Brain & Mind Magazine: An On-Line Multimedia Resource for Dissemination and Evaluation of Knowledge in Neuroscience

Silvia Helena Cardoso, PhD and Renato M.E.Sabbatini, PhD
Center for Biomedical Informatics, State University of Campinas, Campinas, Brazil

Background. In the last years, great progress has been made in the representation of knowledge by means of interactive on-line multimedia systems. There are increasingly common resources of biomedical education which permit the integration of information between images and text such as training in anatomy and radiology. Many studies point out that multimedia and multiple modalities of representation, including hypertext, 3D and moving images and sounds, have allowed advancements in the capacity for learning (Patel, 1996). However, there is still a need for additional research in order to determine how to effectively use these representations by means of Internet and other on-line systems.

Therefore, we have developed an interactive on-line magazine on neurosciences with three general aims: 1) to disseminate the neuroscientific knowledge for non-specialists by means of a clear and simple language; 2) to facilitate and to improve the access to information and navigation by means of new interfaces and better navigation tools; and 3) to evaluate the impact of neuroscientific dissemination in a new medium, on knowledge acquisition and education; more specifically by exploring the role of interactivity with the reader.

System. *Brain & Mind* is published exclusively on the World Wide Web (*www.epub.org.br/cm*), simultaneously in English and Portuguese. It combines the elements of a printed publication, such as periodicity, linear reading, etc., with those of a electronic publication, such as hypertext, non-linear navigation, etc., in this way making more dynamic the access to its repository of information. Furthermore, it implements a given subject in the form of successive layers of complexity, which start from an initial simpler paper, adequate for a lay public, up to a list of links for posterior research on the same topic in the Internet/WWW, or even the direct access to the scientific bibliography in databases such as MEDLINE, which are adequate for specialists. Thus the reader can increase the depth of his knowledge about the subject in the same place, according with his or her degree of interest. The magazine uses extensively attractive visual resources, implementing anatomical information by means of 3D reconstructions of images of the Visible Human (Ackerman *et al*, 1995).

The interactive aspects are implemented in several forms. One of them is Neuroforum, a discussion section in the magazine, with opinion articles, feedback from the readers, interviews with neuroscientists as well as the implementation of a world-wide discussion list by email about brain/mind relationships, whose threads of discussion are published permanently in the magazine. The second form is the possibility of direct interaction between the readers with the authors by means of email. Finally, another innovative aspect is using *Brain & Mind* as a tool for epidemiological research in mental health in a global scale, by using a set of on-line interactive questionnaires for self-evaluation of the incidence and characteristics of depression, stress, hallucinations, etc, in the target population. The methodology used here involves applets in Java and Perl and the interaction with local data bases.

Evaluation and Conclusions. Electronic, interactive publication in the Internet is a powerful trend, and has many advantages over the printed counterpart. One of them is the possibility of carrying out automatically the qualitative and quantitative evaluation of user access, satisfaction, impact on knowledge acquisition, etc. Another is the flexibility provided by branching the subject matter and turning it into an interactive learning experience. We are currently in the evaluation phase, but we can already conclude that this new medium has achieved a high degree of success in relation to its aims.

References

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