Emerging Technologies in Learning: Impact on Cognition and Culture

Edited by

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FOREWORD 1

It is a pleasure and a great privilege to be writing a foreword for a comprehensive book like this. Initially, I wondered how one can capture a range of emerging technologies in the context of learning with impact on cognition on the one hand and culture on the other. But, having gone through it, I am pleasantly impressed by seeing the job so well done. The eminent editors Dr Madhumita Bhattacharya, Dr Nada Mach and Dr Mahnaz Moallem have drawn upon internationally renowned authors, handpicked for the topics that they have practical expertise. It has also been reviewed by a galaxy of experts. I am sure, it makes the AACE proud!

Learners are indeed in focus across the academic world, may it be in United States or Africa or Asia and the academics are working towards learner centering. The book centers on different aspects of the emerging technologies in learning with regard to cognition and cultural dynamics; it is bound to appeal to people across diverse cultures in different regions of the world and hence promote multicultural development. It is studded with large number of examples, case studies and narratives making a direct and lasting impact on the readers. The readers are likely to be inspired to think beyond borders and engage in further individual or collaborative research on some of the topics dealt with in different sections.

The book should appeal to a spectrum of readers including university and research professionals, research scholars, graduate and senior undergraduate students, educational technologists and all others interested in the subject of ensuring meaningful learning. It is an indispensable reference resource for the libraries in higher institutions of learning, research organizations and resource centers.

Wishing resounding success for the authors and the editors!

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FOREWORD 2

It is well established that learners vary in their perception and learning styles. Also that both perceptions and learning styles are contingent upon cultural artifacts and the process of socialization. Community, at various levels and spaces, have a greater role in how we interact, exchange, construct, and negotiate. Therefore, it is essential to examine the relationship of technological developments, especially the social technologies and social networks, with human cognition and diversities in cultures. There are a few works on the theme available in contemporary times; the current work by Drs. Bhattacharya, Mach and Moallem is the most contemporary which weaves together the contributions made by a diversity of experts from across the globe in this comprehensive work covering a wide range of themes: technology, learners and education across cultures; semantic web, social technologies and teaching-learning; and researching technology-enhanced learning. The contributing authors have addressed a wide range of functional dimensions within each of these broader themes.

Education and/or learning is a practice in culture. Strengthening this practice in a networked world through a host of networking technologies today has the immense possibility of creating a global village while living locally. Technological communication, rather than necessarily any contiguity in interaction, facilitates this. Since education, and more specifically learning, is context-specific, it is essential therefore to address both the individual space and the community space in learning. The significant developments in social technologies provide for more constructivist perspectives to inputs, processes and outputs. It has been proved by researchers that individual space in learning (or constructing meaning) is as important as the space in the community of practice to negotiate meaning. While the developments in Web 2.0 and 3.0 and social technologies and networks facilitate space-free constant interaction and negotiation, the developments in personalized learning spaces and web tools on the web (and especially those facilitated by cloud learning) facilitate personal learning styles and personal learning. While seemingly culture and cognition tend to merge in such a platform/framework/scenario, it is all the more important to continuously investigate these realities and their interaction and convergence so as to best design individual and community spaces, and links those beyond the virtual surrogates to the real life contexts.

This book attempts to address these issues and analyses themes from various macro and micro perspectives. I believe, teachers, students, researchers, designers and technologists-- all shall benefit from the scholarly discourses through various contributions weaved logically in the book. The work also draws credibility through its publication by the prestigious Association for the Advancement of Computing in Education (AACE), USA.

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PREFACE

How this Book is Developed?

The idea of writing this book originated at a panel session we delivered at the Elearn international conference in Las Vegas in 2008. At this session, through discussion with the participants from the international community, we realized that this topic had a much wider interest and a potential for publication as a book. At this session a number of the participants expressed genuine interest in contributing to this book, which formally initiated the start of this effort. As a follow up, we invited chapters from all across different continents and received an enthusiastic response. We discussed our proposal with Dr. Gary Marks. Gary delightedly supported our idea.

In June, 2009 at the Ed Media conference in Hawaii we organized another panel session to share the idea of the book and its different sections. In small group discussions, panel participants examined different sections of the book and offered suggestions and recommendations and some also agreed to contribute to the book. In a later “book writing retreat,” we decided to create a wiki site to post the “call for chapters” to allow the contributors to continue sharing ideas and to invite more discussion and contributions. AACE then agreed to publish the book and posted a message on the AACE blog with a formal call for chapters.

At SITE 2010, we again organized a panel session to share the formulated ideas and tentative chapters and receive more feedback from the panel participants. At the conclusion of this session a few more authors joined in and submitted chapters for the book.

