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Second Language Learning is a Personalized, Collaborative and Lifelong Activity

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1. Introduction

In this manuscript we present briefly the research interests and results which reflect the collaboration possibilities of our research group towards its participation on educational research projects, concerning designing and evaluating learning tools for language aquisition. We believe that, together with speech technologies, second language learning implies research on agents, learner modeling and collaborative learning environments. Second language aquisition, for learners of any age, should be view as a personalized, collaborative and lifelong activity.

2. Research Interests

2.1 Learner Modelling

We consider a learner model as a set of beliefs a software agent has about its user (Ayala, 1996). In order to make a learner model, we are considering the learner interests, intentions, capabilities and commitments. In general terms, we see learner modeling as a kind of agent modeling, since the learner must be considered an active agent in a distributed collaborative learning environment. For learner modeling we apply AI techniques for knowledge representation and belief revision.

The lerner model is an importent element towards effective collaboration and is used to promote collaboration and learning possibilities in the community. Currently, we are interested in the development of a learner model server that allows more than one web application to be personalized (Paredes, 2001).

2.2 Computer Supported Collaborative Learning (CSCL)

We consider second language learning the ideal domain for a collaborative learning environment (Ayala, 1995). Language is the best example of knowledge developed by a community and which is learned socially by its members, who apply it in order to interact and become productive. Our approach in CSCL environments is the modeling of software agents that assist their learners by creating zones of proximal development, based on their respective learner models (Ayala, 1996).

Based on the idea that lifelong learning implies a community where the social construction of knowledge is its main collaborative activity, a lifelong learning environment is considered a CSCL environment which implies the support needed in the development of the following basic skills by the participants:

a) Communication and cooperation skills.
b) Creation of new knowledge together with other learners.
c) Management of shared knowledge resources.
d) Influencing others to learn.
e) Questioning, reflection and discussion.

A lifelong learning environment should include two additional skills by the learner:

f) Responsibility of her/his own learning, maintaining an updated learning plan.
g) Learning at her/his own speed, *anytime, anywhere*.

2.3 Lifelong Learning

A web-based support system based on generative and intentional learning methodologies, which promote the development of metacognitive and self-directed learning skills, is considered necessary for lifelong learning activities. For a generative learning the learner has to take *responsibility of her/his own learning*, being an active agent creating knowledge in an organized manner in her/his community. For an intentional learning the learner *determines her/his goals*, being aware of her/his own learning and progress. According to this, we work in order to determine the software components and functionality needed for a lifelong learning environment, which I would like to define as:

> *"an internet based environment that supports self-directed, generative and intentional learning, where software elements assist the learner in planning her/his learning activities in order to meet changing society demands, supporting her/him to collaborate in the social construction of knowledge in a virtual community" (Ayala, 2000).*

Such technologies must support the following:

1. the social construction of knowledge in a virtual community, providing assistance to the learner in the organization and presentation of her/his ideas, beliefs and knowledge to the community (supporting generative learning).
2. provide awareness of knowledge resources considered relevant for the learner, guiding her/him towards a self-directed learning attitude.
3. maintenance of a personalized learning plan for the learner (supporting intentional learning),
4. participation of the learner in groups conformed with other learners who share the same interests.

We consider that second language learning is a lifelong activity. In modeling information technologies that support lifelong learning we propose software agents, assiting the learner in keeping her/him aware about what is new and maintaining a personalized learning plan based on the intentions, interests, capabilities and commitments of her/his community.

2.4 Wireless and Mobile Technologies in Education

Currently we are working towards the modeling of learning environments for large communities. It refers to the use of wireless information devices to implement mobile learning systems, going towards ubiquitous computing and integrating learning environments. One of the problems is the modeling of learner supportive interfaces for mobile applications.

3. Research Results

3.1 Advances in learner modelling

On learner modeling, we have proposed Learner Models for Supporting Awareness and Collaboration in a CSCL Environment, in the area of Intelligent Tutoring Systems (Ayala, 1996). We have a proposal for learner modeling in the context of lifelong learning environments, and we are working on a user model server for the personalization of digital services and collections (Paredes, 2001).

3.2 Advances in Computer Supported Collaborative Learning (CSCL)

In the area of CSCL environments we developed a Collaborative Learning Environment Based on Intelligent Agents (Ayala, 1998). We extend our agent based approach to the context of knowledge management, from the point of view that collaboration is the social construction of knowledge in a community. We modeled Intelligent Agents Supporting the Social Construction of Knowledge in a Learning Environment (Ayala, 2000).

3.3 Advances in Lifelong Learning

In the field of lifelong learning we have modeled Intelligent agents supporting the social construction of knowledge in a lifelong learning environment (Ayala, 2000) and propose a lifelong learning environment for a community of IT professionals and computer science researchers (Ayala, 2002). We have proposed an architecture and the methodology suitable for the development of these environments (Saito, 2002).

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