Crowdsourcing For Children: Exploring Threats and Opportunities

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Abstract
Children are increasingly being engaged in product
development, but they have yet to be introduced to the
concept of crowdsourcing. Several opportunities and
threats when designing a crowdsourcing platform
specifically for children are proposed as topics for
further discussion.

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Crowdsourcing; children; interaction design; co-
creation.

ACM Classification Keywords
H.5.3. Information interfaces and presentation (e.g.,
HCI): Group and Organization Interfaces; Computer-
supported cooperative work;
K.4.1. Computers and society: Public Policy Issues;
Ethics

Introduction
As children have been already actively engaged in the
evaluation and co-creation of products [2] we would
expect in the near future a more direct and active role
in crowdsourcing. While currently working in designing
a novel crowdsourcing platform that is tailored to
children we have encountered a number of topics for
future research that we feel are worth discussing. With
this paper we would like to sketch out threats and

opportunities for both children and crowdsourcing platforms.

The issue of the role of children in crowdsourcing: as workers or requesters

Within the context of crowdsourcing, children could act as workers, requesters or both.

As workers, children could complete tasks that allow companies to make use of their unique and creative way of thinking, particularly when developing products for this specific age group such as toys, games or books. There are obvious threats with children being workers in such platforms. We would distinguish direct and indirect threats. A direct threat is exploitation of their work or asking them to perform inappropriate work. An indirect threat would be to steal data of their parents or get access to computers or their home. As easy it is to imagine threats, one could also easily acknowledge opportunities. For example, children could complete tasks for learning purposes or for having fun or even for socializing to exchange experiences with other children around the world.

One could also imagine children being a requester in a crowdsourcing platform. For example, children could request the help of workers to extend their learning tasks or to confirm their homework. There are many parents that would appreciate such help either because of time or other lack of resources that could see an extended assistant in crowdsourcing platforms. Children could learn from the professional experience and general knowledge of adults by creating tasks to propose questions and get them answered. A threat for such a scenario would be that the children actually exploit the potential help they can receive from these

platforms and either cheat for their homework or even worse get the wrong mentality for their schooling tasks.

A platform allowing children to be both requester and worker while adhering to crowdsourcing rules is arguably the most challenging to create, especially when adults are not included.

The issue of age and time

We expect substantial differences in possible roles and types of tasks children are willing and able to accept depending on their age and level of development. For example, as it is in the case of child modeling, overseeing by their parents especially in younger ages would be absolutely necessary. This fact calls on both the commitment of parents as well as whether they would have the time and willingness to monitor and assist their children. Schools could also play a role. For learning purposes, some crowdsourcing tasks could be included in curricular or extra-curricular activities under the supervision of teachers or other staff members. For instance, a science teacher could ask her class to help classify data in Zooniverse.org or an arts teacher could ask his class to submit their drawings for a T-shirt design on DesignCrowd.com. In the case of older children, aged 13 to 14, in which social media usage is already acceptable some more autonomy could be granted under the closer supervision of the crowdsourcing platforms themselves. A potential threat is that children might be spending even more time behind a monitor and be less physically active. In terms of the children's age there also the question of how transparent a crowdsourcing platform should be. For younger children a more simplistic explanation would be necessary while for elder ones a more sophisticated
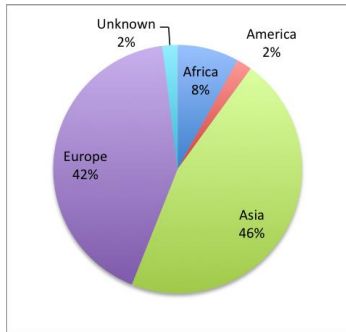
Figure 1: Respondent demographics for our CrowdFlower campaign on worker motivation.

Figure 2: Reasons to continue using crowdsourcing platforms. Each reason that was provided by at least 5 respondents is included.

one might even be desirable for their learning experience.

