Special Issue of IJCIM
Proceedings of the
Fifth International Conference on
eLearning for Knowledge-Based Society
“New Generation and New Values of eLearning”

Organized by
The Ministry of Information and Communication Technology
The Computer Association of Thailand
Under the Royal Patronage of His Majesty the King
The Interdisciplinary Network of the Royal Institute of Thailand
Under the Royal Patronage of HRH Princess Maha Chakri Sirindhorn
The College of Internet Distance Education of Assumption University
John XXIII Conference Center, Assumption University, Suvarnabhumi Campus
Bangkok Metro, Thailand

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HRH Princess Maha Chakri Sirindhorn graciously presided over the opening of Bangkok International ICT Expo 2007 which included eLearning and SEARCC Conferences.


H.E. Dr. Surapong Sueb Wonglee, the ICT Minister, Khunying Thipavadee Meksawan, the ICT Permanent Secretary and Prof. Dr. Srisakdi Charmonman at eLearning 04.

H.E. Air Chief Marshal Kamthon Sindhvananda, Privy Councilor, chaired the Opening Ceremony of eLearning 08. Prof. Dr. Srisakdi Charmonman reported to the Chairman. The President Emeritus and the President of AU delivered welcoming addresses.

Dr. Runguang Limchoopatipa, SIPA President, visited the Conference Chairman’s Office during eLearning 08.

Some of the authors and participants at eLearning 08 in the Conference Chairman’s Office during eLearning 08.
Report to the Chairman of the Opening Ceremony

In my capacity as the Chairman of the Organizing Committee, I and all members of the Committee would like to express our highest gratitude to H.E. Air Chief Marshal Kamthon Sindhvananda, Privy Councilor, for his kindness in accepting our invitation to chair the opening ceremony of the Fifth International Conference on eLearning for Knowledge-Based Society.

The objectives of the Conference are to share knowledge and advances in eLearning; to build networks of professionals, researchers, educators and policy-makers practicing eLearning; to expand the opportunity for knowledge interchange; to facilitate knowledge-sharing for ongoing initiatives; and to build repositories of current practices and lessons learned. The main theme of the Conference is “New Generation and New Values of eLearning”. The topics of interest are Best Practices in eLearning, eLearning Technology, Courseware Design and Production, Learning Management Systems, eLearning Principles and Practices, and any other related topics.

This Conference is the fifth one in the series started in the year 2004. The Conferences have been organized by the Ministry of Information and Communication Technology, the College of Internet Distane Education of Assumption University, the Computer Association of Thailand under the Royal Patronage of HM the King, the Interdisciplinary Network of the Royal Institute of Thailand under the Royal Patronage of HRH Princess Maha Chakri Sirindhorn, Thailand Chapter of the Computer Society of the IEEE, Thailand Chapter of the ACM, Thailand Chapter of the Internet Society, and other learned societies. There were 42 papers from 10 countries in the First International Conference on eLearning for Knowledge-Based Society in the year 2004, 36 papers from 8 countries in the Second Conference in the year 2005, 49 papers from 15 countries in Third Conference in the year 2006, 37 papers from 15 countries in the Fourth Conference in the year 2007, and 46 papers from 15 countries in the Fifth Conference in the year 2008.

We would also like to express our sincere appreciation to the Sponsors, namely, the National Telecommunications Commission, Software Industry Promotion Agency (Public Organization), SVOA Public Company Limited, NOK Precision Component (Thailand) Limited, and Samart Telcoms Public Company Limited.

