

Discomfort with Mobile Video Chat: Psychology and Perspectives

Jorge Aguirre
jlaguirre@cs.stanford.edu

Joseph Baena
jbaena@cs.stanford.edu

Carey Phelps
cvphelps@cs.stanford.edu

Stanford University • Department of Computer Science • 353 Serra Mall, Stanford, CA 94305

ABSTRACT

Mobile video chat is stagnating: even though 58% of American adults own smartphones that can access video chat applications for free [5], only 9% video chat frequently [6]. In this study, we investigate the privacy and technical concerns around mobile video chat. We first studied the reactions of 43 bystanders to a nearby researcher making a mobile video call. We then observed how 31 college students react to receiving an unexpected video call. Bystanders displayed no extreme negative reactions to mobile video calls. The most vocal feedback was about avoiding being on camera. We use our results from both studies to inform an exploration of the design implications for mobile video services.

Author Keywords

Mobile video chat; video calling; privacy.

ACM Classification Keywords

K.4.0 [Computers And Society]: General.

INTRODUCTION

Video chat is a method of digital communication that combines the audio and the visual. With the development of cellular and Wi-Fi networks, video chat has become available on major smartphone platforms. Although applications such as FaceTime, Google Hangouts, and Skype are freely available to smartphone owners, these services are rarely used in public spaces. Our research explores the psychology behind bystanders'

reactions to the use of mobile video chat in public.

In our first study, we consider the perspectives of bystanders of video calls. In particular, we investigated privacy concerns by carefully framing our questions in terms of “level of comfort” rather than “privacy concerns” to avoid prompting one type of response. Bystanders comprise an important stakeholder group because collective reactions to technology set norms of accepted behavior around that technology, which in turn decide how successful these applications will be in the marketplace. In our second study, we observe college students’ reactions to unexpectedly receiving video calls. As with the first study, we interview participants to learn their “level of comfort” towards receiving an unexpected video call and towards video chat applications.

RELATED WORK

We build upon the research of Denning, et. al, which investigated how bystanders feel about their privacy in relation to emergent wearable glasses technology. We expand their research to better understand reactions towards a more currently available video calling technology and draw insight from research on related topics.

Galvan et al. [3] observed how bystanders subjected to hearing other people’s phone calls rated themselves as significantly more distracted than those who overheard a two-sided conversation.

Eröz-Tuğa et al. [2], in comparing various video chatting applications for usefulness and practicality, discovered that frustration due to technical difficulties is the most cited reason for disliking a video service.

Kayan et al. [4] found that audio-video chat was much more popular in Asia than North America due to the contrast between “Western individualistic” and “Eastern collectivistic, high-context” cultures.

STUDY 1: OBSERVATION OF BYSTANDERS

The use of cellphones in public for regular audio-only phone calls is often considered rude and disruptive. Since mobile video chat involves both video and audio, we hypothesize that the use of mobile video chat in public is also considered disruptive by bystanders, even though the technology comes closer to mirroring real-world interaction. We hypothesize that bystanders will feel discomfort toward the use of mobile video chat by someone around them.

Method

Our first study comprised of three researchers doing three field sessions in Palo Alto, CA over a period of two months. Each session lasted between two and four hours. Researcher A walked around a public location, conducting a video call. Researcher B followed A at a distance, observing bystanders’ reactions and conducting interviews. Researcher C was offsite, on the other end of the call. The interviews were semi-structured and based on these questions:

1. *Did you notice that someone was video chatting?*
2. *Have you heard of mobile video chat? What products have you heard of?*
3. *Why do you think someone would want to use mobile video chat in public?*

4. *Do you use video chat or audio-only calls? Why?*

5. *On the following scale, where would you place your feeling of comfort or discomfort with the person using video chat on his/her phone? Why?*



Figure 1. Comfort Scale

6. *Would you want someone video chatting to ask permission before making the call?*

7. *How did you feel about the orientation of the phone while the person was video chatting?*

Field studies were conducted at a supermarket, a drugstore and pharmacy, a clothing shop, a university dining hall, an ice cream shop, and a bookstore. We chose these locations because each place had a sensible task associated with the location, had a sizeable number of foot traffic, and was feasible for someone to conduct a video call on a smartphone.

