Preface

The Internet and Web sites have created a new society. It is the virtual cyberspace that stimulates the era of information explosion. From a stand-alone computer to networked workstations, the virtual world links us together and creates a new concept – the virtual utopia or *V-topia*. Is it real or virtual? Does it exist? Such questions are often asked at international conferences and private discussions. The existence of such a world can be as real as it should be, from the perspective of a new sociological justification. On the other hand, V-topia is virtual, as no physical material can be used without the support of the current social infrastructure. The new concept realizes new activities. E-commerce, E-conferencing, E-entertainment, E-medicine, and E-learning are available based on the Web and Internet/Internet2. Among these activities, E-learning, sometimes called distance learning, seems to be promising. Distance learning Web sites, tools, and portals are everywhere. The impact of this new revolution of learning technology not only influences the direction of multimedia and network research, but impacts our society in terms of how education should be carried out.

Technologies are important only if they are used by people. Distance education technologies are valuable only if they are able to facilitate automatic systems in support of the goals of education. The *International Journal of Distance Education Technologies* (JDET) publishes original research articles of distance education four issues per year. JDET is the primary forum for researchers and practitioners to disseminate practical solutions to the automation of open and distance learning. The journal is for academic researchers and engineers who work on distance learning programs and software systems, as well as educators and general participants of distance education. The journal covers practical solutions, especially automatic technologies of distance learning. Educational methodologies and theory are less emphasized. The purpose of JDET is to combine communication mechanisms, intelligent systems, and educational technologies in the use of distance education. Discussions of computational methods, algorithms, implemented prototype systems, and applications of open education and distance learning are the focuses. Practical experiences and surveys of the usage of distance learning systems are also welcome. Distance education technologies papers published in JDET will be divided into the following three categories. **Communication Technologies** include new network infrastructures, real-time protocols, broadband and wireless communication tools, quality-of-services issues, multimedia streaming technology, distributed systems, mobile systems, multimedia synchronization controls, and other technologies of distance education. **Intelligent Technologies** include intelligent tutoring, individualized distance learning, neural networks or statistical approaches to behavior analysis, automatic FAQ reply methods, copyright protection and authentication mechanisms, soft computing, visual computing, and other technologies of distance education. **Educational Technologies** include
practical and new learning models, automatic assessment methods, effective and efficient authoring systems, and other issues of distance education.

The inaugural issue of JDET contains five invited papers. The first survey paper discusses current trends of distance learning technologies, research issues, and a list of questions/answers frequently asked in panel discussions. The paper suggests three elements of distance education – policy, technology, and people. Challenging research issues from these elements and the relationships among them are illustrated.

The second paper describes CyberLab, which is an Internet assisted laboratory developed at Stanford University. With the CyberLab, physical experiments can be carried out by remote students with the help of video communication. The experiments can also be combined with numerical simulations. The educational value of CyberLab was evaluated by the School of Education at Stanford University.

The third paper is a software engineering approach, using a Teleaction Object transformer based on XML technology, to facilitate reuse of the teaching resources. As an example, an electronic book, i.e. the Growing Book Project, is co-developed by a group of teachers who are geographically dispersed throughout the world and collaborate in teaching and research.

In addition to software engineering principles, the Courseware Engineering Methodology (CEM) discussed in the fourth paper also incorporates instructional design methods and multimedia interactions, to guide novices to design effective online courses. The methodology has been used successfully at a university in the United Kingdom to develop online courses.

The last paper discusses experiences of the use of hypermedia modules in an Italian research project of distance education named “Consorzio Nettuno”, which comprises 34 Italian universities and the Open University in the United Kingdom. Remote access to electronic instrumentation is incorporated with the hypermedia modules. The students can carry out several real laboratory experiments without actually being in the laboratory, by using a client-server structure based on the Internet.

Distance education is evidently a very promising approach in education. But what are the fundamental technologies that we need in distance education systems? As pointed out in the first survey paper, the government, the engineers and the society must work together to make distance education successful. The International Journal of Distance Education Technologies intends to publish contributions of automatic methods, practical systems and field experiences to facilitate the realization of the potential in distance education.

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