Prof.Dr. Srisakdi Charmonman
Chairman of the Organizing Committee
Opening Address by H.E. Air Chief Marshal Kamthon Sindhvananda, the Privy Councilor

I am most delighted that the Kingdom of Thailand has been honored with hosting the “Fifth International Conference on eLearning for a Knowledge-Based Society.” The theme of this year’s Conference is “New Generation and New Values of eLearning.” I welcome the presence of educators and Information Technology professionals who have gathered at Assumption University Suvarnabhoomi campus to share their innovative research and ideas. I am confident that out of the papers in this Conference, many fruitful ideas will emerge that will contribute towards the betterment of education for the present and future generations. The exponential growth in the new generation of eLearning technologies is influencing educational opportunities for global communities. The ubiquitous technological advances of online education are changing the role of universities and civic institutions everywhere. The success of eLearning research projects needs a systematic and collaborative global approach. I, therefore, believe that this eLearning Conference will be very useful for researchers from Thailand and other parts of the world to come together and discuss how eLearning can add to the development of knowledge-based economies and enhance other social and cultural dimensions. I am very excited by the opportunities that the new eLearning technologies will provide for the betterment of education at all levels. Education is no longer for only for young people enrolled in a school or a university. Through eLearning, education is becoming an ongoing and ever-expanding opportunity for people of all ages. The benefits of this vast expansion of opportunities for life-long learning are obvious.

I am particularly pleased to see that the “I triple E (IEEE)” is among the organizers of this Conference. When I established the IEEE in Thailand long time ago, there was a joke that IEEE was an organization of a man and three women, because in the Thai Language “I” is used to refer to a “Man” and “E” to refer to “Women”. Anyway, the Computer Society of the IEEE is the oldest and largest computer engineering society in the world. I am also delighted that the Computer Society of IEEE is located at Srisakdi Charmonman IT Center” of Assumption University, Suvarnabhumi Campus.

This Conference thus has wide-ranging implications for the world of tomorrow. I therefore would like to thank all the sponsoring organizations and the members of the Organizing Committee led by Prof.Dr. Srisakdi Charmonman for their hard work. I would also like to thank all the participants for their significant contributions to the Conference’s success.

(K.E. Air Chief Marshal Kamthon Sindhvananda)
Privy Councilor
NTC
Accelerating telecommunications for free and fair competition
Message from
His Excellency Mr. Abhisit Vejjajiva
Prime Minister of the Kingdom of Thailand

The 5th International Conference on eLearning for a Knowledge-Based Society was organised by a consortium of technological and academic organizations and held in Thailand under the theme “New Generation and New Values of eLearning”. The ideas that emerged from the Conference are valuable, so I am especially pleased that the papers submitted to the Conference are scheduled to be published in a special issue of the International Journal of the Computer, the Internet and Management. In time, the outcomes of the Conference will ultimately contribute to the development of education in Thailand.

The Royal Thai Government recognizes that education is the key to the development of the country and the well-being and prosperity of our people. Investing and staying competitive in education are important when dealing with economic uncertainties. The government is therefore strongly committed to reforming the entire education system in Thailand. This includes using every resource available to provide life-long education and improving instructional media while encouraging children, youth and the people in general to make constructive and intelligent use of information and telecommunications technology.

May I congratulate the participants of the Conference and members of the Organising Committee, in particular the chairman, Prof. Dr. Srisakdi Charmonman, for this very successful event.

(Abhisit Vejjajiva)
Prime Minister of the Kingdom of Thailand
Message from H.E. the Minister of Science and Technology

The Sloan Consortium which is the international organization to promote excellence in online education or eLearning has been issuing results from surveys of eLearning. One of the important results is that over 90% of large universities in the US are offering eLearning. The state of Michigan in the US has passed a law requiring that every highschool graduate must have taken at least one eLearning course. In the year 2008, more than half of students in the state of Florida in the US have taken at least one eLearning course. All countries in the world are offering or in the process of offering eLearning.

From www.google.com, I am delighted to learn that Thailand is the first and only country in the world offering Ph.D. in eLearning Methodology and that is at the College of Internet Distance Education of Assumption University. The First Bachelor Degree Program in Business Computer in Thailand was established at Assumption University. That program was authored by myself, Prof. Dr. Srisakdi Charmonman and Dr. Choop Karnjanaparakorn who was also the first Minister of Science and Technology. I am very pleased to know that Prof. Dr. Srisakdi Charmonman has also served as the Chairman of the Organizing Committees of the five International Conferences on eLearning for Knowledge-Based Society from the year 2004-2008.

