Team 24 Project

Design of a user interface that facilitates communication, one with one another despite potential communication barriers. These barriers could range from a difference of language to deafness.

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Why This Is a Usability Problem

The problem that we decided to work with is using technology to help people of different languages and communication capabilities be able to communicate among each other. Nowadays we rely primarily on our technological devices to communicate to everyone. We use cellphones, personal computers, laptops, pagers,

tablets, video phones (Skype, Sorenson Relay Services, ZVRS, etc), and several other devices to communicate. However, those devices do not take in account the communication barriers that are present such as difference in spoken languages, visual languages such as ASL (American Sign Language), LSM (Mexican Sign Language), and cued speech (sign language that is based on the sound and mouth shape of the word).

Wesley Jinks, a member of our team, talked with his dad about our project. His father is over deaf services for FSSA. He said until recently they paid sign-

translators to attend classes with deaf college students and translate to sign at a rate of about $100/hr plus travel and a 2 hour minimum. They now do it via video feed and it is still about $50/hr, but has saved travel expenses and allows users to record and re-watch later. This got us thinking both about government applications and users of government services such as this as well as international business and political uses. Simply put, translators are not cheap! This is a link we found with some more information on interpreter costs: http://smallbusiness.costhelper.com/interpreters.html

With that in mind, our group realized that there is a very large audience out there that rely on our technical devices to communicate, and that we can improve the communication ability for one with an application on either a cellphone, PC, laptop, etc. The target audience would be primarily people that use the mentioned technology above and want to communicate with people of different languages, and types of languages such as visual, written, and cued.

Our group believes that developing an application that is user-friendly and is compatible with any spoken language or visual language and having the application converting the language to either text, spoken, or visual language will help break down the communication barriers one might have. This problem will be a very good usability problem because it will require the application to have efficiency, memorability and learnability design principles. It also will require an user-interface that can be displayed in any language such as French, Japanese, Ethiopian, English as well as offer universal visual queues (feedback).

One other aspect that we must focus on is that people that use visual language such as ASL or other languages tend to have more of a difficult time understanding their spoken language such as English for ASL users, or Spanish for LSM users. Because of that, we need to provide a user experience that is aware of culture differences, provides accessibility and is effective at helping bridge the gap between the spoken language and its visual counterpart.

Target Users

Our target users include; International Travelers, people who's primary language is other than English or are minimally proficient with English and people who interact with others where a communication barrier due to impairment

exists(language or deafness or other barrier). These users are in educational establishments, the workplace, in social circles and even within our own group!

Potential User Access

We know a lot of people that like to travel, and have travelled extensively ourselves. We may also solicit user forums like LonelyPlanet[1]. Austin, a member of our team is deaf has suggested several websites where we can reach out to other deaf people via Internet forums, alldeaf.com[2] is one example. Another great website that we can use to contact Deaf people within the US is nad.org[3] The NAD or National Association of the Deaf is the nation's premier civil rights organization of, by and for deaf and hard of hearing individuals in the United States of America. The website has representatives for each state in the US. We plan to contact people and interview them to collect data and infer what would be most beneficial to deaf people to help improve their communication through this type of application. We live in states (Colorado, New Mexico, Utah and Idaho with large Hispanic communities and residents from all over the world. We intend to interview both non-native English speakers and natives to help us to create our concepts for this application. Another one of the team member's parents works with blind people which we feel is also important to take in account with this application. We can obtain information from the team member's parents to better understand what would be important for blind users (not that we expect all blind persons to use this application), but there are variety of blindness in people such as colorblindness, legal blindness, and partial blindness.

Why Our Group Would Be Good For This/Will Be Able To Finish This Before The End Of The Term

Overall, we strongly believe that this is a very good usability project and we strongly believe that we are the best team for this project because we have a deaf person on the team who can provide feedback on what a deaf or hard of hearing person expect from this application.

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[1] http://www.lonelyplanet.com/

[2] http://www.alldeaf.com/

[3] http://www.nad.org

Wesley's father also has access deaf people that work in his department that we can interview.

Several members of our team have direct access to both the deaf and multi-language speakers.

Several of us speak several languages and thus have experience with literal vs. conversational translations. At least one of us has development experience with Section 508 standards that set forth provisions that establish a minimum level of accessibility[4].

We will be able to complete this project before the end of the term due to our motivation and passion for this project and our access to individuals to interview.

Predispositions

What We Know

- Communication barriers exist between speakers of different languages

- Communication barriers exist between deaf and non-deaf people

- Attempting to bridge communication barriers without a translator can be frustrating/impossible for even very simple things

- Bridging communication gaps can be useful, educational, enriching, and rewarding

- There are multiple options for language translation assistance

- There are limited options for "sign language"

- Communications with the deaf usually are a combination of gestures, and/or written text

- Most people carry a cell/smart phone

- One does not have to be "impaired" to have a "language" barrier

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[4] http://www.section508.gov/

What We Don't Know (and will interview for)

- Are there other types of communication barriers besides language and deafness?

- How can we limit the intrusion of a device barrier between people, yet still enhance communication?

- How can we make it "fun" so people want to attempt communication across barriers

- Would a person using for business vs personal have different needs?

- Would different interfaces be helpful for a group vs individual interaction?

- What kind of set-up/options will users want/need? I.e(translate to voice/text/ both or text/sign/both)

- What will make people want to use this vs not communicating or communicating poorly?

- What will make this easy/intuitive to use?

- Would people use it for social networking? I.e talk to someone from China about current events online or view/repost/chat about videos with people from other cultures

- Would the above make it more or less usable vs more or less used(learnable vs memorable)... If we can get people to use it more than it would be more memorable and people might be willing to put up with learning more

- How can we prevent user errors?

- What kinds of icons are user friendly and easily understandable?

- Who should hold the device for the best translation experience?

- Will having a device intermediary inhibit/distract communication?

- Will it be difficult to get the right language selected?

- Can translation happen fast enough (real time) to not slow down communications?

- Should the translation be in text form or sign form for those who are deaf?

- Are there any privacy issues or concerns (other people reading your conversation)?

- Will accents, slang, idioms etc. be translatable?

- How do I know that the translation was actually accurate (should we feedback the native language as well?

- Can we address the sight impaired as well?

- What is current interpreting like for the user? That might be something to check out and compare for usability.

- What are the good/bad parts of having an in-person interpreter?

- How can we put the positive parts of that into our application, while minimizing the negative parts?

The "What we don't know" questions will be what directs our research.