drawnTogether – a collaborative approach to virtual graffiti

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1. USER STUDY 1

1.1 Interviewees

We conducted nine people:

- (A) male, an iphone 3G S user
- (B) male, a computer science graduate student
- (C) female, a person who enjoys drawing
- (D) male, an iPhone 3G S user
- (E) male, a computer science graduate student
- (F) male, a computer science graduate student
- (G) male, professional graphic artist and iPhone 3G S user
- (H) female, non-technical profession, non-iPhone user

1.2 conducting user study

Conducting the user study can involve multiple methods. For our study, we took an informal, guided conversational approach to gather the information. We provided a semi-structured questionnaire that our interviewers were to follow.

This questionnaire was divided up into multiple phases.

1.2.1 Introduction

This phase consists of multiple steps:

- welcome and greetings
- gather consent and completion of form
- introduce the system in conversational form
- communicate goals for this study

This phase is general housekeeping and provides for a welcoming and customization period between the interviewer and interviewee. Any general questions are encouraged at this point about the general concept, but the system has not been officially "placed in their hands" yet.

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1.3 Facilitation

In order gather information about usage, we will physically hand the users a lo-fi representation of the drawnTogether interface in the form of a tangible, translucent enclosure with cards that can swap out to represent the varying views of the application. When the user "navigates" between the views, the interviewer will act as the computer and move the cards for the user. The benefits of this are numerous, but primarily, it allows us to iteratively improve the interface and pilot new versions in a much faster way than implementing the changes in software first.

We interviewed multiple individuals (eight total) over a period of three days. The first six individuals used the same version of our interface. The last two used a modified version based on feedback gained from earlier interviews. The second version of our application views were very well received, as will be seen in the following commentary.

For each interview, we began our questions with handing them the device, then asking the following:

> Is there anything particularly interesting about the concept of the application?

Most respondents actually felt the application to be quite interesting. Respondent B, however, felt that it's merely a "funny application", and doubted if there would be enough situations for the system to be used. He did provide one possible scenario. Imagine a group of architecture students enter into one building to make a sketch of the inside structure of this building. Each student can find whether the viewer around him or her has been drawn or not. If not, he can add his sketch on the screen of the application. If yes, he may ignore it and go to other places to draw or make some correction based on others' drawings. It was interesting to the researchers that even a skeptic began to imagine practical, unforeseen collaborative uses.

Following the initial question, we followed with providing four erasable markers of differing colors to the interviewee. We had them "navigate" to the drawing screen if he or she were on a different screen. At this point, we asked the following:

> Can you draw a simple picture using multiple colors on the screen?

With this question, we wanted to gauge the intuitiveness of the interface and the user's ability to recognize visual affordances and their mapping to intended tasks. Person A asked "Can I draw now? What's the status of my pen?". Several users touched the settings button before ever trying to draw,

with the purpose of exploring their options and tools before actually beginning any sketch creation. Person C immediately picked up a random pen (blue) and began drawing on the screen. When asked how they would change colors in the application, the response was "Oh... the settings page", to which she instantly and easily navigated to the page and chose the blue color. Again, with each navigation, the interviewer acted as the computer and moved the cards as requested to transfer the user to different views. Once in the setting page, all users had an apparently clear understanding of how to manipulate the current drawing color or erasure.

Multiple users asked about the tagging features visible on the settings page. With minimal instruction from our facilitator, users understood the nature. One thing was made clear to the developers with these questions, though. The ability to create tags and filter tags on the same view was a little confusing and needs to be revisited. The later revision used by the last two interviewees provided a much clearer mapping and helped to eradicate most of the confusion.

There were several questions about the appropriate time to tag a drawing or as to the origin of the tags used for filtering. These questions were quite helpful in illuminating deficiencies with some of the feedback mechanisms around the affordances related to tagging.

One interesting suggestion from multiple users was to add a voting feature for a given location's sketches. This way, a ranking per location could be used to sort each location and be communicated on the map also.

Our next question was one which encouraged them to examine the map view, if they had already not seen it:

> Please navigate to the map view. *[pause for navigation]* What pieces of information do you gather from this view?

Once on the map, Person G mentioned "Oh, I can see where other users sketches are. Cool". This was very satisfying to the researcher that the primary and immediate purpose of the map was summed up so well. User A asked, "Can you show the sketches actual sketches from different locations on the map? In a pop-up window?"

1.4 Interview Completion

In this phase, we attempted to provide a summary of each person's response and to gather further clarification if needed. We also ended with one final question, intended to spark a free form conversation:

> Are there any recommendations you would make to improve your experience?

Two individuals suggested moving the color palette from the setting page to the bottom of the drawing view. This would have the effect of drastically reducing the interaction required for a meta task of changing the drawing color. Several users changed colors at least twice, so the benefits of this change seem beneficial. For the final two interviews, this change was adopted and proven to be a valid enhancement immediately. Person G used the modified drawing view and changed colors five times while creating a sketch. Person H changed colors four times. This was a definite, measurable improvement and allowed for a more refined workflow for task completion.

The sacrifice of reduced drawing area was mitigated by removing the top bar completely in the drawing view and adding navigational elements to the bottom toolbar to allow for access to settings and the map. This had no visible, negative effect on the latter participants in the study on their ability to navigate between views.

Another suggestion, offered by Person A, was to launch the application with the map page initially. Further conversation with the participant on this consideration showed several potential benefits of adopting this.

- Participation feedback is immediately communicated by this macro approach to making visible the locations containing sketches. Each sketch becomes just one minor data point on the geographical plot.
- Users can immediately choose to change their location in order to either add to an existing drawing or to create something new and unique
- Community involvement is augmented by seeing participation. If each map pin is somehow annotated with the sketch age, a visual component could easily communicate a temporal nature for each sketch showing which areas could benefit from a "fresh creation".

In closing, almost all participants expressed an interest in getting this application for their personal use.