

web2gether

Designing a collaborative web-system to support
community development and learning
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Motivation

Recently, new ways of collaboration and sharing software and information became possible by the development and widespread use of the Internet. At schools, however, it has been observed that caregivers usually have difficulties in using and adopting computer technologies in classrooms in order to help students with disabilities carry out learning activities. Among various reasons, the following have been observed in our research:

- . There exists no comprehensive database of applications in which caregivers would easily find a specific tool required to support specific student's needs.
- . Caregivers may not have the time, the technical expertise or the motivation to go out searching for, downloading and installing those applications.
- . When they access those materials, they usually have problems deciding or assessing which application would be the most appropriate, based on the problem at hand and on the information offered by the application providers.
- . Although caregivers care about and would be willing to collaborate with one another, they usually have not the resources for doing so.

Challenges in Using Currently Available Technologies

Teachers, parents and caregivers face social and technical challenges when looking for software applications and information on the Web:

- . Lack of a comprehensive repository of those applications easily accessible and easy to use--given that most of the software applications were developed for different purposes and therefore adapted to the current situations.
- . Difficulty in mapping their specific problems at hand (their problem space) into the software specifications and/or descriptions (developers' problem space)
- . Lack of a comprehensive repository of activities that allows them not just find different uses for the applications but also share their experiences.
- . Lack of community support, through which they have the opportunity to learn from other's experiences.

Methodology

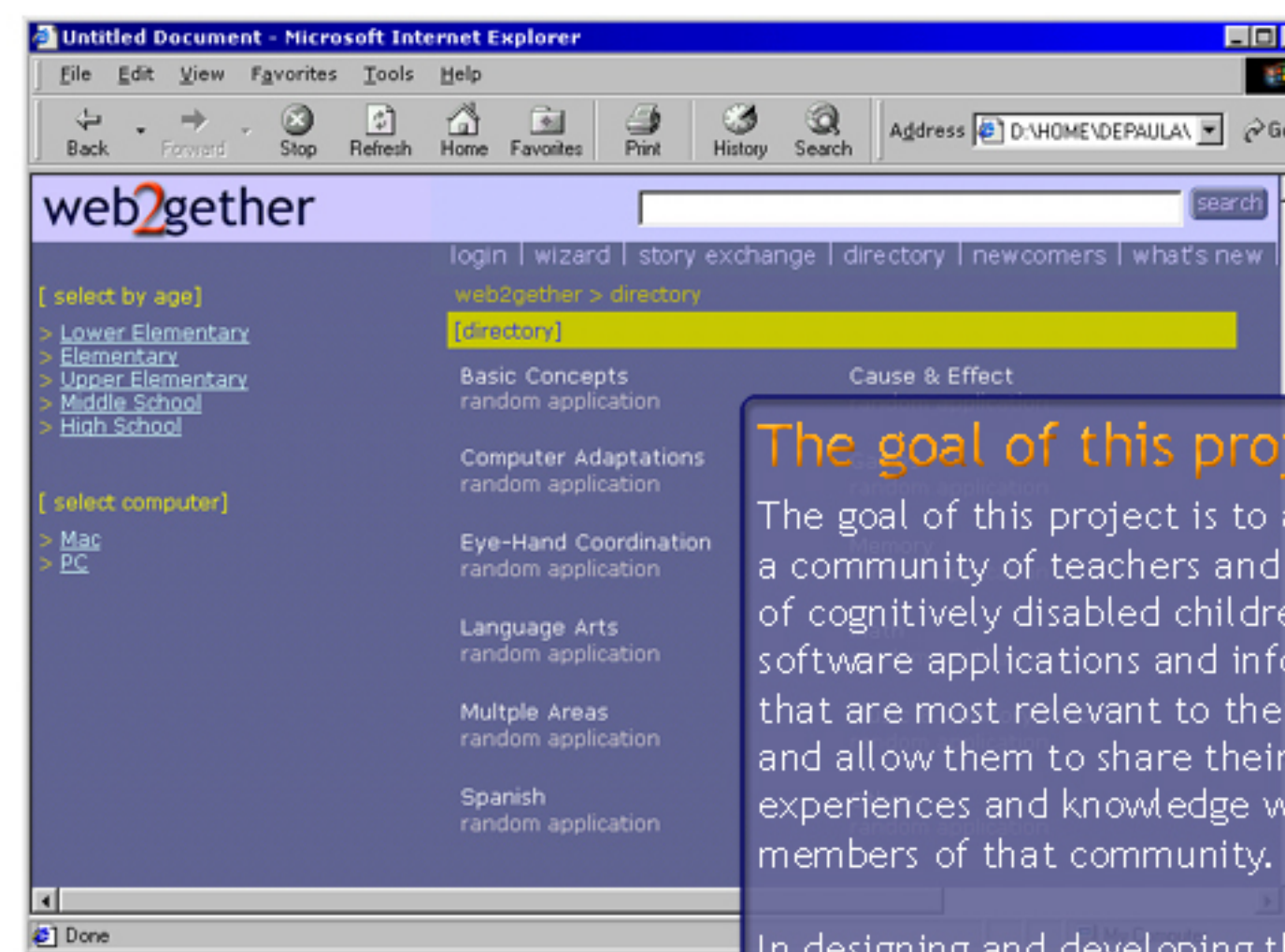
Two distinct research activities will be conducted:

- . A series of usability studies will be carried out to evaluate the effectiveness of the retrieval approach and the interface. However, it will be extended to address universal usability issues, and community-centered design.
- . Personal social networks among teachers, caregivers and possibly parents will be assessed through a series of field study activities, such as, semi-structured interviews, and field observations. The aim of these activities is to set ground for evaluating the impact of web2gether in participants' social network.

Major Issues

There are many social and technical challenges in the design of a sustainable collaborative web-system, mostly because of its community-based reliance. Therefore, it is important to understand:

- . how to empower all stakeholders to establish and evolve their personal networks through the use of web2gether?
- . how to avoid the cold-start problem--what makes an initial "seed" attractive enough to make the system usable and useful for the early-adopters?
- . how to foster active and informed participation and then increase social value of the technology
- . how to convey the information in a format and language that is easier for participants to apply to their problems
- . how to create trustworthiness among participants
- . how to progressively formalize unstructured information repositories, and so forth



The goal of this project

The goal of this project is to allow a community of teachers and parents of cognitively disabled children to find software applications and information that are most relevant to their problem, and allow them to share their work, experiences and knowledge with members of that community.

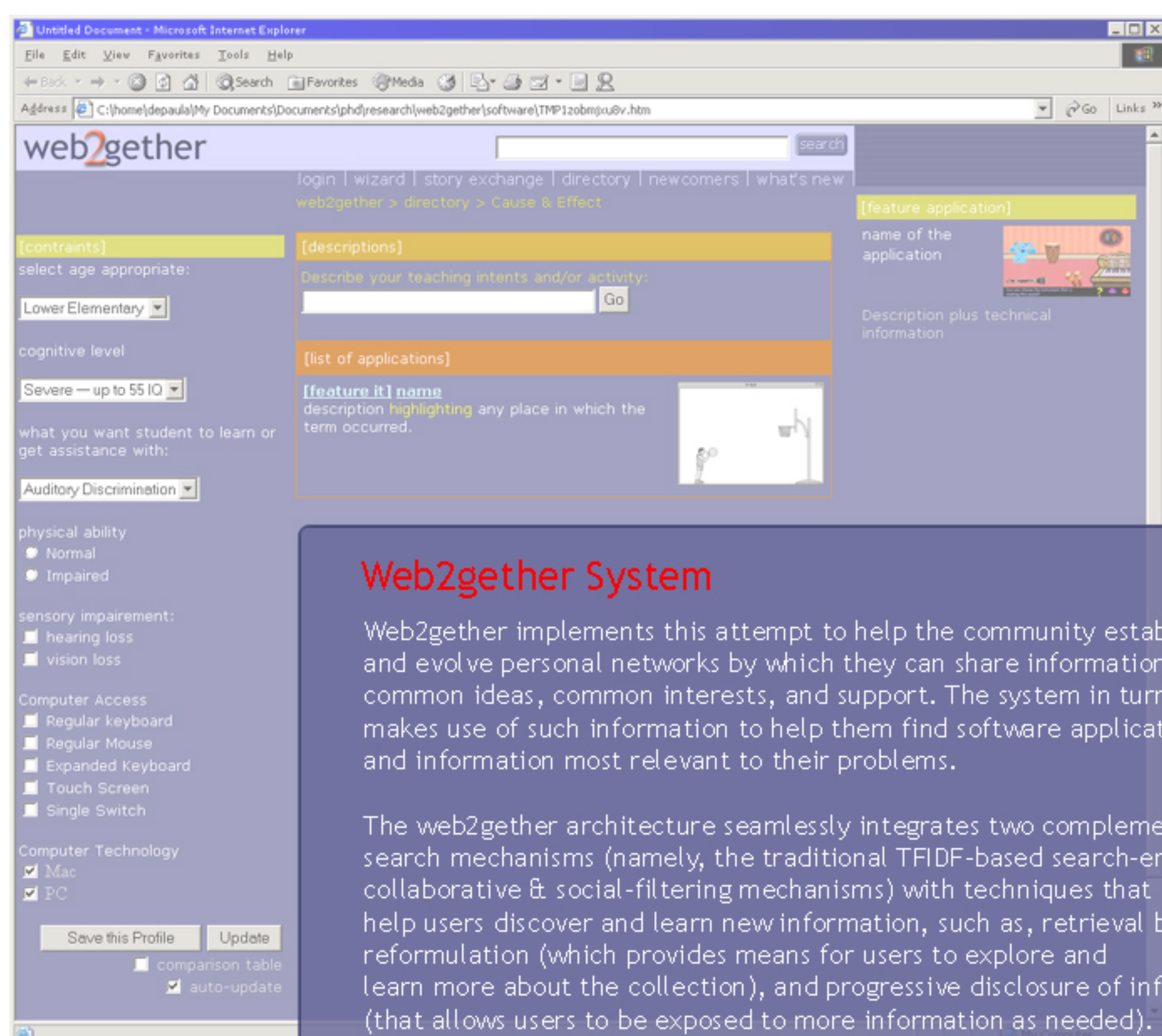
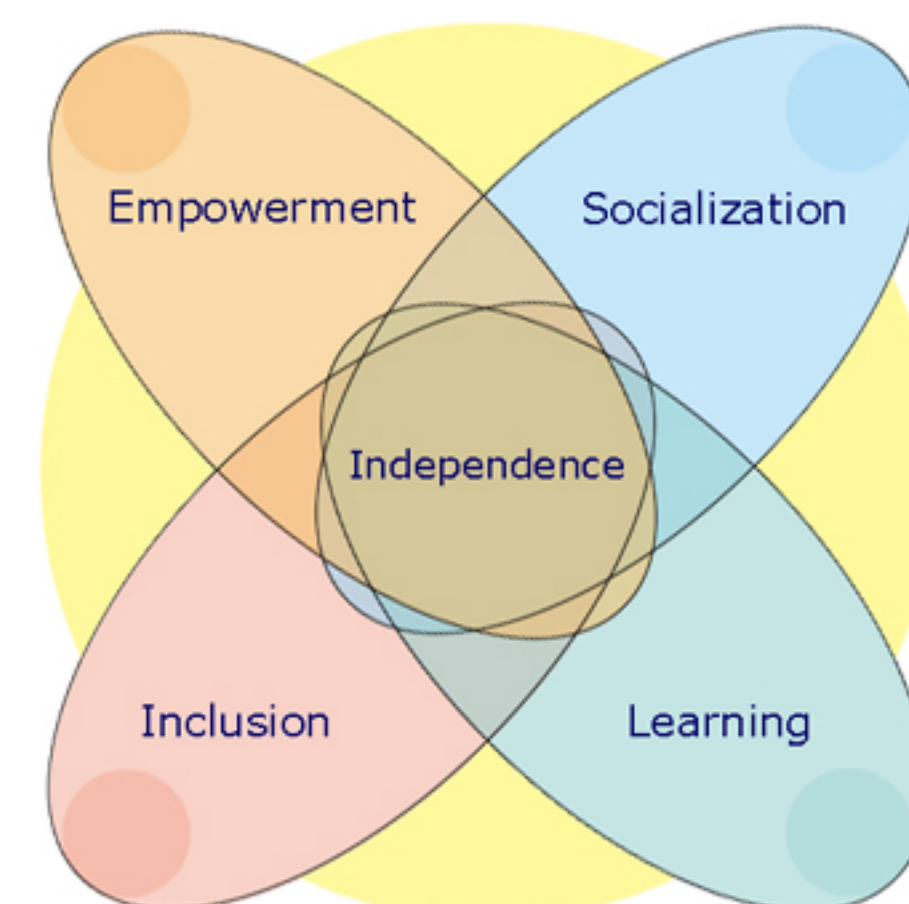
In designing and developing this project, the key challenge is to understand how they see and think about their problem; how they represent and articulate it; how they look for information and support; and how they share the solutions and knowledge they achieved.