By conducting interviews in situ, we were able to gauge immediate reactions from bystanders. We ensured that the researcher holding the video call left the scene *before* the interviewer began asking questions in order to avoid skewed results from bystanders trying to please the interviewer. Interviews were not recorded so that bystanders could express their reactions freely. Because the interviews were conducted in public places without advance warning, we were able to gain the insights from bystanders who may not have participated in a recruited research study. We selected locations based on the following criteria: (1) the presence and availability of bystanders, and (2) the feasibility of making a mobile video call at that location.

Data Collection

Our field sessions yielded 43 interviews. Insights and excerpts from these interviews are below:

Checking Out of the “Real World”

Participant C, a middle-aged attendant, described video chatting as being in a “cone of focus where you don’t notice anything around you.” Participant A was an elderly engineer, and he said, that the “scope of rudeness increased by another level” when people are using video chat because “they don’t notice that they’re bothering the people around them.”

Uncertainty of Content’s Destination

Participant R, a female high school student, expressed that “overhearing people’s conversations” when they are chatting happens all the time, but it is “more awkward when they’re using video-chat.” Participant E, a middle-aged female stated that she “only feel[s] comfortable using video chat at home” because it’s more of a “private” interaction.

Evolving Social Norms

Participant Y described herself as being from a small, Midwest town, where “people enjoyed face-to-face conversations” and where mobile video chat “would be extremely odd and foreign” to them. Participant P, a student at Stanford University, stated that “people don’t make calls anymore” and that “seeing the person’s face isn’t necessary” for the interaction. A FaceTime call is a “one in a million” chance event, even with some family members. Participant H, a middle-aged man mentioned that “people have a growing sense that they’re being watched”

Results and Discussion

This study was primarily qualitative. Many of the interviewees had not noticed the video call

going on, (49%) despite our sampling methods bias of only interviewing people who had been in close proximity with the video caller. Participant reactions collected around the center of our five-point Likert scale.

Comfort Tally

	Rating	Number of Respondents	Percentage of Respondents
-2	Very Uncomfortable	0	0%
-1	Uncomfortable	7	35%
0	Neutral	8	40%
1	Comfortable	3	15%
2	Very Comfortable	2	10%

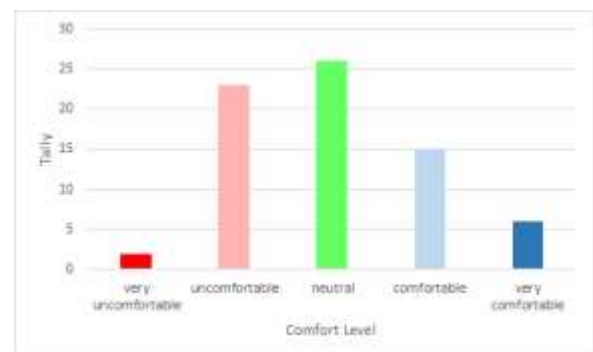


Figure 2. Comfort Level Graph

Also notably, 23% of the 43 participants mentioned specifically, without prompting from the interviewers, that they would only be uncomfortable if they were actively on camera. This represents a concern for personal privacy that is not present in phone calls.

STUDY 2: REACTIONS TO UNEXPECTED VIDEO CALLS

Users may feel discomfort towards mobile video chat because video chat applications are rarely used.

To some extent this is an early adopter problem, because social norms dictate whether or not it is acceptable to initiate a video call. We hypothesize that users are wary of mobile video chat because their contacts rarely use the technology to initiate calls.

Method

For this study, we observe how college students react to receiving unexpected video calls. The participants on the receiving end of the call used either their mobile phone or computer to receive the video call. Our methodology behind “cold calling” people is to see the raw reactions of college students to receiving video calls without any advance warning. The individuals who were called were all acquaintances of the researchers.

Data Collection

We ‘cold’ video-called 31 students studying at Stanford University through FaceTime. Of the participants we called, 12 (38.7%) answered, 8 (25.8%) responded using another method of communication (such as SMS text message), and 11 (35.4%) did not respond. 3 people answered questions via text resulting in feedback from 15 people.

