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# Philosophy, HCI, and ‘Thought Styles’

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**ABSTRACT**

In this workshop position paper, we exemplify and elaborate on how “*Standing on the Shoulders of Giants*” i.e. a turn to philosophy can be a very useful approach to move forward in our exploration of HCI. In line with the call for this workshop we suggest that the classic notion of “thought styles”, a notion originally developed and proposed by Ludwick Fleck, and later introduced to the HCI community by Janlert & Stolterman might be useful as a conceptual vehicle for further explorations. Further, we elaborate on how this notion might serve as a conceptual backbone for the development of new interactive systems. We explore this notion of ‘thought styles’ by revisiting its historical and philosophical roots, and we discuss how philosophical methods including questioning, critical discussion, rational argument, and systematic presentation in relation to ‘thought styles’ and in the context of HCI might be useful. Finally, and on a more fundamental level, we conclude our position paper by acknowledging that we have a lot to gain from further explorations at the intersection of philosophy and HCI.

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## KEYWORDS

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## INTRODUCTION

As outlined in the call for this workshop, philosophy has "provided a vital perspective for HCI on how we navigate, experience, understand, and judge the world around us and its artifacts". In addition to this, Fallman [2] has suggested that it might be valuable to explore HCI as a design-oriented field, and that philosophy might have a lot to offer for moving forward in HCI [3]. Accordingly, and in relation to one such approach, philosophy might help us to also develop new ways of thinking about the design of (classes of) new interactive systems. In similar terms, Kostakos [9] and others have argued that there is a need for a turn to theory as to move forward in HCI. A turn to philosophy might be just what we need.

In this position paper for the CHI 2019 workshop "*Standing on the Shoulders of Giants: Exploring the Intersection of Philosophy and HCI*" we take this as a point of departure as we explore how the notion of "thought styles" might help in moving forward in terms of interaction design thinking and design-driven conceptual explorations.

## RESEARCH PROBLEM – PUSHING THE ENVELOPE?

In his classic paper "*Stop pushing the envelope and start addressing it*" Steve Whittaker et al [17] suggest that although our field is occupied with designing the next technological device, innovation or interactive system, we also need to start addressing core issues and research problems, and we need to avoid re-inventing the wheel for each design problem we are facing. In short, the paper was a call for more systematic ways to combine practical and conceptual explorations of the field's object of study, and as such it was ultimately a call for a more unified approach to design thinking and doing. In similar ways Höök & Löwgren [6] has suggested that we need to extend the design-oriented research agenda with a focus on the development and exploration of 'strong concepts'. Stolterman & Wiberg [15] suggested that there is a need to combine the field's interest in user-centered approaches with concept-driven approaches.

Clearly, there seems to be a need for us to not only "push the technological envelope" in terms of design and innovation, but to integrate these design efforts with ways of thinking about these design problems. Here, philosophy as the study of general and fundamental problems seems to be a good fit with interaction design and its concern for the 'ultimate particular' [12].

## ON 'THOUGHT STYLES'

To move beyond the dichotomy between the general and the ultimate particular, and between “thinking” and “doing”, we suggest that as a community HCI research should approach interaction design along different “thought styles”. The argument is that using the notion of “thought styles” might open up for new ways forward, beyond any tendency to just work for the pushing of the technological envelope.

The notion of “thought styles” was first proposed by Ludwik Fleck (1896–1961). He was a philosopher who developed the first system of the historical philosophy and sociology of science. Ludwick Fleck claimed that *“cognition is a collective activity, since it is only possible on the basis of a certain body of knowledge acquired from other people”* [4]. When people begin to exchange ideas, a thought collective emerges, bonded by a specific mood, and as a result of a series of understandings and misunderstandings a ‘thought style’ is developed [4]. In short, Ludwik Fleck argued that ‘thought styles’ were both the result of a shared social and cognitive process, as well as such developed ‘thought styles’ worked as a unifying frame for how we, as a collective, understand the world. This, is a similar way as Kuhn has described and proposed the notion of ‘paradigms’<sup>1</sup>.

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<sup>1</sup> For a more in-depth discussion on ‘thought styles’ vs. ‘paradigms’ see the paper *“Thought styles and paradigms – a comparative study of Ludwik Fleck and Thomas S. Kuhn”* by Nicola Mölsner (2011) in the journal *Studies in History and Philosophy of Science* 42 (2011), p. 362 – 371.

## ON 'THOUGHT STYLES' IN HCI

In this paper we are interested in the joint efforts made to conceptualize interaction design, and how we can use notions from philosophy to understand such ‘collective efforts’ to unite conceptual thinking with design efforts in HCI. We find the notion of “thought styles” as an interesting concept that might serve as a bridging notion between philosophy and interaction design research in HCI.

In 1997 Janlert and Stolterman [7] started their work on exploring how digital artifacts could be described in terms of its overall character. They suggested that beyond any description of a particular design’s functionality it could also be described in terms of its ‘dynamic gestalt’ or character. Further, they proposed that this “overall character”, could be thought of as the digital manifestation of a particular ‘thought style’ behind a particular form of an interactive system. More recently, Janlert & Stolterman [8] revisited these ideas in the book *“The things that keep us busy – The elements of interaction”* where they suggested that ‘thought styles’ in HCI form how we understand what an interface is, and accordingly how we “read” and make sense of interactive systems, not just as a single user, but as a collective. In their book they suggest that the notion of ‘interface’ has developed over a period of several decades and has been influenced by evolving technology and application areas. Further, they choose to categorize some earlier and existing ways of thinking about the interface as belonging to four different thought styles including: (1) surface-of-contact thought style; (2) boundary thought style; (3) control thought style; and (4) expressive-impressive thought style. Further, these thought styles are not distinctly related to a particular time period, particular technology, or type of design, but they have evolved over time and can be seen as stemming from different traditions. As Ludwik Fleck writes, “every thought style contains vestiges of the historical, evolutionary development of various elements from another style” [4, p.100]. And as pinpointed by Janlert and Stolterman [8] we can see that all four thought styles continue to be present and influential in our field, sometimes competing, sometimes cooperating with each other. The different thought styles are devoted to different aspects of the interface." [9, p.18].