Furthermore, when children are involved in a design process with adults, it can be challenging for adults to accept their young team members as peers [1]. At the same time, children may hold on to a traditional power dynamic where adults are considered teachers or superiors. Even within a group of children, age difference can play a part, to the point where negative reactions are given to content designed for children that are only few years younger or older [3]. The same challenges could occur when these parties meet on a crowdsourcing platform.

The issue of motivation and reward

The main motivators for children and adults to keep using crowdsourcing platforms are likely to differ. To gain insight into motivational factors for adults, we administered a questionnaire via CrowdFlower. We asked participants for their top three reasons to keep using crowdsourcing platforms, followed by the option to list things they are missing in the crowdsourcing platform they use. 50 participants were involved (demographic shown in figure 1, age ranges unknown). We spent $6 and all responses were gathered within 66 minutes after launching the campaign.

Figure 2 shows that money is by far the largest motivator for adults. Others include the ability to learn, varied work, meeting new people and fun. Further research is needed to discover the motivations for children; we anticipate that fun and learning will be high on the list. From figure 3 we can conclude that crowdsourcing workers overall seem to be content with the platform they use, although some wished for better

support and several (technical) extensions were suggested.

A platform that caters to both adults and children needs to be beneficial to both parties. Crowdsourcing could include different types of rewards than the ones offered in current platforms. Examples might include educational material or toys. The intervention and responsibility of a parent would be needed for financial incentives for the child to participate. The potential threat in this case would be that a parent with evil intentions might exploit the work of the child to gain financially from their work.

The issue of expectations

It is unclear what exactly we can expect from children in a crowdsourcing environment in terms of quality and commitment. The ideas from children may be impossible to realize and can be challenging to interpret, especially when communicated verbally [4]. As we cannot force children to complete a certain task or project, progress can be unclear and it could be abandoned at any time. Participation should remain optional at all times and this should be clearly communicated.

Platforms should be designed with these characteristics in mind, for instance by providing ways for children to participate non-verbally, ensuring that tasks are clear and concise and by carefully managing the expectations of all participants.

Risks

The potentially harmful effect interactive technologies may have on children has long been topic of discussion [2]. People in favor of children interacting with
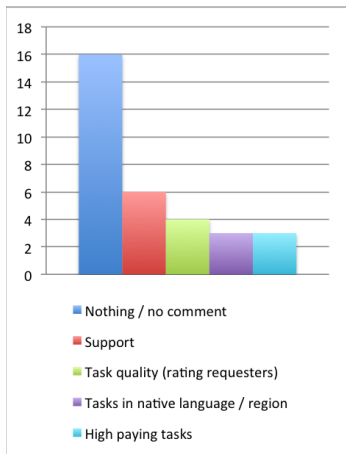
Figure 3: Suggested improvements for crowdsourcing platforms. Each suggestion that was made by at least 3 respondents is included.

technology believe that exposure to technology will contribute to academic and professional development. The Internet in particular is seen as a source of educational opportunities. This debate extends to crowdsourcing, where children are not only active as consumers of information but also communicating with others and publishing content. Providing a secure and safe environment, in terms of privacy and age appropriate content, is paramount in this situation. Abuse of the system needs to be prevented, for example it should not be possible for adults to pose as children.

A way of managing age appropriateness and privacy could be to have parents interact with the crowdsourcing platform and then relaying information to their child, instead of having the child use the platform directly. However, children and their parents cannot be expected to recognize and accept the intricacies of crowdsourcing. Therefore, the issue of awareness and educative material is important. After developing a platform, it should be properly maintained and monitored. All stakeholders involved should be educated on its workings and any possible risks involved.

Conclusion

We feel that the concept of crowdsourcing holds great potential for children. Bridging this gap could offer several opportunities: allowing children to contribute from their creative way of thinking, giving them the chance to learn and develop, having fun and socializing with other children and adults alike.

However, designing such a platform poses potential threats such as: exploitation, fraud, lack of supervision, privacy issues and mismatched expectations.

We believe it is important to involve children in the design process of the platform and to reach out to the research community, to explore the ways in which children can benefit most from the concept of crowdsourcing. We would like to propose the combination of children and crowdsourcing, including its opportunities and threats, for discussion in the workshop and as a topic for future research.

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