Preface

For more than ten years, communities of practice (CoPs) have been recognized as effective environments to support learning among professionals, organizations and educational institutions. Collaborative learning is inherent in such communities, in that their members learn from each other by making their knowledge and practices explicit, sharing them with their peers, and reflecting on them. Web-based technologies could support the development of virtual CoPs. Consequently, more and more CoPs use virtual environments to support their activities. However, despite the rapidly increasing potential offered by technologies (including Web-based platforms, wireless communications, mobile devices and extensive use of multimedia contents), recent research underlines the lack of adequate scaffolding in the form of both technical supports and usage of the technology to address the diversity of CoPs’ requirements.

This volume of Advances in Web-based Learning (AWBL) Book Series, entitled *Web-Based Learning Solutions for Communities of Practice: Developing Virtual Environments for Social and Pedagogical Advancement*, reports on recent approaches that aim at aiding CoPs members to express, represent and share practices, debate and reflect about the practices and about the life of the CoP, develop, reify and exploit knowledge inside and outside of the CoP, and facilitate engagement, participation and learning. Such approaches elaborate and build on various concepts that are related to the information, knowledge management and collaboration services required. Particular emphasis is given to the design, implementation and evaluation of the related solutions. The value and main contribution of the book lies in the joint exploration of diverse technological, social and pedagogical issues towards designing, implementing and testing e-learning solutions for CoPs, while paying equal attention to the issues of individual and organizational learning.

Chapter 1, “The Impact of Quality E-Feedback as an Element of Social Learning Theory Applied in the Context of E-Learning Communities of Practice” by Evelyn Gullett, Universitas 21 Global (Germany), reports on a qualitative study that examined the depth of e-feedback given by online facilitators on case study and discussion board assignments, how that feedback contributed to the learner’s social learning, development and growth, and how quality e-feedback influences the virtual social learning environment. This study identified seven criteria of feedback depth tied to social learning that serve online university communities of practice as a tool towards a base standard of e-feedback that encourages social learning and development of each learner.

Chapter 2, “A Document Reuse Tool for Communities of Practice” by Aida Boukottaya, University of Fribourg (Switzerland), Bernadette Charlier, University of Fribourg (Switzerland), Micaël Paquier, École Polytechnique Fédérale de Lausanne – EPFL (Switzerland), Loïc Merz, École Polytechnique Fédérale de Lausanne – EPFL (Switzerland), Stéphane Sire, École Polytechnique Fédérale de Lausanne – EPFL (Switzerland), and Christine Vanoirbeek, École Polytechnique Fédérale de Lausanne – EPFL (Switzerland), outlines the importance of structuring documents in order to facilitate the reuse of their content. The authors show how explicit structure representation facilitates the understanding of the
original documents and helps considerably in automating the reuse process. Besides, they describe two tools: one performing automatic structure transformation using matching techniques and another one performing structure and instances evolution in a transparent and automatic manner.

Chapter 3, “Tackling Acceptability Issues in Communities of Practice by Providing a Lightweight Email-based Interface to Social Software” by Chiu Man Yu, Denis Gillet, Sandy El Helou, and Christophe Salzmann, École Polytechnique Fédérale de Lausanne - EPFL (Switzerland), presents the motivation and incentives behind the email-based eLogbook interface, developed in the framework of the PALETTE European research project. eLogbook is a Web-based collaborative environment designed for communities of practice, which enables users to manage joint activities, share related assets and get contextual awareness. As discussed, the purpose of this lightweight interface is twofold. First, it eases eLogbook access when using smart phones or PDA. Second, it eases eLogbook acceptance for community members hesitating to learn an additional Web environment.