In my capacity as the Minister of Science and Technology, I am sure that papers to be published in the Proceedings of the Fifth International Conference on eLearning for Knowledge-Based Society which is the Special Issue of the International Journal of the Computer, the Internet and Management, Volume 16. Number SP3, 31 December 2008, will be beneficial to all concerned. I would like to see this series of conferences going on the next year and several more years to come.

(Dr. Khunying Kalaya Sophonpanich)
Minister of Science and Technology
Message from H.E. the Minister of Information and Communication Technology

Education is, in part, the communication of knowledge and the communication of techniques of learning and activity. Like all important types of communication, education is an active and interactive process in which the teacher and the student work together on an ongoing self-development process. In view of the interactive process, it is necessary to enhance traditional modes of educational communication through technological means. The classroom has long been the centre of many educational experiences but eLearning will become more and more popular.

Telecommunications provides the bedrock of the enhanced means of interacting. The Ministry of Information and Communication Technology is, therefore, very pleased with the special focus of The Fifth International Conference on eLearning for Knowledge-Based Society: “New Generation and New Values of eLearning”. The papers presented at this Conference would make a significant contribution to the field of eLearning. I am certain that many new friendships and professional relationships have been made at this conference and the creative interaction of these will be continued over telecommunications networks in the future.

On behalf of The Ministry of Information and Communication Technology of the Royal Thai Government, I would like to express our sincere appreciation to the hard work of the Organizing Committee headed by Prof. Dr. Srisakdi Charnmonman. I am sure that everyone has learned much, enjoyed making new friends and meeting with old ones, and in particular, enjoyed the hospitality for which Thailand is much well-known of. I look forward to reading the Proceedings of the Conference.

(Sub Lieutenant Ranongrak Suwanchawee)
Minister of Information and Communication Technology
Message from the Permanent Secretary

Ministry of Information and Communication Technology

The Ministry of Information and Communication Technology of Thailand has as part of its mission the development of the very critical, and very central, technological sector of the economy. Such development can only come about with an expanded educated population, expansions that can best be achieved through technological development itself. As networking becomes more important to computing, the boundary between Information Technology and telecommunications has become very thin in almost every application including educational ones. Thus, the Ministry is very pleased to be involved with the Fifth International Conference on eLearning for Knowledge-Based Society. By focusing on the theme of “New Generation and New Values of eLearning”, the Conference on eLearning this year has taken advantages of the involvement of experts from Thailand and other countries. For this reason, I am certain that the Fifth Conference has been as successful as the others in this important series of conferences.

I am sure that all those who attend the Conference have found it both enjoyable and productive. As always, the Ministry of Information and Communication Technology will do all that we can to support the series of eLearning Conference. I am fully confident that the papers and discussion at the Conference would make a significant contribution to the field of education when it is published in December 2008.

I would also like to thank many people who have worked so hard to organize the Conference and arrange the publication of its Proceedings. Most particularly, the Ministry would like to acknowledge Prof. Dr. Srisakdi Charmonman and his organizing committee for the excellent work that they once again have done this year.

(Sue Lo-Utai)
Permanent Secretary
Ministry of Information and Communication Technology
Welcome Message from the President Emeritus of Assumption University

In my capacity as the President Emeritus of Assumption University of Thailand, I would like to welcome all of you to Assumption University, Bangna Campus at John XXIII International Conference Center.

We are pleased to able to tell you about our university. We have two campuses situated in Bangkok: the original on is at Huamark, which is primarily the home for our graduate programs; and our new campus opened in June 1999, where our undergraduates attend classes. We call this our university in a park, because of the outstanding architecture with its lush surrounding gardens.

