***ALEX © Adult Literacy: Notes***

What problems are they trying to resolve

* Help illiterate adults improve their literacy skills to enhance their work
* Improve confidence levels of adults in both their educational pursuits and the challenges of daily life
* Provide tactical support to illiterate adults in their daily life experiences

Introduction of System

* Mobile language assistant designed in order to help low-literacy adults become increasingly literate and independent
* Called ALEX, stands for **A**dult **L**iteracy Support Application for **EX**periential Learning
* Provides a series of language-related support tools

Alternative Systems

* Facilita: A reading assistance application which uses Natural Language Processing to automatically adopt websites to assist low literacy levelled readers
* PALLAS: A mobile support system to support language learning by allowing personalization of learning resources
* SIGMA: A mobile learning system for second language learners. Presents 5 second movies related to a word whilst presenting subtitles, including the spelling and pronunciation of the word.

Implementation

* Provides intuitive access to various language-based tools
* Includes the following within the system design:
  + Multimodal Output: Text and Speech
  + Suggestive Labels for Buttons
  + Instructions worded in simple language
  + Soft Keyboard with both alphabetic and qwerty layouts
  + Dictionary with definition of appropriate literacy level
* Dictionary Lookup to allow users to search for definitions/spellings
* Text-To-Speech assisting users in reading definitions or perhaps any labels within the UI
* Virtual Keyboard- accessed using an ‘abc’ in the top-right corner- to allow the user to type something
* Near-Spelling feature which will suggest words that are of similar spelling compared to what the user has entered
* Allows words to be saved in a persistent, favourites-type list
* Dictionaries can be changed depending on personal preference
* Speech recognition system which will play the pronunciation of a word and then record the user saying the same word. The 2 clips will then be played to allow the user to compare

Evaluation Setup

* Initial Setup
  + Each potential participant received a mobile device running the literacy application, ALEX
  + Instructed to use the device for an hour during a 1-1 session with a researcher
  + Got to take the device and use it for a week to review the system
  + Participants decided if they wanted to continue with the study
* Device was used within 2 distinct settings:
  + Classroom
    - Participants were observed for how much they use the device in conjunction with class exercises and discussions
  + Outside Literacy Classes
    - Participants were encouraged to use the device as much as they would have during lessons in classrooms
* 11 participants in 2 classes (morning and evening) were enrolled in the study
  + Each participant was ages 19 or over and they all volunteered
* Data was collected through several instruments
  + Discussions with participants
  + Direct observations
  + Questionnaires
  + Teacher Interviews

Evaluation Challenges

* Literacy Level
  + Low literacy levels make it difficult for researches to conduct structured data collection as answers to questionnaires were not elicit enough
* Class Format
  + No structured process to how the classes are run
  + Students work independently on their own specific tasks and are allowed to enter/exit as they please
  + Teachers are there more for self-improvement and guiding the students to their own goals
* Attendance & Varying Levels of Motivation
  + Students do not attend classes on a regular schedule, due to external reasons such as family commitments, travel etc
  + Attendance fluctuates in the long-term, attendance may increase during assessment periods but decrease before holidays
  + Students of different age have different commitments, which may impact their attendance
* Technology Acceptance
  + Older users were reluctant to using the technology to its full capabilities due to them not being as experienced. However this was subsided as the study progressed
  + Users were being too cautious with the device as they wanted to make sure the device was returned in the same condition it was received. Hence why some users may not have used the device as much as they were scared they were going to lose or drop it

Evaluation Findings

* Usefulness for Homework
  + The helpfulness of ALEX was appreciated by users, mainly due to its dictionary look-up
  + Students would usually ask the teacher for help, but struggle to do so while at home. Hence why ALEX was found very useful
  + Features also helped users improve their literacy as all of the corrections it made started allowing the user to recall correct spellings
* Ease of Use
  + Users found ALEX more easier and intuitive to use compared to an physical paper dictionary
  + The ‘Near Spelling’ feature was very easy to use, as it can be quite difficult to find the correct spelling of the word if you don’t actually know where to find it in a dictionary, due to the spelling
  + Users can easily return back to common words which they use but have difficult spelling due to ALEX’s ‘Favourites List’
* Saved Time
  + Users found ALEX much faster when accessing definitions compared to traditional paper dictionaries. Allows users to complete tasks in much faster times
  + Proved to be a time-saver for Teachers too as students were more likely to refer to ALEX for simple tasks rather than ask the Teacher
* Helped Gain Independence
  + Users felt that ALEX was socially acceptable to use as they could use the device to gain assistance without making it public. For example, not actually having to carry a paper dictionary to look up a definition when ALEX can do it for you
  + Users were able to correctly spell and ensure that they were using the correct literature when messaging friends through IM
* Increased Confidence and Motivation to Learn
  + Users are more confident that their work is correct due to them using ALEX
  + Users are more inclined to learn about the English language due to their time whilst using ALEX

Evaluation: Unexpected Findings

* Building a Personal Relationship with the Technology
  + Users started to refer to the system as if ALEX was a person
* Sharing the System
  + Users shared ALEX amongst their family and friends for several purposes, similar to those of the ALEX objectives
  + Users also shared ALEX with their classmates who were not enrolled onto the study
* Pride in taking part in the Study
  + At first, users were reluctant to provide feedback about the system
  + But once they were familiar, they took pride in the study, providing feedback and also possible solutions
  + Users also become anxious to meet researchers so they could tell them about new features they have found or perhaps would like to see

Evaluation: Unforeseen Factors

* Demographic Factors
  + Demographic factors such as age and employment played a significant role in influencing ALEX upon the user
* Literacy Levels
  + Most students who were already at an advanced level did not benefit from the device, apart from it being an alternative to paper dictionaries

Potential Applications

* Games
  + The device would start to become slowly related to homework and actual work, meaning users may start to become more discouraged to use it during their own time
  + Perhaps implement some games to help reduce the chance of this happening
* Math Support
  + Users wanted to see some form of math/arithmetic support included within the ALEX system
* Extended Language Support
  + Users wanted to see some bilingual language support for those users who were not very fluent in English, but fluent in other languages
  + Users wanted more grammatical support, in addition to basic spelling and synonyms
* Integration
  + Some users wished for the device to contain other similar services which may be used whilst using ALEX, such as Email or Instant Messing. Or even Web Browsing

Future Developments

* Math support is to be implemented next as users felt like they struggled with this as much as they struggled with literacy

Conclusion

* ALEX is well received by adult literacy learners
* Students perceived the device as helpful when in the classroom
* ALEX is also provided users with assistance outside of the prescribed academic activities, improving independence whilst also being private and socially acceptable

Tutorial Notes