The Theory-Practice Gap as Generative Metaphor

Jordan Beck & Hamid R. Ekbia

Main Contributions

We interpret the gap as a generative metaphor (Schön, 1979).

We describe the emergence of the gap in HCI discourse and examine its development and possible limitations.

We propose a new metaphor (the continuum) as a way of reframing the theory-practice relationship.

Generative Metaphor 1. The Paintbrush-as-pump Story

... Synthetic bristle development was not going well.

... Comparing synthetic to natural bristles did not yield effective insights.

"*You know, a paintbrush is a kind of pump!*"

Paintbrush-as-pump. Insights from the Story

... generative metaphors create new perceptions, explanations, and inventions.

... they organize features of reality, describe what's wrong, and set a direction for transformation.

... they develop over time.

Generative Metaphor 2. The Theory-Practice Gap

Connecting Theory and Practice (Butler, 1985)

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What's Wrong: Communication

Design Research at CHI and its Applicability to Design Practice

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ABSTRACT
This note describes our analysis of 35 papers from CHI 2011 that aim to improve or support interaction design practice. In our analysis, we characterize how these CHI authors conceptualize design practice and the types of contributions they propose. This work is motivated by the recognition that design methods proposed by HCI researchers often do not fit the needs and constraints of professional design practice. As a complement to the analysis of the CHI papers we also interviewed 13 practitioners about their attitudes towards learning new methods and approaches. We conclude the note by offering some critical reflections about how HCI research can better support actual design practice.

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ACM Classification Keywords
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However, it has been argued that much of this research output is never adopted or used by practitioners because it does not fit the needs and constraints of professional design practice [2,7,8,9]. Given that this is the case, there are several potential explanations why. For instance, Rogers [8] argues that the reason is in many cases that the results developed by researchers are too abstract, too complex, too difficult to learn and take too much time to use. Stolterman [9] argues similarly that a majority of the research is based on an overly simplistic understanding of practice, and as a result, the proposed methods and tools do not fit the complexity of real design work.

Based on the assumption that academic research could be better adapted to the needs of professionals, we decided to approach the issue by engaging in two studies.

First we decided to analyze research papers presented at CHI 2011. We focused our analysis on the arguments and reasons the researchers use to make the case that their contribution is important and valuable to professional practice. We reviewed all papers in the proceedings and identified 35 papers that we determined were intended to improve or support the interaction design process. We analyzed these papers in terms of the way they conceptualize, operationalize and generalize issues of design practice, and what kind of contribution they propose to practice.

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New approaches, methods, and tools for interaction design are created and developed by many in diverse contexts and for different purposes. There are for instance some larger design consultancies that are constantly engaged in the development of new methods and techniques as part of their design thinking. Among these, one can draw more or less directly upon existing theoretical positions (e.g. cognitive psychology), 'import', in the terminology of Rogers [59], and develop existing positions and theories within the frame of HCI (e.g. activity theory [22]) or one can develop theoretical constructs from design practice and examples of interactive systems (e.g. design patterns [42]). One of the persistent challenges for interaction design researchers and practitioners is that there often seems to be a gap between theory and the specific design instance; by nature, theories are abstract, since they must account for a variety of instances, and thus they can be difficult to translate and operationalize in relation to the particular design situation. In this article, we are interested in exploring knowledge constructs that exist in the middle ground between theory and practice. Some of the wider known concepts and forms of knowledge in HCI such as patterns and heuristics occupy this space, arguably because they draw upon a wider set of input than the specific design situation, yet are operational and aimed at helping designers address the specific situation.

Between Theory and Practice: Bridging Concepts in HCI Research

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In this paper, we introduce the notion of 'bridging concepts' as an intermediary form of knowledge residing between abstract theory and design practice and we argue that bridging concepts are distinguished by their ability to facilitate exchange between theory and practice. Articulating knowledge in the form of bridging concepts, prompts us to formulate knowledge in a way that specifies the accountability to both theory and practice. While continuous exchange between theory and practice is important in academia in general, it is arguably even more so for HCI. Within HCI, much theory has been imported from other more established disciplines such as psychology and sociology [59]. For interaction design researchers and practitioners, this prompts constant articulations of how and to what extent newly imported theories are useful. To complicate matters, the subject matter of research in HCI – ever-evolving interactive interfaces and reconfigurations of human-computer relations - is under constant development. This accentuates the need for continuous reflection on how new materials, interaction styles and products challenge our theories, and in turn how theories can be employed to understand these new developments. Bridging concepts provide one way of facilitating this exchange by articulating the knowledge construct both in terms of its ties to theory

Understanding Interaction Design Practices

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What's Wrong: Practitioner Constraints

