Applying Aphasia-Friendly Principles to Experience Sampling Method Mobile App Development

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Aphasia

Aphasia is a disorder that results from damage to portions of the brain that are responsible for language. For most people, these areas are on the left side of the brain. Aphasia usually occurs suddenly, often following a stroke or head injury, but it may also develop slowly, as the result of a brain tumor or a progressive neurological disease. The disorder impairs the expression and understanding of language, as well as reading and writing.

Summary

In this study, people with aphasia were asked to compare three apps of varied origin and rate them on aphasia-friendly principles. The purpose of each app is to allow people with aphasia to answer customized questions, which will later be reviewed with a clinician to supplement therapeutic conversations. The first app, entitled FlowAphasia, is a commission based private app that was created for research purposes by the 2nd author and app collaborator, designed to adhere to aphasia-friendly principles. The second app, entitled mEMA, is a generic Experience Sampling Method app off of the Apple Store, not designed to be aphasia-friendly. The last app, entitled Aphasia Speaks, was developed for this research project by the first researcher, and is designed to adhere to aphasia-friendly principles.

Methods

Pilot study investigating the perceptions of individuals with aphasia on three separate apps

Participants
• Three individuals with chronic aphasia (the 4th individual’s responses were eliminated due to degree of communication difficulty
• All are iOS users

Procedures
Three apps evaluated:
1. FlowAphasia
2. Aphasia Speaks
3. mEMA (off the shelf)

Each app viewed by individuals with aphasia
AphasiaSpeaks app emulated on laptop computer

The Concept of Aphasia-Friendly

Oftentimes reading any sort of text can present new challenges that are not commonly accommodated. Any sort of book, article, or menu can often be too cluttered to easily make sense of. However, there are certain ways that a written resource may be designed so that an individual with aphasia may have an easier time understanding it. These are often referred to as Aphasia-Friendly Principles. These principles may include, but are not limited to: increased whitespace, larger font size, text supplemented by images or colors, a smaller quantity of text, and a simple interface.

Results

There were no significant differences between apps across three of the four questions (p ≥ .05; Works Well; Looks Nice; Aphasia Friendly).

For the question “Ease of Use”, there was a statistically significant difference between groups as determined by one-way ANOVA (F (2, 6) = 7, p = .027. A Tukey post hoc test revealed that the FlowAphasia app was rated statistically significantly more easy to use in comparison to the Off-the-shelf app (p < .05), but not the AphasiaSpeaks app.

Conclusions and Implications

• In general, equivocal responses across ratings and apps
• Perceptions of aphasia-friendly layout varies by person
• Emulation of Aphasia Speaks on laptop computer and limited usage time may have impacted results
• Raises considerations of potential individually customized app layout and settings

Programming an Aphasia-Friendly App

With all this in mind, one can see that there is a significant demand for a mobile application to be designed with all the aforementioned principles in mind. When a website or application is designed, accessibility is often brushed to the side in wake of functionality and aesthetics. Applying these techniques takes no special tools or skills when it comes to programming; only the knowledge of what needs to be done.

Special Thanks to the Office of Research and Sponsored Programming (ORSP) at UWEC for the student/faculty summer collaborative grant funding, and to members of the Chippewa Valley Aphasia Network for their input and participation.