Displaying Mental Powers: The Case of VirtualMente

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Abstract

VirtualMente is a web based scenario for displaying cognitive processes in university graduates. The name VirtualMente was coined combining two words virtual and mente (mind). The name stresses its virtual nature, a web scenario targeted at cognitive competences. It is based on selected parts of the Triarchic Theory of Human Intelligence [1]. It focuses on metacomponents and insight processes. The structure consists of three dimensions: minds in action (problem solving, illustrations, self-assessment and collaborative glossary); minds in communication (horizontal interaction between participants through e-mail, chats and forums) and aids for the mind (suggestions for searching and selecting information and frequently asked questions). It includes materials coming from the local context and culture (songs, icons, words, cartoons) proposed by designers and participants. It promotes a collaborative atmosphere and demands continuous action from the participants. Content validity controls involve face validity and ecological validity. Procedures are content analysis and expert judgement. Available data come from a graduate level course on cognitive processes developed at the University of La Plata, Argentina. A demo version of VirtualMente and some data will be presented.

“Introduction”

The development of high level cognitive abilities such as critical thinking, reasoning, and problem solving are considered to be important aspects of university education. To meet this goal, an online graduate level course on cognitive processing was developed and offered in Spanish at the National University of La Plata, Argentina. The use of the Web is rather frequent in our University context for searching and exchanging information. Its use as a mediator for displaying cognitive processes is much less frequent. Strictly speaking, VirtualMente is not a course for teaching how to learn or how to think. It assumes that users have previously developed the implied cognitive abilities. It intends to offer a chance to set cognitive processes in motion, both individually and cooperatively. It tries to build a relatively spontaneous atmosphere to foster personal initiative and interaction.

The main features of VirtualMente include the following:

- the conceptual framework is based on the Triarchic Theory of Human Intelligence developed by R. J. Sternberg [2] [3]. The Triarchic Theory draws on the paradigm of human intelligence as a complex way of processing information, which is particularly pertinent: a virtual environment designed for putting into practice cognitive processes (mainly metacomponents and insights). Sternberg [2] states that if you are interested in fostering cognitive processes in others, you have to previously develop your own. VirtualMente is an attempt to crystallize this principle. Mental self-government and autonomy are reflected in VirtualMente through the emphasis on the participants’ activity.

- the program is a case of computer-mediated communication where problems are posed and solved in a virtual setting. The discussion list and the communication via e-mail provide a chance for horizontal and continued interaction. Participants’ contributions are judged on the basis of not strictly academic parameters. Criteria used to assess the contributions are: frequency, by the number of contributions and the number of contributions referred to by others; quality, by relevance, novelty, clarity and coherence; character of the contribution, by discussion, opinions, self-assessment, questioning, reformulating peer contributions, formulating new ideas and soundness, by quality of the sources and documentation. The forum allows more experienced peers to support others and may lessen eventual tensions produced during the performance of cognitive tasks.

- the language used is Spanish. Its constitutes an advantage over other Webs programs which require fluency in English.

- some materials come from local traditions and modes. The data coming from the graduate level course shows that the challenge of finding elements from social experience and the local culture may have motivational power in computer-mediated communication.

- as the program demands some knowledge of the Triarchic Theory, an online assessment instrument called Monitor Triarchic Test (MTT) was developed. Completing the online test and deciding the time of taking is optional.
“VirtualMente Structure”

The structure of VirtualMente includes three dimensions: minds in action, minds in communication and aids for the mind. Minds in action contains: problem solving, examples and illustrations, self-assessment, collaborative glossary, and other contributions from the users. Minds in communication implies: horizontal interaction between the participants through e-mail, chats and forums (discussion list). Aids for the mind gives: cues for navigating, suggestions for searching and selecting information and frequently asked questions.

The program is flexible, the screens are not arranged in a linear sequence; interactive, allowing participants to enter data or commands, and minimalist, controlling the amount of the information given.

It was considered desirable that the icon selected to give identity to VirtualMente should be culturally relevant. After an extensive search in magazines, comics, and advertisements, it was decided to adapt the icon used to advertise a popular analgesic called Geniol. The original icon consisted of a big head with pins and nails that symbolized headache. Only the head was kept. A survey of 100 university students on the semantic charge of words associated with “thinking” was done. The data indicated the Spanish word “mente” (mind) as the best equivalent of thinking. This link supported the decision to include “mente” in the coined name for the program. An interesting finding was that a colloquial word “mate”, was located on the top of the ranking. “Mate” refers to a typical beverage of Argentina and other South American countries. Saying that someone has “mate” means that he/she is clever or witty. Due to the cultural significance of the “mate”, its use as the icon of the program is currently considered. The multimedia environment of VirtualMente includes two extracts of modern tango composed by a leading Argentine musician, Astor Piazzolla. This composer is considered as a reformer of tango music. He introduced a different way of conceiving tango. It is hoped that this special kind of tango may encourage people to think in a non routine way. Whenever VirtualMente is presented, people’s first reaction show astonishment to hear tango in this scenario. The Music tries to focus on the onset of VirtualMente creating a climate with a local taste.

“Validity Controls”

A pilot study of VirtualMente was conducted using a sample of 15 university teachers and researchers from different disciplines. They were enrolled in studies of Computing Technology Applied to Education (Faculty of Computer Sciences, National University of La Plata). Content analysis was performed to determine the participant’s reactions to the Triarchic Theory. It was considered relevant for inducing and displaying cognitive processes. Also as a guide to select material for illustrating different kinds of intelligence. The metacomponents are seen useful as strategies for navigating through VirtualMente. As it is previously said, an online assessment instrument on the Triarchic Theory was developed (MTT). Comments of the participants indicate that assigning responsibility for discussing the content and proposing changes, increase interest in the online format. Moreover, changes in presentation, ways of going through the test, structure and content, will be taken into consideration for preparing the complete online version bearing in mind the answering styles of the audience. Participants advised to avoid a linear, rigid sequence. A free transit through the test is considered more coherent with the nature of VirtualMente. They added that the beep following the wrong choice may affect the careful consideration of the text. Related to the appropriateness of the icon, participants said that the Geniol head, in spite of not having pins or nails, is usually linked with headache. Therefore, this association may be transferred to VirtualMente. It was suggested that another icon to represent VirtualMente has to be considered.

“Final Remarks”

It seems that it is possible to include cultural materials into a course about human intelligence and cognitive processing through a virtual environment. In this case words, icons, habits, music and comics are used to put mental powers into action. From the standpoint of the Triarchic Theory the contributions made by the participants showed analytical and creative competences (metacomponents and insights). Metacomponenntal abilities were displayed in the application of constructs and principles of the Triarchic Theory to the specific purpose of the program, in monitoring self-progress and in making profit from the Internet resources. Creative abilities were shown in the searching, selection and adaptation of cultural materials relevant to VirtualMente.

“References”