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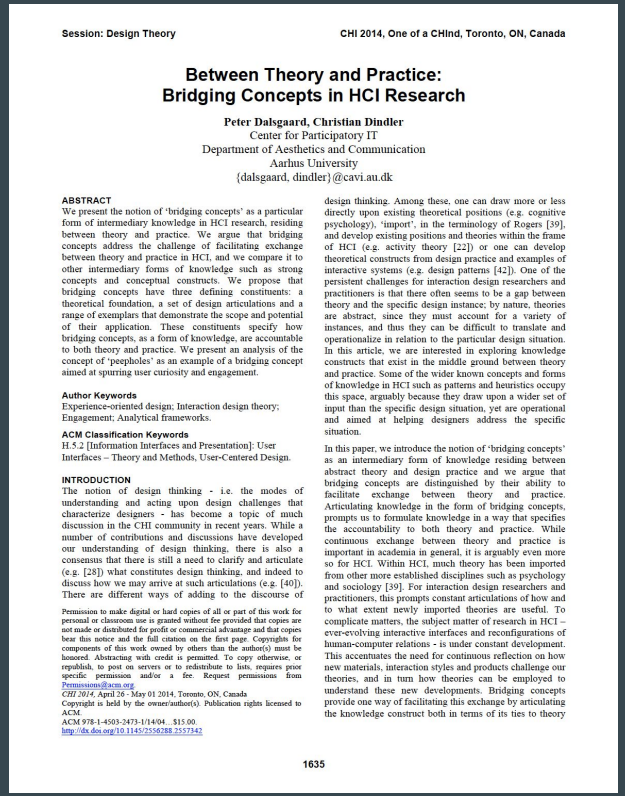

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INTRODUCTION
The notion of design thinking - i.e. the modes of understanding and acting upon design challenges that characterize designers - has become a topic of much discussion in the CHI community in recent years. While a number of contributions and discussions have developed our understanding of design thinking, there is also a consensus that there is still a need to clarify and articulate (e.g. [28]) what constitutes design thinking, and indeed to discuss how we may arrive at such articulations (e.g. [40]). There are different ways of adding to the discourse of design thinking. Among these, one can draw more or less directly upon existing theoretical positions (e.g. cognitive psychology), 'import', in the terminology of Rogers [39], and develop existing positions and theories within the frame of HCI (e.g. activity theory [22]) or one can develop theoretical constructs from design practice and examples of interactive systems (e.g. design patterns [42]). One of the persistent challenges for interaction design researchers and practitioners is that there often seems to be a gap between theory and the specific design instance; by nature, theories are abstract, since they must account for a variety of instances, and thus they can be difficult to translate and operationalize in relation to the particular design situation. In this article, we are interested in exploring knowledge constructs that exist in the middle ground between theory and practice. Some of the wider known concepts and forms of knowledge in HCI such as patterns and heuristics occupy this space, arguably because they draw upon a wider set of input than the specific design situation, yet are operational and aimed at helping designers address the specific situation.

In this paper, we introduce the notion of 'bridging concepts' as an intermediary form of knowledge residing between abstract theory and design practice and we argue that bridging concepts are distinguished by their ability to facilitate exchange between theory and practice. Articulating knowledge in the form of bridging concepts, prompts us to formulate knowledge in a way that specifies the accountability to both theory and practice. While continuous exchange between theory and practice is important in academia in general, it is arguably even more so for HCI. Within HCI, much theory has been imported from other more established disciplines such as psychology and sociology [39]. For interaction design researchers and practitioners, this prompts constant articulations of how and to what extent newly imported theories are useful. To complicate matters, the subject matter of research in HCI – ever-evolving interactive interfaces and reconfigurations of human-computer relations - is under constant development. This accentuates the need for continuous reflection on how new materials, interaction styles and products challenge our theories, and in turn how theories can be employed to understand these new developments. Bridging concepts provide one way of facilitating this exchange by articulating the knowledge construct both in terms of its ties to theory

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The Theory-Practice Gap. Future Transformations

>> make findings understandable and applicable to practice

>> practitioner constraints could be eased

>> abstraction could be reduced such that the connection to practice is clearer

Q1: Why do researchers attend to some features of reality and not others?

Q2: Has the gap metaphor been effective?

Q3: What don't we see?

continuities | lenses

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Opportunity

Frame theory and practice in terms of a different generative metaphor... one that draws attention to connections and synergies.

REVERSAL (Derrida, 1982)

“Expands our understanding of [a phenomenon] by flipping the center and the margins…”

CONTINUUM

emphasis continuities, agreement, and harmony

AFFORDANCES

How and why have practitioners adopted/used the concept?

Q: How do we leverage existing connections to strengthen theory and practice?

Three Paths Forward

Bridge assessment

Case studies of continuities/synergies

Framing practice as a kind of theorizing

... open a space to explore different framing metaphors

THANKS SO MUCH!