Doctoral Colloquium COOP2016: Encouraging design creativity in asynchronous collaborations

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Abstract. This dissertation aims to encourage the worldly creative agency of the designer in a distributed and asynchronous setting. It proposes a theoretical and technical framework to support the creative collaborative practices among designers. The framework is developed on the premise that the designer follows certain strategies of positioning and coordinated interaction during the creative process. Through a research-through-design and concept-driven approach, this work aims to demonstrate how the creative process emerges over time and illustrate how the positioning process and the interactions affect not only the outcome, but also the individuals themselves. Based on this framework, the current work explores the development of conceptual constructs and their design manifestations through prototypes to evaluate how to optimize the position of the designer in remote contexts. The dissertation strives to contribute to agenda of CSCW and expand the knowledge on how to support specific patters of creative behavior in the design practice.

1 Introduction

Social interactions among team members such as gathering and exchanging ideas and information, and engaging into active discussions are critical to the creative process [1]. This process is usually supported by the exchange of artifacts [2], for example: sketches, pictures or screenshots of the work. Nowadays, it is common for teams to be distributed across different geographical locations [3], which makes almost impossible for team members to have face-to-face contact. Online collaboration platforms such as social media, instant messaging and file sharing applications play a key role in supporting discussions and interactions within the team [4]. However, communicating ideas through digital media is not a straightforward process: it is not as simple as just sharing files on the Internet. Depending on the digital medium, the affordances and means to express the original ideas will change. For instance, interacting with someone through a video call or by only by exchanging images and texts will bring different opportunities and constraints. The fluidity or pace of the collaboration process varies as well, sometimes happening on almost real

time, but mostly scattered trough longer periods of time (hours, days, or even weeks). All these factors add more complexity to the creative process and hinder the work of distributed design teams.

This work explores the concepts of positioning and anticipatory readiness, which are based on research on pragmatic psychology [5, 6] and neuropsychology [7]. Both concepts explain how individuals interact with objects and other individuals based on their cumulative history of experiences, anticipating the consequence of their future interactions and adapting their future behaviors. Thus, every interaction does not only affect the receiver of the action, but also the subject, transforming the individual into a self-determining agent.

This dissertation proposes a theoretical and technical framework to support the creative collaborative practices among distributed teams. The framework serves as departing point to theorize creativity as an interactive process where the coordinated actions of the designers shape both the creative individuals and their outcomes. While previous research has examined creativity mainly by its outcomes, recent studies have brought into attention how creativity evolves over time and how the group dynamics and interactions come into play during the creative process [8, 9]. The current work extends the existing research on creativity following a bottom-up approach and places the actions and interactions among individuals at its core. This dissertation studies the creative process through a perspective of position taking and coordinated interaction in relation to others. It focuses on understanding the way the individual takes different positions and reorients those positions based on the direct coordinated activity with other individuals. Furthermore, it brings a multi-level perspective [10] to the study of creativity by taking into consideration the socio-temporal context of the actions of the individuals instead of only studying the designers and their isolated minds.

The current research draws from design-centered and theory oriented approach. Therefore, it explores the development of the framework by the implementation of design artifacts and prototypes through an iterative process. The framework and its design explorations are aligned to the agenda of the CSCW community on studying the social dynamics that define the collaborative work of practitioners. It is expected that the resulting theoretically and empirically grounded concepts will contribute to the theory of CSCW and expand the knowledge on how to support specific patters of creative behavior in the design practice.

2 Research questions

The dissertation is an exploratory investigation on the premise that the designer follows certain strategies of positioning and coordinated interaction during the creative process. In particular, the research articulates on how to optimize the position of the designer in remote contexts. This work follows a research-through-design [11] and concept-driven approach, [12]. It applies empirical methods (such as Grounded theory, interviews, ethnography, experimental interventions and participant

observation) in combination with methods of interaction design research (such as design probes and prototype evaluations). The focus of these methods is the development of conceptual constructs and the creation of prototypes that bind together those constructs. By analyzing how the creative process emerges over time, it shifts to a process-oriented focus and illustrates how individual creative interactions affect not only the outcome, but also the individuals themselves. It aims to articulate which constructs describe and predict the designer's positioning process during asynchronous collaborations and how those constructs can be implemented into prototypes to mediate the interactions and group dynamics and result in more design creativity. Both, constructs and prototypes serve as instruments for building new concepts, artifacts and eventually as input for the development of interaction theories.

3 Work in progress

The dissertation stands within the first two years of the work. Thus, it is at an early stage, and feedback from the Doctoral Colloquium should have a fruitful impact. The first two years centered on developing the initial framing of the research project. Until now, the main achievements have been the articulation of a framework grounded in relevant theories on social psychology and the execution of explorations to understand the social aspects of the distributed design practice. Figure 1 presents a model the theoretical base of this research. The model makes explicit the relationship between the process of position taking and the interactions with other individuals.
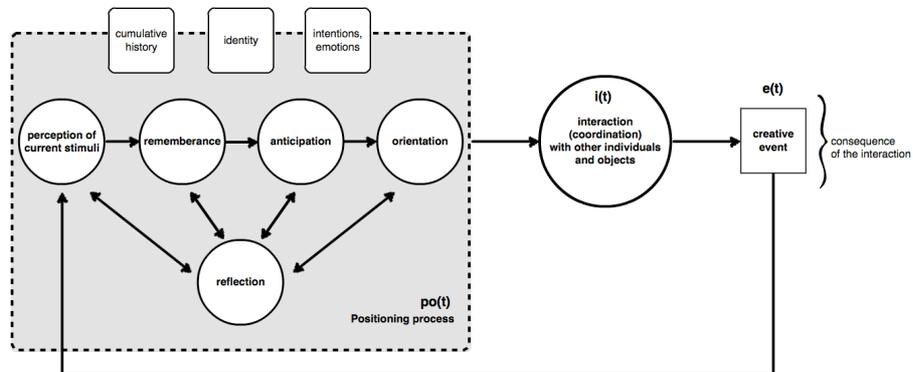

Figure 1. The model makes explaining the position taking process and its direct relationship to the interactions with the world

A survey and a series of interviews provide insights of a set of social processes that act in parallel, some centered on the core creative activities and others on supporting the team dynamics [13]. This study also uncovered that designers neglect to use email and prefer tools such as social media and other general-purpose tools due to the support of more natural and informal communication. Several problems that designers face during the creative process emerged from the interviews. For instance, there is a lack of support to track the progress and to go back to previous steps of their design.

Additionally, designers have difficulties on explaining the rationale behind their ideas and they miss means for receiving and providing feedback. Three further exploratory studies proposed different prototypes to support the needs of collaborative design practice and a final experiment to study how different features affect the designer's positioning process during asynchronous collaborations. Further studies should center on field evaluation, including longitudinal studies of use of well-known tools and prototypes implemented for this purpose.

3 Expected contributions

The contribution of this research strives to be theoretical and technical, addressing and challenging the design implications for asynchronous collaboration tools for designers and inspiring the forthcoming research on interaction design and computer-supported collaborative work.

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