To explore this way of analyzing interactive artifacts [14] proposed that it would be valuable to model ‘flows of interactivity’ as a complement to User Interface analysis. In a similar recent attempt made to focus on this ‘character’ of an interactive system and how it could be designed in relation to a particular thought style Vallgård [16] explored form-giving as a design-oriented approach to explore digital artifacts ‘temporal form’ – both from the perspective of how this could be manifested in computational materials as well as in relation to interactive systems design.

## IMPLICATIONS FOR HCI

Attempts to bring philosophy and HCI together does not only enable more systematic theorizing, or more critical analysis of interactive systems, but as argued by [5] reflection itself can also be an important outcome in HCI design research.

Further, we see opportunities to contribute to a more thoughtful way of thinking about different thought paradigms in HCI – no matter if these are a result from research or how practice develops. For instance, the WYSIWYG paradigm has been a strong paradigm for the development of the graphical user interface (GUIs). What are the fundamental thought styles that governs this paradigm? Or if we take IoT (The Internet of Things) as another example? Further, if we consider the thought styles behind skeumorphic vs. non-skeumorphic interaction design, or if we examine the fundamental ideas behind dialogue interfaces, command based interfaces, or de facto standards for short cut commands, then we can probably analyze and identify certain thought styles that both scaffolds and governs these designs.

We suggest that a more explicit focus on the particular ‘thought styles’ behind these different models for interactivity can help us in terms of designing better systems, but also make us more aware of these collective ideas that forms our understanding and design of these interactive systems in the first place. Finally, it might help us as a research community in the further development of a vocabulary that enable us to discuss the form of, and qualities of the interactivity or ‘interactivity attributes’ [11].

## ON DOING PHILOSOPHY & HCI

So how can we as HCI researchers work with these bridging activities across philosophy and HCI? Well, if we think about the classic philosophical methods as including questioning, critical discussion, rational argument, and systematic presentation, there are a number of things we can do. For instance, and in relation to these four approaches we can do the following:

**Questioning** – By exploring different ‘thought styles’ and by examining how such styles scaffolds, governs, influences or enables certain designs we can question and open up for discussions and explorations of alternative interaction design paradigms, we can question “de facto” standards, and through such acts of questioning we can further examine conformed styles of interaction design.

**Critical discussions** – Not only can we question, but we can also critique. Such critical discussions in philosophy serves the purpose of enabling close, informed and elaborated examinations. As a process it involves questioning, but it also establishes a foundation for critical studies of interaction design. Such critical studies are important to our field, and in relation to the focus on ‘thought styles’ in this paper it enables HCI researchers to examine alternative models and ways of thinking about interaction in relation to its underlying “thought style”.

**Rational arguments** – An important dimension in philosophy is to make sure that arguments are coherent. While empirical research relies on ‘correspondence’ as its ultimate guarantor, i.e. that theoretical claims are also possible to verify and exemplify with data and empirical examples, the idea of ‘coherence’ is that the different arguments comes together as a rational and logical whole. Here, rational arguments form pieces of a theory into a larger theoretical body. In relation to working across philosophy and HCI this would mean to examine a particular design from the perspective of how well the arguments, and the presentation of how its intended purpose fulfil some particular user need. For instance, does the description of user needs in relation to the proposed solution, and in relation to the described use case make sense? Or is it possible to envision a particular use based on a particular design and the design concept it is built around? In short, this perspective highlights the importance of examining design logics.

**Systematic presentations** – Finally, the forth perspective that we would like to include here has to do with ways of structuring an argument. In philosophy, this is key for establishing a particular way of seeing things. In similar terms this is increasingly an issue in HCI. Papers that presents HCI research need to tell a story, it needs to be engaging, and it needs to move the reader from an interesting research problem to the exploration of the use of some interesting pieces of digital technologies. Here HCI has a lot to learn from philosophy in terms of how to present new work in a meaningful and engaging way, but also in relation to the already established body of knowledge.

## 5 IMPLICATIONS OF DOING PHILOSOPHY & HCI

1) We can notice that this orientation of HCI research might serve as an important complement to approaches in the area of STS – Social Technology Studies (a related field of research that has a history of incorporating philosophy or at least theoretical perspectives borrowed from philosophy in the study of information technologies).

2) We think that a more explicit and deliberate focus on doing HCI research at the intersection of HCI and philosophy will help the development of theory in our field. As such it will have a positive effect for the future development of HCI – beyond ‘pushing the envelope’ in terms of new technological innovations, and towards more systematic approaches to generate new knowledge in HCI.

3) We think that this approach might add important perspectives of importance for HCI practice. Specifically, we see opportunities for working with idea development for innovation.

4) We also see a potential to move practice beyond the generation of buzzwords, and to also move the discussion beyond e.g. new features, new functionality, or beyond the presentation of new interaction modalities.

5) Finally, we think that ‘thought styles’ might not only serve particular design processes, but it might also contribute to the discussion about interaction design as belonging to different ‘schools’. And also for thinking about different interactive systems as belonging to different ‘classes’, paradigms, or ‘thought styles’. This might ultimately contribute to what Rogers [13] highlights as a need to further develop theory in human-computer interaction research.

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