English is the medium of instruction throughout the university. International instructors who hold advanced degrees from many Western institutions bring with them a wealth of multi-cultural experience and training from more than thirty different countries. There is also the opportunity to meet students from fifty-seven nations who have chose to attend AU because of its international standards and its management-based curricula. Research, laboratory and resource facilities are plentiful and centrally located.

Information Technology is emphasized on both campuses, and computers are to be found number, and can access the Internet for information at anytime. AU is also a Founding Member of the Internet Society (ISOC), and Prof. Dr. Srisakdi Charmonman is the Founding President of Thailand Chapter of ISOC and Thailand Chapter of the Computer Society of the IEEE. AU is vitally concerned with e-Learning, e-Library and digital library. All of these are easily accessible for the students.

It is my pleasure and honor to a co-host the Fifth International Conference on eLearning for Knowledge-Based Society. Again I would like to welcome you to Fifth International Conference on eLearning for Knowledge-Based Society.

(Rev. Bro. Prathip Martin Komolmas, FSG., Ph.D.)
President Emeritus, Assumption University
Welcome Message from the President of Assumption University

I would like to begin by thanking all the important people for being here today. I am delighted to welcome all of you to the Fifth International Conference on eLearning for Knowledge-Based Society, Assumption University, Suvarnabhumi Campus at John XXIII International Conference Center.

E-Learning is “the use of the Internet and digital technologies to create experiences that educate our fellow human beings”.

The challenge for twenty-first-century educators is to create a community of inquiry that integrate social, cognitive, and teaching characteristics in a way that will take full advantage of the unique properties of eLearning, that is independent of time an space and with the combination of interactive and reflective features which will stimulate and facilitate a level of higher-order learning unimaginable a few decades ago.

Due to advancement in technologies, learning opportunities will soon be available everywhere. Learning will be almost continuous and much learning will occur during short spare moments. As e-learning technologies are simplified, more and more individuals and organizations will find ways to share their unique expertise. Everyone will become both student and teacher, and learning will be a natural part of every day experience.

I want to invite you all to explore the new world of self-directed learning where e-learning will be the dominant technology in supporting new approaches to teaching and learning unrestricted by time or place. It is my pleasure and honor to co-host of Fifth International Conference on eLearning for Knowledge-Based Society. Again I would like to welcome you to Fifth International Conference on eLearning for Knowledge-Based Society.

(Rev. Bro. Bancha Saenghiran, FSG., Ph.D.)
President, Assumption University
Message from Chairman of the National Telecommunications Commission

It is a great pleasure for me to convey my congratulatory message for the 5th International Conference on eLearning for Knowledge-Based Society “New Generation and New Values of eLearning” which is organized in Thailand by the Ministry of Information and Communication Technology. The conference is expected not only to encourage the knowledge interchange on eLearning and networking opportunities but also to promote the development of future knowledge sharing system through eLearning.

At national level, the government deems the role of ICT as significant for national development. This is reflected in the 10th National Economic and Social Development Plan (2007-2001), of which one emphasis is on the role of developing and using ICT to diffuse knowledge and encourage social learning. The intended outcome is to improve our people’s capability as well as strengthen the nation’s competitiveness in the global arena. It is also expected that through the help of ICT Thailand will eventually become a Knowledge-Based Society.

With its main duties and responsibilities to administer the allocation of Thailand’s Telecommunication resources, encourage free and fair competition for telecommunication sector and implement the Universal Service Obligation for rural and less developed areas where telecommunications is inaccessible, the National Telecommunications Commission (NTC) realizes that education is fundamental to human development as well as sustainable development of the nation. Thus it has implemented several projects to promote the use of ICT to diffuse knowledge via eLearning. One worth mentioning project is the so-called Tele-Center for Education and Development in Rural Area in the North and the Northeast regions, which aims to support knowledge interchange and to bridge digital divide among people in urban and rural area.

