

Designing an iPad prototype for collaborative brainstorming

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One of the important purposes of collaborative work is generating ideas on a specific problem. This technique is well known as brainstorming, which was formalized in 1941 by Alex Osborne [MM07]. Several factors have an impact on the process itself. First of all the environment. It should encourage imaginative thoughts and ideas. Secondary the discipline in the group, so no voices are suppressed and all ideas are carefully and equally captured to be further analyzed. Additionally a fun factor can be added to this list as a moving force of imagination [BO03]. The collaborative brainstorming can be handled in two different ways: either locally by group of people sharing the same location or distributed, which happens virtually with the help of electronic means of communication. In both cases the variety of interactions depends on the tools and devices used by the participants.

ideaPitch [JP09] prototype has been initially implemented for distributed and co-located brainstorming for a desktop usage and later as a smartphone application for mobile users. The desktop gives limited interaction capabilities, which potentially affect the fun factor. The smartphone puts constraints on possible interactions due to its small dimensions. To support collaboration of a local group of people an ideaPitch for MS Surface has been implemented, which has extended the supported devices and ways of collaboration between participants, making possible an interaction of the mixed teams: local group of 2-4 participants around the MS Surface and distributed participants using desktop computers or smartphones.

The recently released iPad device opens new interesting opportunities to designers providing an advanced hardware and software platform for their applications. The iPad is like an interactive version of a DIN A4 notebook. It has a similar size, it is mobile and you can use it to read, write and scribble. It also has additional features like the speakers and various sensors. At first sight the iPad looks as a great platform for prototyping a collaborative brainstorming application due to availability of a multitouch display, various sensors and mobility. The challenges to overcome when designing a collaborative application include but not limited to: multiuser (interaction within a small group of 2-4 people), orientation problem (how several people will collaborate around the device), screen dimensions (it is bigger than the smartphones have, but smaller than the real cooperative devices like MS Surface provide). Among many there are two scenarios of using iPad for collaborative brainstorming such as: a personal interface for a virtual interaction with other participants and minimized version of a tabletop to support interaction between 2-4 people. The first one has been selected for implementation, leaving the second scenario for further research.



Figure 1: First prototype of ideaPitch for iPad

The first prototype is depicted in the Figure 1. It was designed to be used by a single user to interact with others through network. The prototype uses the exact metaphor of pitching a ball as the original desktop version. The user interface resembles a sketch book with hand-drawn avatars. The user sends a message to another user by dragging and throwing a ball to a corresponding avatar. The prototype uses the same throwing a ball interaction as the iPhone version but makes it as a basic UI layout for the whole application. The user experience was enhanced by additional animations, when the user investigates the interface without following a specific scenario. Also the auditory icons were added to provide a better feedback on user actions: both correct and erroneous. The evaluations have shown that users find the interaction with ideaPitch for the iPad more entertaining and comfortable to use in comparison to the mobile version. The iPad's screen allows users to see several ideas simultaneously without navigation between the views.

The further work on the iPad prototype for collaborative brainstorming will include design, implementation and evaluation of a prototype for collaboration in a local team. In this context several scenarios will be evaluated, such as: using a statically mounted iPad as a tabletop computer, passing the iPad between participants and using several iPads, which share the same creative workspace. As a second direction of further work, new metaphors and gestures will be researched to extend the note-taking process during the brainstorming with multimedia content and simplifying the way of adding new content and interacting with it.

References

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