A Social Network for -and with- People with Cognitive Disabilities

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This presentation

• Participants Introduction
• Motivation
• Participatory Design
• Social Network Features
• Special Features
• Conclusions
• Dissemination

Try it: demo.elegune.net
Participants

- **GUREAK**
  - Industrial group created in 1975 to assist the full social integration of people with disabilities through employment
  - Provides jobs for more than 4000 people with diverse types of disabilities
    - 39% cognitive, 16% mental illness, 6% physical, 22% sensory, 17% no disabilities

- **GITEK**
  - Created by GUREAK in 2007, as a division for R&D&I.
  - Aim: use of social and technological innovation to improve the training, employability and quality of life of people with disabilities.

Motivation

- **GITEK identified**
  - The advantage of providing the group workers with access to social networks to increase their social integration
  - Consultation: workers having some experience in using computers for work or leisure:
    - were interested in using networks, such as Facebook
    - but they were dissuaded by the difficulty they had in understanding and using them.

- Therefore, GITEK decided to create a sheltered social network
  - Contacting LOTURA, and UPV/EHU (Ehqokituz+Aldapa)
  - Founded by the Basque Government/Eusko Jaurlaritza (Projects DATAC 1& 2)
**Participants**

**LOTURA:**
- Small company devoted to Internet Consulting and Web development
- It applies accessibility regulations to all their Web projects

**EGOKITUZ** (Laboratory of HCI for Special Needs) UPV/EHU
- Created in 1985 to use Computer Technology to assist people with disabilities.
- Currently interested in User Adaptive interfaces.

**ALDAPA** (Algorithms, Data Mining and Parallelism) UPV/EHU
- Created in 2001 focuses on data mining to solve real problems efficiently using high performance computing.
- Currently: Web mining based user modeling

**Motivation**

**What is Elegune Sheltered Social Network for?**

It is a *fully functional* social network

- to *train* people with cognitive disabilities in the use of social networks

and

- to *monitor* its use to allow the *early detection* of any type of danger they could face when they use a regular social network
  - With the explicit consent of the participants (and their families/tutors)
Participatory Design

Basic Principles

• Based on specific guidelines for people with intellectual disabilities
• Designed with the close participation of the users to collect their objectives, interest, likes, and restrictions
• Special procedures for participatory design with people with cognitive disabilities
  – Each consultation was designed in such a way as to make an answer possible
  – E.g.: paper mock-up versions initially used to identify the requirements and difficulties that users have in using them

Participatory Design

Working procedures

Two boards were formed for the design process:

• The Users Board:
  • Composed of 6 workers of GITEK, 4 of them with diverse cognitive disabilities with some experience in using computers.
  • Participated in all the design and development phases (functionality, interface, look & feel, etc.) and validated each of the prototypes
  • Was frequently informed about the results of the Design Board meetings
Participatory Design

Working procedures

• The Designers Board
  - Composed of: UPV/EHU (3-4 people): conception, accessibility, usability, usage data management, coordination, and dissemination; LOTURA (1-2 people): development, implementation, and maintenance; GITEK (2-3 people): assessment on users needs and coordination with the users board
  - Converted the design decisions made by the Users Board into design specifications and developed them.
  - Decision making:
    • All the decisions from the users board were taken into account.
    • If their implementation was not possible, alternatives were proposed to the UB

• Meetings
  - Separated, but coordinated by GITEK
  - Both boards had fortnightly meetings for seven months

• Results
  - A first fully functional prototype was tested by the users for five months
  - After fixing the problems detected, the final social network was designed, tested and deployed in November 2013.
  - Guremintza is the social network currently fully operational in GUREAK industrial group
    • In addition to training/supervising people in the use of social networks
    • It is actually an effective way for Internal communication (to encourage personal relationships among the worker)
Social Network Features

Registering and entering

- write name/password or
- Insert pen drive

User profiles

- creation and modification of user profile.
- personal information, hobbies, own multimedia material, etc.
Social Network Features

News

- Wall for user posts and messages (to be sent to friends)
- Multimedia content (pictures, sound, videoclips, etc.) can be included in messages

Friends

- Functionalities:
  - finding friends,
  - accept / reject friend requests,
  - etc.
- Diverse tools to share information:
  - posts
  - Chat
  - Video-conferencing
Social Network Features

Groups

- Application for membership
- Two types: with and without acceptation

Social Network Special Features

Elegune’s Special Features

- **Accessible** for people with cognitive, physical and sensory disabilities
- **Warnings** for early detection of possible misuses or dangers, triggered to a selected supervisor when unusual usage occurs
- **Activity statistical data** periodically available to the supervisor to follow the activity in the network
- **Multilingual structure**: Basque and Spanish and English languages (any other language can be easily added)
- **Testbed for research**: data-mining techniques are used to build dynamic user models in order to allow adaptive interaction
  - To provide **personalized support** to each user
  - **Privacy is fully protected** by means of codification techniques that made the users remain anonymous
Social Network Special Features

Management and tutoring

- **Aim**: To support the user (specific training activities, assistance in navigation, technological adaptations ...)

- **Alerts**, produced by
  - Tracking complaints
  - Request for inclusion in closed groups
  - Mass acceptance of friends
  - Bursting open messages
  - etc.

Social Network Special Features

**Data mining**

Tables and charts with summaries of network activity:

- exchanged objects, fields, friendships, etc.
- different time intervals
Social Network Special Features

Data mining

• Analysis of the interaction
  • Diverse types of graphs. E.g. Relationships graphs

• Data mining based user modeling

• Use patterns showing:
  • Activity increase and decrease
  • Abandon

![Graphs showing interaction](image1)

![Graphs showing activity patterns](image2)
Conclusions

We learned that

• **Participatory design with people with cognitive disabilities**
  – It is possible provided that *adequate procedures* are designed to collect their opinions.
  – It allows a *progressive development* based on users’ needs and capabilities, always ensuring their understanding of the application.
  – It *minimizes* the possibility of including *accessibility barriers*.
  – It *increases* the users’ *affinity* to the resulting application and its *usage*.

• **Data mining-based user modelling**
  – Allows *usage supervision* (tools for administrator/tutors)
  – *User adapted* interaction (current work)

Dissemination

Guremintza is the Elegune’s instance for the private use of GUREAK

• [Guremintza in YouTube](#)
• There are **freely available** copies for a limited number of other institutions working with people with cognitive disabilities
• Each institution will have **an independent copy of the network**, in order to allow use supervision and users’ protection
• **Support infrastructure**
  – LOTURA: Maintenance, technical support
  – Egokituz /ALDAPA: Access & log analysis using data mining
  – GUREAK: Assessment for supporting people with cognitive disabilities

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**Thank you / Obrigado / Eskerrik asko**

More info: [http://www.elegune.net](http://www.elegune.net)
Try the demo: [http://demo.elegune.net](http://demo.elegune.net)
Apply for a free instance: [info@elegune.net](mailto:info@elegune.net)

_Elegune_ is run by a non profit consortium composed of:
**GUREAK** sheltered workshops, **Lotura** Web Design, and the **University of the Basque Country/EHU** [Egokituz: Laboratory HCI for Special Needs & **ALDAPA**: Algorithms, Data Mining, and Parallelism]