I wish to take this opportunity to convey my sincere admiration to the organizing committee for their efforts and hard work that have finally put the conference in place. I also wish that the conference participants would make the best use of this event to exchange their experiences and views in order to explore the possibility and practicality of various initiatives as well as cooperation projects on how to promote eLearning for a better future of our societies.

Lastly, I would like to express my sincere wish that the conference will conclude with great success and meet every objective it sets out to achieve.

General (Ret.)
(Choochart Promphrasid)
Chairman of the National Telecommunications Commission
SIPA was set up on September 23, 2003 in accordance with the establishment of the Software Industry Promotion Agency (Public Organization) Decree B.E.2546. Realizing the importance of software industry development, the Royal Thai Government considers software industry development as one of the key strategies to enhance the country’s industrial competitiveness. It aims to enhance the efficiency in the delivery of quality services and product manufacturing. Its founding mission is considered to introduce a new dimension in Thailand’s software industry development. It covers the promotion of software and content as keys value-generating segments of the knowledge economy. SIPA envisions the NFP as the engine to accommodate the growth of the global software and content industry and realize the vision of SIPA.

The strategy to make Thailand the regional information and communications technology hub

- Phuket ICT Innovation Paradise
- Thailand Digital Content Center
- National Software Incubation Center
- Global Outsourcing Center

Software Industry Promotion Agency (Public Organization)
89/2 Moo 3, Building 9, 11th Floor Chaengwattana Road, Thungsonghong, Laksi, Bangkok 10210, Thailand
www.sipa.or.th
Message from the President of Software Industry Promotion Agency

The 5th International conference and eLearning for a Knowledge-Based Society is a great event. It is the pride of the country, Thailand to welcome international educators and IT Professionals at the Assumption University for this conference.

In the past few years, the issue of eLearning received substantial interests from educators all around the world, especially with an aim to improve the education system as a massive way to bring knowledge going across the society. In fact, every countries are trying to develop the National eLearning system for their own countries. As a result we all learn a good valuable experience of which can be shared to all educators and IT Professionals. The topics include Best Practice in eLearning, eLearning Technology, Coursware Design and Production, Learning Management System and eLearning Principles and Practiced.

The papers (knowledges) presented in this conference will be an important steppingstone for the knowledge-Based Society. I admire the initiative of Pro. Dr. Srisakdi Charmonman in organizing this important conference. I would like to thank all the participants submitting papers and/or attending this successful conference. And I hope the knowledge we learn from this conference will help us moving forward into “New Generation and New Values of eLearning”.

(Dr. Rungruang Limchoopatipa)
President of SIPA
ผลการวิจัยว่าผลิตภัณฑ์ได้รับการเลือกเป็นวัสดุสำหรับการผลิตครุภัณฑ์วิทยาศาสตร์

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Message from the Founder & Chief Architect
SVOA Public Co., Ltd.

Education plays an important role in the development of a country and the enhancing of the quality of its people. It is aimed to develop the powers and capacities latent within individuals, so that they may contribute their share to an ever advancing civilization. With the progress of the Internet and technology tools for effective education, several methods of learning have been revolutionized to so-called e-Education or e-Learning.

Most countries lay their infrastructure to be sustainable for online learning connection through Internet or advanced technology tools. At present, hardware, software, and network play a very significant part in communication medias for delivering education, while training for technology know-how is arranged for more understanding and getting the utmost benefits from e-Learning or online world. e-Learning enables an ordinary person to have access to a vast pool of information and knowledge in any time, at any place in the world, since Technology and the Internet have facilitated and empowered an individual to have a more active role in the educational process.

It is indeed a great pleasure to see the “The Fifth International Conference on eLearning for Knowledge-Based Society”, organized to provide a forum for experts and personnel in the e-Learning and e-Education circle in the Asia-Pacific region to get connected, to share and to exchange their initiatives, knowledge, and ideas in implementing and practicing e-Learning. It is really delighted to see such significant event being held in Thailand where we need more e-Learning initiatives to be implemented to distribute learning opportunity to our remote provincial areas.