In helping caregivers not just find the most appropriate software applications and information to their problem at hand, but also collaborate with one another, this project will empower all stakeholders to actively engage and participate in the solution of their problems.

This project aims to help caregivers create and evolve (personal) social networks. In so doing, it has the potential to enhance socialization among those participants through the use of the tool.

Not only will this project facilitate active and informed participation of different stakeholders (i.e., special education teachers, caregivers, and parents as well, but also it will help them help themselves.

This project focuses on informed participation, which means that all stakeholders will have the opportunity to have access to information and tools relevant to their task at hand, and collaborate with a broader network of those dealing with similar issues.



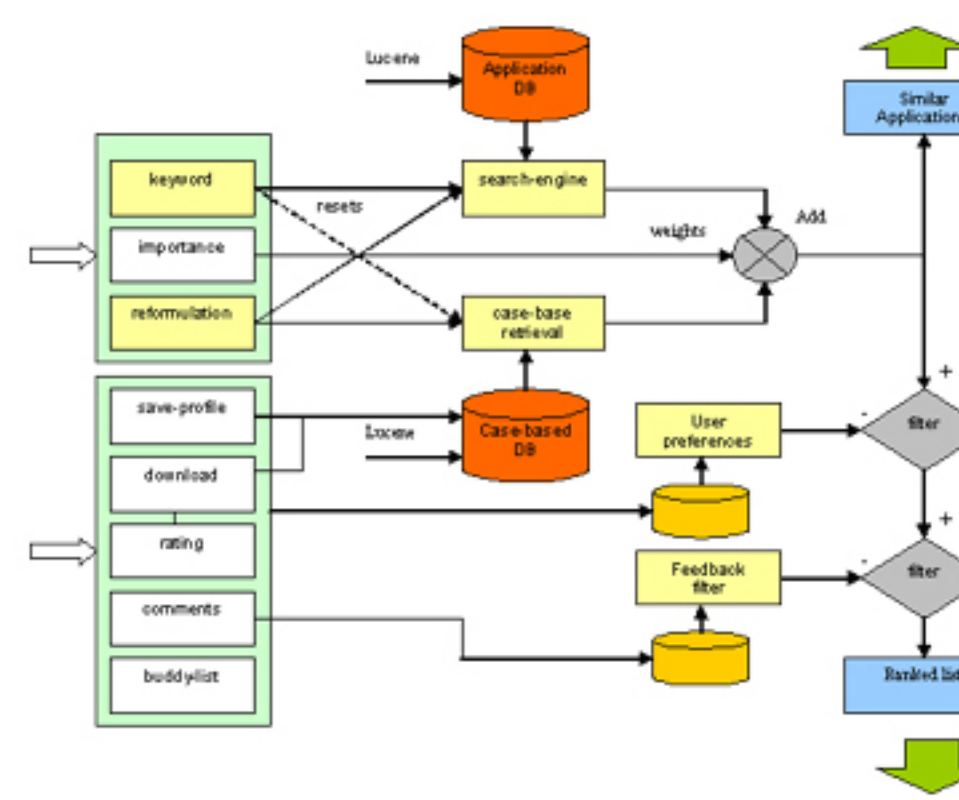
Web2gether System

Web2gether implements this attempt to help the community establish and evolve personal networks by which they can share information common ideas, common interests, and support. The system in turn makes use of such information to help them find software applications and information most relevant to their problems.

The web2gether architecture seamlessly integrates two complementary search mechanisms (namely, the traditional TFIDF-based search-engine and collaborative & social-filtering mechanisms) with techniques that help users discover and learn new information, such as, retrieval by reformulation (which provides means for users to explore and learn more about the collection), and progressive disclosure of information (that allows users to be exposed to more information as needed).

Toward this end, it integrates different search techniques in a common framework, as shown in the architecture diagram. Technically speaking, web2gether is a web-based system implemented in Java 1.3, which interacts with a MySQL database and the search-engine Lucene.

web2gether architecture



web2gether support for social networks