The above mentioned interactive process combined with creating and maintaining the wiki and blog sites helped us receive 47 expressions of interest, 35 extended chapter proposals and 27 full chapters. In addition, this process allowed us to invite a number of colleagues who were interested in the topics and agreed to serve as reviewers. A rigorous selection process was used to identify the chapters for the inclusion. All the extended abstracts were reviewed by the editors before sending the invitation for full chapter submission. Chapters were peer reviewed by at least two reviewers before being read by the editors. In addition to reviewers, the editors reviewed the chapters as many times as needed to provide the authors with constructive feedback. We believe, one of the strengths of our review process was to help our international scholars use our constructive feedback to improve their work and to adjust their writing styles for a larger audience. As a result of this process, we have been successful in including quality submissions from 11 countries in 6 continents (North America, South America, Oceania, Asia, Europe and Africa) in the book.

How the Book is Organized?

This book encompasses the technological influence on learning and cognition from a cultural prospective. It weaves together different kinds of learning technologies with the thread of cultural diversity to meet local and global educational needs and includes the latest developments in education, particularly emerging technologies. The book offers successful examples of student modeling for multimedia learning environment design, instructional delivery systems, and applications of technology where computer and mobile technologies play an indispensable role. Innovative ideas, as well as issues related to learning, teaching and assessment, workplace learning, assistive technology, the roles of current and future technologies in learning are discussed by authors from various countries and educational settings.

Four sections in the book organize the emerging technological influences on learning and cognition. Each section further consists of chapters that deal with different issues related to the section’s topic. Case studies are included in each section to illustrate educational changes that have occurred with technological advancements. Critical reflection, analysis and suggested research approaches propose ways and means to handle the present and indicate trends for future.

The first section of the book discusses the way the educational scenario is shifting and becoming more complex with technological advancements. This section includes chapters which seek to understand the new generation of learners in order to suggest suitable learning environment design solutions. Through critical analysis and review of literature, discussion with examples, cross-cultural case study, suggested models and approaches, chapter authors in this section have made valuable contributions to the book.
The second section of the book focuses on utilizing social networking tools such as FaceBook, wikis and blogs for teaching, learning and assessment within a multicultural setting. The uses of Web 2.0 for Learning 2.0 also focus on building communities of learning. It includes chapters examining the current research as well as case studies.

In the third section we have included chapters focusing on the implications of new technologies for special learning purposes and/or specific populations. This section is includes chapters on using assistive technologies for students with learning disabilities, case studies of blind programmers, using online communities for library science masters’ candidate, workplace learning, and counseling. Chapters in section three have been selected based on their strong focus on research and innovation in the use of online learning for education.

The fourth section of the book brings together ideas about emergence of technology enhanced learning environment or e-learning. Social constructivist theories of learning and cognition with a focus on building community of learners within multicultural settings are explored by authors of the chapters in this section.

This book is for professionals, researchers, and instructional designers working in various disciplines, especially involved in teaching, training and learning environment design. The book should also serve as an important reference for undergraduate and graduate students in education, online and distance education, instructional design, multimedia design, instructional and learning technologies, assessment and evaluation, educational research and information communication technologies. Moreover, the book provides insights and support to innovative studies concerned with the development of multimedia content in a multicultural context for 21st century education. International scholars offer various approaches and tools for designing instruction and collecting evaluation and assessment data. The case studies presented in this book are designed to meet the present and future research demands of the changing educational, cultural and social environment created by emerging technologies.
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Probably this book would never have been written if we, the editors, had not met face-to-face and virtually. We would like to recognize the thoughtful contributions each of us has made to produce this quality book. The editors wish to thank Gary Marks for his support and enthusiasm for our work on the e-book project; Sarah Duke Bensen for her help in publicizing the e-book on the AACE blog; and Chris Marks for coordinating the publication. This has been a long process, we are grateful to all those who have helped us along the way, including our families, friends and colleagues.

In the course of developing this book from inception to publication chapter authors went through various life changing stages: two of them completed their Ph.Ds; some of them got promoted; several of them changed their universities; houses and names, too; a few of them became ill and/or became victims of natural disasters. It is amazing to find that majority of the authors remain committed and continued to work on the chapters for this book. We appreciate the cooperation of all the chapter authors. It would not have been possible to produce this book without their contributions.

We extend our gratitude to Pithamber Polsani, Royal Bank of Scotland, India; Tanmoy Bhattacharya, University of Delhi, India; and Mike Mimirinis, Middlesex University, UK for their input in the initial stages of organization of this book, and Yasmin Bhattacharya, University of Tokyo, Japan for her help in technical editing in its final stages.

In addition we would like to thank the following reviewers for their helpful suggestions to chapter authors:

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