I wish the Conference all the best and success as the organizer endeavors.

(Jack Min Intanate)
Founder and Chief Architect
SVOA Public Co., Ltd.
Foreword
Fifth International Conference on eLearning for Knowledge-Based Society

For the fifth year in a row, I am very proud that The International Journal of the Computer, the Internet and Management (IJCIM) has the privilege of publishing the Special Issue on eLearning. The Proceedings of the Fifth International Conference on eLearning for Knowledge-Based Society includes 44 papers from 15 countries. Authors from more than 15 countries have submitted their papers but due to the unfortunate political problems in Bangkok, the airport was closed not very long before the date of the Conference. Many authors had to cancel their air tickets. When the airport was open a few days before the date of the Conference, some authors could not get new tickets. Anyway, the countries represented are Germany, India, Indonesia, Iran, Israel, Malaysia, New Zealand, Pakistan, Philippines, Romania, Singapore, Sri Lanka, Taiwan, Thailand, and USA. The topic of eLearning is more and more important as can be seen by the fact that more than 90% of large universities in the US are offering eLearning. To once again devote an entire issue to eLearning is thus an extraordinary opportunity for us.

Sample papers are Regional Report 2008 on ASEAN University-level eLearning, Effective Corporate eLearning, Mobile Learning, eLearning 2.0, Web-based Tools, Digital Libraries, Adaptive eLearning System, Readiness Assessment Tool, Optimum Pedagogic Utility of eLearning, Evaluation Framework, Knowledge Quality, Effect of Organizational Culture on Acceptance of eLearning, Sample eLearning Laws and Court Cases, Using SCORM to Provide Different Paths in eLearning Courses, Providing eLearning Service for the Blog, AUPlus and SCITplus, the Impact of Corporate Managers Attitudes on eLearning, Evaluation Interactivity of eLearning Resources, Pedagogical-based Design and Development of eLearning, Critical Components for Successful Multimedia-based Collaborative eLearning Design, eLearning in Finance, etc. There is not enough space on this page to discuss the papers published here but I would like to remark on the optimism that there is a real sense that progress is being made and that learning at all levels, from early youth, to colleges and universities, to the lifelong learning will be transformed as a result of the papers. The field is moving rapidly and we look forward to the Sixth International Conference next year which will continue that progress still further.

In my capacity as the Editor-in-Chief of the International Journal of the Computer, the Internet and Management, I would like to thank those who have made the Fifth International Conference on eLearning for Knowledge-based Society and its Proceedings possible. The main organizers are the Ministry of Information and Communication Technology, the Computer Association of Thailand under the Royal Patronage of HM the King, the Interdisciplinary Network of the Royal Institute of Thailand under the Royal Patronage of HRH Princess Maha Chakri Sirindhorn, and Asia Pacific eLearning Association. The supporters are Thailand Chapter of the ACM, Thailand Joint Chapter of the Computer Society and the Engineering Management Society of the IEEE, Thailand Chapter of the Internet Society, Thailand Internet Association, Association of Thai Internet Industry, Prof.Dr. Srisakdi Charmonman Foundation, and Assumption University with its College of Internet Distance Education. Also crucial have been our sponsoring organizations, namely, the National Telecommunications Commission, Software Industry Promotion Agency, SVOA Public Co., Ltd., NOK Precision Component (Thailand) Ltd, and SAMART TELCOMS Public co.,Ltd. Finally I must also thank all of the members of the Organizing Committee, as well as the staff of the Office for Information Technology of Au, staff of CIDE, and staff of the IJCIM.

Prof. Dr. Srisakdi Charmonman, Editor-in-Chief of IJCIM
Srisakdi Charmonman IT Center, Assumption University of Thailand