. Firstly, the concepts transfer and transferability need theoretical examination. If generalization is made possible and valid through induction and deduction, what 'logical' mechanisms are required for transfer? We might draw on Pierce's concept of abduction or Wittgenstein's 'family resemblance', but these arguments still need to be made. Secondly, the idea of artefacts affording knowledge for transfer needs further examination and integration with other research about artifacts. Thirdly, how can Case Transfer be carried out rigorously? What are the criteria for choosing cases for transfer and for evaluating the quality of transfers? Finally, is Case Transfer not based on some general principles? In sum, there is still much to learn about Case Transfer and transferability in design. Research must continue.

Steps of the iterative <i>micro</i> process of learning / designing				
research	analysis	synthesis	realization	
How to get data on the situation as it IS? ↳ data on what IS	How to make sense of this data? ↳ knowledge on what IS	How to understand the situation as a whole? ↳ worldviews	How to present the situation as IS? ↳ consent on the situation	
How to get data on future changes? ↳ future-related data	How to interpret these data? ↳ information about futures	How to get consistent images of possible futures? ↳ scenarios	How to present the future scenarios? ↳ consent on problems/goals	
How to get data on the situation as it shall be? ↳ problem data	How to evaluate these data? ↳ problem, list of requirements	How to design solutions of the problem? ↳ design solutions	How to present the solutions? ↳ decisions about "go/ no go"	
COMMUNICATION "the driver"	How to establish the process and move it forward? How to enable positive team dynamics? How to find balance between action / reflection? How to build hot teams? How to enable equal participation? ↳ focused and efficient teamwork			

Domains of design inquiry, steps / components of the iterative *macro* process of designing

Fig. 1: Toolbox: Categories of Innovations and Design Methods and tools, Questions and Results. ↳ 44/48

Field	Social Research	Health Promotion	Design Research
<b>Aim</b>	Describe/explain phenomenon	Implement promotion project	Create alternative designs
<b>Methods</b>	Ethnography	Evaluation	Case Transfer
<b>Research</b>	Thick description of the context (of research)	Detailed comparison of the context and the project solution	1. Description of source design 2. Alternative design of target domain
<b>Types of transfer</b>	1. Transfer to a different context in the same domain (local transfer)	1. Transfer program to a different context solving same problem (local transfer) 2. Transfer program to a different context solving similar problem (regional transfer)	1. Transfer design to different context solving same problem (local transfer) 2. Transfer design to different context solving similar problem. (regional transfer) 3. Transfer design to different context solving dissimilar problem (long-distance transfer)
<b>Examples</b>	1. Describe the specific experience of PhD students in a particular university, transfer the knowledge to increase understanding of other PhD students in other universities	AIDS prevention program successful in university context, 1. transfer the specific program to low income community context or 2. transfer the program to drug prevention in low income community context (regional transfer)	1. Transfer design of mobile phones to design of mobile communication device 2. Transfer design of mobile objects to design of mobile communication device 3. Transfer of avant-garde objects to the design of mobile communication device

Fig. 2: Transfer in Social Research, Health Promotion and Design. ↳ 49

## Endnote

1 When Dunbar was studying molecular biology labs, he found that analogies were frequently used and most of them were frequently local, from the same experimental domain, regional involving a whole system of relationships from a similar domain, long distance domain-ones that required mapping across very different domains. (p. 196)

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