Analyzing Children's Contributions and Experiences in Co-design Activities: Synthesizing Productive Practices

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Abstract

Today, it has been broadly acknowledged in the CCI community that children are not only active learners and users of technology, but can also actively participate in the design process. However, it remains challenging to analyze children's experiences and creative contributions resulting from co-design activities (e.g. stories, paper prototypes, enacted ideas). This workshop will explore different ways to analyze children's (0 to 18 years) experiences and contributions in co-design activities, the perceived benefits and challenges of these approaches, and will serve as a venue for synthesizing productive practices that will move the CCI community forward.

Author Keywords

Participatory design; co-design; co-creation; children; design methods; data analysis

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous

Introduction

Participatory Design (PD) is often described as a set of theories, practices and studies related to the design of technology, aiming to give those that will ultimately be

impacted by the technology a voice in its design [1][2]. Under the influence of PD, the role of children in design processes has changed tremendously [3]. Whereas children were initially involved passively as technology users, their role was gradually broadened to that of active participants using a variety of co-design techniques. Nevertheless, it has been acknowledged that it is not easy to involve children as design partners in open-ended, future-oriented work [4]. The particular challenge that will be addressed in this workshop is how to analyze children's experiences and creative contributions resulting from co-design activities. This challenge has been a topic of much debate in the Child Computer Interaction community.

Broadly speaking, a distinction can be made between researchers looking for inspiration in the form of useful design ideas (e.g., [5] [9] [7] [8]), and researchers that take a more interpretative stance by looking beyond the surface level of children's ideas to deduce insights and knowledge embedded in children's creative contributions (e.g., [9] [10] [11] [12]. In previous work, we used the terms *descriptive* and *knowledge* perspective to refer to this distinction [13]. Another way to think about this is in terms of co-design as a *practice* and *research through co-design* akin to research through design. If there is not yet a well-defined design problem, approaches that fall under the knowledge perspective may be more appropriate as they provide researchers with profound insights in what drives and motivates children. In later design stages, the descriptive perspective may be preferable as the focus will have shifted from *problem* to *solution* finding. At this point, researchers may be more interested in quickly developing one or more prototypes based on a descriptive analysis of children's ideas, focusing on

functional elements (e.g. product features) and aesthetic characteristics [13]. The knowledge and descriptive perspective can be seen as the opposite ends of the same continuum.

Within the descriptive perspective, different approaches have been developed. An often used technique in Cooperative Inquiry [5] is to give participants a bag with materials to build low-tech prototypes. Each team then presents their prototypes to the other teams and an adult takes notes on the *big ideas* on a white board. Big ideas are the ideas that are most surprising, most repeated among groups and evoke most reaction from the whole team. These big ideas are then developed into working prototypes [6]. In turn, Read et al. [8] have looked for better ways to include and represent children's ideas and to help children understand how their contributions are used in the further design process. Their TRAck (tracking, representing and acknowledging) method encourages careful scrutiny of children's designs, and allows researchers to distill useful design ideas in a quantitative manner. With TRAck, a more inclusive PD process can be ensured, because the ideas that come through and are developed into working prototypes are those of the majority of children rather than those preferred by the designers [8].

Within the knowledge perspective, different types of knowledge have been revealed with co-design techniques. According to Sanders [14], the act of *making* in co-design activities enables participants to reflect upon their experiences and express *deeper levels of knowledge* that would not have surfaced without such concrete materials. With deeper levels of knowledge she refers to people's *tacit* and *latent* needs.

These needs cannot readily be expressed in words, as they relate to *silent knowledge* that is practiced in everyday life or to *future needs* that are difficult to identify in the present [15]. To unravel these deeper levels of knowledge, Sanders [15] focuses on the story that comes along with the design. The recurring themes in these stories are believed to reflect participants' tacit and latent needs and are used to inform design.

Other researchers have focused on using co-design techniques to elicit *values,* a particular kind of knowledge [16][17]. The concept of value has been used in psychology to explain the motivational basis of attitudes and behavior. Approaches that fit within this strand see the co-design process as a negotiation of values that participants bring to the table [18]. A core task for researchers is to mediate this process and facilitate dialogue between participants. Since not all values emerge by explicit means, careful observation and interpretation are required, also with regard to the artifacts that are being created. To this end, Van Mechelen et al. [13] developed the GLID method (Grounding, Listing, Identifying, Distilling). With GLID, verbal and material co-design outcomes are integrated in a multimodal analysis. The method aims to go beyond the surface level of ideas, by identifying children's values embedded in co-design outcomes.

Despite these valuable contributions in the field of CCI, some challenges remain, at least partly, unresolved. One such challenge is the risk for conformation bias. Taking a knowledge perspective to analyzing children's contributions implies a process of interpretation. Since interpretation is not value free, multiple and equally valid interpretations can co-exist. This increases the risk for confirmation bias and *ventriloquism* whereby

the researchers' own views are stated as if they were articulated by the participants. Another challenge is the analysis of different semiotic resources in a coherent manner. A tendency in both the descriptive and knowledge perspective is to focus primarily on what participants say about their creations, neglecting other modes, such as the visual and tangible dimensions of the artifacts. Although this problem has recently been addressed by some researchers (e.g., [13][19]), it remains challenging to move away from this unilateral focus on the verbal explanation. These and other challenges will be addressed during the workshop.

Workshop Goals and Expected Outcomes

In this workshop, we reflect on the analysis of children's creative contributions and experiences in co-design activities. We intend to explore and map out the ways in which researchers and practitioners in the CCI community have approached this in academic and industry settings alike, and we will define and prioritize a future agenda. This will be fostered before, during and after the workshop through a number of forums. A dedicated website will serve as a portal for forming and discussing this agenda within and outside the workshop: www.codesignwithchildren.wordpress.com

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