When asked whether they used video chat often, 11 (73%) said no, 1 (7%) said they sometimes used it, and 3 (20%) said yes. They were then asked to list locations where they would feel uncomfortable conducting a video call, 20% of the responses involved quiet public space and 80% involved a public space in general such as when getting food, walking around alone or hanging out with friends. When participants were asked about their thoughts of how bystanders in the participants’ vicinities react to their using FaceTime, 47% responded that bystanders do not care, 13% responded that bystanders might get annoyed, and 40% were unsure. When asked for their opinion on why video chat is rarely used, the top 3 responses were: “You have to invest a lot of effort into a

video call”, “our culture is averse towards phone calls”, and “seeing someone’s face is unnecessary for interactions”.

Results and Discussion

The results of this study indicate that mobile video chat is not a common occurrence among college students. Of the 20 students with whom contact was established, 60% answered the phone call, but 73% said that they don’t use video chat often. One interesting observation from the students who responded via text, was that 5/8 of the messages received included some variant of “Did you accidentally FaceTime me?” One participant mentioned that receiving a FaceTime call was “a one in a million” occurrence. Video chat requests seem to be so rare, that even when they do occur, their legitimacy is met with skepticism.

CONCLUSION

Although mobile video chat applications are freely available on all major smartphone platforms, they are not widely used in public as a substitute to audio-only phone calls. Our research explores the psychology of bystanders’ reactions to the use of mobile video chat in public spaces. For our first study, we interviewed 43 bystanders and found that the majority of bystanders have either “neutral” or “comfortable” feelings towards mobile video chat by another person in public. For our second study, we made unexpected video calls to 31 contacts and subsequently interviewed them to gauge their reactions. Most participants claimed that they did not use video chat often, and some even responded to the researcher by asking a variant of “Did you mean to FaceTime me?”

In analyzing the results of our interviews, we find shared grievances among users that help explain why video chat technology has failed to gain traction. First, video chat requires too much effort to maintain. Users explained how the added task of maintaining some degree of

eye contact with the screen and camera make video chatting too bothersome. Second, we gained further insight that our culture views phone calls as a demanding form of communication because it requires synchronous interaction, and taking that an extra level with video makes the call request seem even more demanding. Several of our participants expressed great surprise at the fact they were receiving a video chat call. Third, they stated that video is unnecessary for rich media communication when often a single image would convey the same sense of place. A combination of the first two grievances, participants generally did not find use in video chat interactions. They were described to be very intimate, but also very unstable and dependent on circumstance. This contrasts with the preferred alternatives of asynchronous communication over text messaging and email.

Based on these findings we pose suggestions for mobile video chat design. Regardless of what orientation the phone was held, at least one user noticed that someone was making a call in the vicinity, so orientation played no major role in whether or not users noticed someone on a call. Distinguishing whether it was a video call or phone call was not important to the participants unless they were at risk of being shown. This aligns with the 50% of participants who preferred phone to be held facing inwards during video calls. As a result, video chat technology should make an effort to maintain some level of visibility in letting others know that a video chat is underway to honor the public's appreciation of privacy.

REFERENCES

1. Denning, T. Dehlawi, Z., Kohno, T. In Situ with Bystanders of Augmented Reality Glasses: Perspectives on Recording and Privacy-Mediating Technologies. 2014. <http://dx.doi.org/10.1145/2556288.2557352>
2. Eröz-Tuğa, B. Sadler, R. Comparing six video chat tools: A critical evaluation by language teachers. 2009. <http://www.sciencedirect.com/science/article/pii/S0360131509001109>
3. Galván, V. et al. The Effects of Cell Phone Conversations on the Attention and Memory of Bystanders. 2013. <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0058579>
4. Kayan, S. Fussell, S. Setlock, L. Cultural differences in the use of instant messaging in Asia and North America. 2006. <http://dl.acm.org/citation.cfm?id=1180956>
5. Pew Research. Mobile Technology Fact Sheet. 2014. <http://www.pewinternet.org/fact-sheets/mobile-technology-fact-sheet/>
6. Qualcomm. Mobile Device/Cell Phone Statistics. 2013. <http://www.engadget.com/2014/02/11/two-thirds-of-americans-now-have-smartphones/>
7. Raine, L., Zickuhr, K. Video calling and video chat. 2010. <http://www.pewinternet.org/2010/10/13/video-calling-and-video-chat/>