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A Qualitative exploration of user experiences of Augmentative & Alternative Communication (AAC) systems:

from the AAC users and the audiences' perspectives and perceptions; including the role and requirements for sharing emotional contents.

Abstract

This dissertation investigates the embedding of emotional expressiveness in conversations through AAC systems.

The research method includes **analysis of the literature** on **how users are perceived by listeners** when in their **social sphere.** The HCI research encompasses social experiments relevant to the perceptions of speakers and listeners.

AAC literature has focused on **text-to-speech** with a basic choice of **prosody related to punctuation.** The enhancement of intelligibility of these systems allows further research on more expressive communication aids, aiming to a better integration of users in social contexts.

The final outcome is a helpful reference for future design solutions aiming to the implementation of emotional expressiveness in vocal prosthesis.

Introduction & Background

Why? Half of the studies presented in the last decade at the AAC Journal dealt with elements of conversation to requests activities or objects. Few papers analysed psychological factors and social sphere. (McNaughton & Light, 2015)

The state of the art:

- "Prevalence of people who could benefit from AAC in the UK: determining the need." (Creer et al, 2016)

   *To understand which is the **cohort to whom AAC development would be beneficial,** and the medical conditions.*

- "Six Speaking Chairs (not directly) for People Who Cannot Speak". (Pullin, 2015)

   The current point of research in the implementation of expressivity in AAC and the differences between the concept of "expressiveness" and "emotion".

Research Methodology

*Due to the on going sanitary situation, the research has been executed on the available **literature** , afterwards it has been validated through **interviews.***

- What is the state of the art of AAC world?
- Who are the users?
- In which extent emotions and expressions have been encompassed?
- What is the role of technology?
- How do experiments analyse social aspects of the conversation through AAC?
- What are users needs goals and pain points?

Both User and Listener perception is important to carry out a conversation, hence both of them should be taken into consideration as first users of AAC devices.

- *Once Users and Listeners' frustrations have been identified and clustered, experts of the field **validated the information through telephone interviews**.*

Research Results

AAC users are clustered into 3 core categories:

- Congenital conditions
- Sudden-onset conditions
- Adult-onset neurodegenerative diseases

The inclusion criteria: experiments that studied emotionally and cognitively able adults with degenerative or sudden contition.

Findings:

- **Aspect of simple and complex VOCAS:** Accessibility, Choice of voice and level of Expressivity given to the user.

- **User's frustrations during the social act:** relate to technology, features or to the listener's behaviour.

- **Listener's frustrations during the social act:** influenced by prejudices on the disability of user, malfunctioning of the AAC device and lack of empathy of the AAC user.
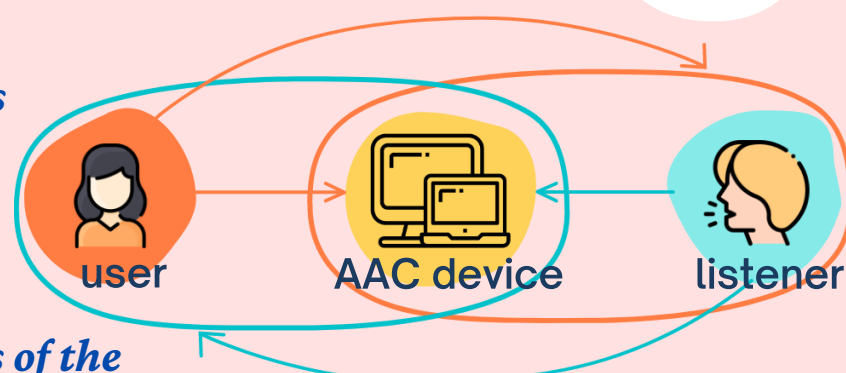
Design and Data visualisation

- Literature review of the current technology on the market and of the options it gives to users to express themselves in a social context.

- *Visualisation of the frustrations of the listeners linked on the technology and to the perception of the user.*

- *Visualisation of the frustrations of the AAC User linked on the technology and to the perception of the listener.*

- *Visualisation of the needs of the AAC Users based on the theory of Robin Dunbar and Maslow's pyramid.*

user AAC device listener

Conclusions

- This paper is intended as a **guide of recommendations for future AAC system designers.**

- **AAC systems still do not fully satisfy users needs in the social contexts.**

- The analysis and **understanding of the field** through its **scientific literature validated by experts** specialised in AAC.

Future works:

Listeners should be actively taken into consideration when designing the AAC device.

Reducing listeners frustration will benefit the outcomes of the social act. Further research should be done on what affect listener behaviour and perception of the AAC user.