Chapter 4, “Supporting Communities of Practice by Advancing Knowledge Management between Hybrid Collaborative Environments”, by Anna De Liddo, Open University (UK), and Grazia Concilio, Politecnico di Milano (Italy), investigates a tool integration perspective to support knowledge management and exchange between Web-based and traditional collaborative environments. In particular, it deals with the integration between a tool supporting collaborative argumentation and learning in Web-based communities of practices, and a sense making tool acting as a personal and collective knowledge management system in traditional collaborative environments. The results of a case study, in which the tools integration has been applied within a real community of practice, are presented. Also, the main results from the tools integration, which aims at leveraging communities of practice to a truly collaborative environment with no communication boundaries, are discussed.

Chapter 5, “Using Graphs in Developing Educational Material” by Thanassis Hadzilacos, Open University of Cyprus (Cyprus) & Research Academic Computer Technology Institute (Greece), Dimitris Kalles, Hellenic Open University (Greece), Dionysis Karaiskakis, Hellenic Open University (Greece), and Maria Pouliopoulou, Research Academic Computer Technology Institute (Greece), proposes the development of learner’s open-and-distance-learning courses as both a theoretical model and an applied methodology to be one of the key priorities of distance learning institutions. The authors describe how this concept co-evolves with Web mining and institutional infrastructures to address the needs of emergent communities of practice. As the authors argue, distance learning institutions need to find a way to transplant the benefits of conventional tutoring practices into the development of digital content that is conducive to students’ learning needs. Therein lie two great challenges: promote real distance learning effectively and, at the same time, try to accommodate the ability of students to learn via collaboration.

Chapter 6, “Using Storytelling as the Pedagogical Model for Web-Based Learning in Communities of Practice” by Nalin Sharda, Victoria University (Australia), shows how storytelling can be used as an effective pedagogical model for enhancing learning in a community of practice (CoP) using Web-based learning tools. CoPs provide opportunities for learning by sharing knowledge and experience. In such settings, storytelling can make the knowledge and experience sharing discourses more engaging. However, crafting engaging stories remains a challenge. The chapter reports on the movement oriented design (MOD) paradigm, which provides a framework for creating effective story plots using principles of good storytelling. As claimed, storytelling can be introduced as a mode of discourse in CoPs using existing text and multimedia authoring systems. However, creating new Web 2.0 tools for story development using the MOD paradigm will allow almost anyone to create engaging educational stories and use these in a CoP.

Chapter 7, “Mining Unnoticed Knowledge in Collaboration Support Systems” by George Gkotsis, Research Academic Computer Technology Institute (Greece) and Nikos Tsirakis, University of Patras
(Greece) - by focusing on the particularities of online communities of practice (CoPs) and the tools they use for facilitating or enhancing collaboration among their members - introduces a framework for mining knowledge that is hidden in such settings. The authors’ motivation stems from the criticism that contemporary tools receive regarding lack of active participation and limited engagement in their use, which is partially due to the inability of identifying and exploiting a set of important relationships among community members and the associated collaboration-related assets. The overall approach described in this chapter elaborates and integrates issues from data mining and social networking. The proposed framework enables CoPs members to rank the contributions of their peers towards identifying meaningful relationships, as well as valuable information about roles and competences. First, the characteristics of the overall collaboration setting are modeled and a set of associated metrics is proposed. Next, to reveal unnoticed knowledge residing within CoPs, a data mining technique that groups users into clusters and applies advanced social networking analysis on them is proposed.

Chapter 8, “Live Virtual Technologies to Support Extended Events in Online Communities of Practice” by Eleftheria Tomadaki, Peter Scott and Kevin Quick, Open University (UK), presents qualitative and quantitative data from a naturalistic insight into the use of two online synchronous communication tools, FM for videoconference and Hexagon for ambient awareness, to support an extended event in a working online community. As claimed by the authors, a complex mix of planned and opportunistic interactions requires a new set of working synchronous tools, managing the trade-off between awareness and disruption. Switching between foreground and background ‘meeting activity’ remains a very big challenge.

Chapter 9, “Individual Learning and Emotional Characteristics in Web-based Communities of Practice” by Nikos Tsianos, National & Kapodistrian University of Athens (Greece), Zacharias Lekkas, National & Kapodistrian University of Athens (Greece), Panagiotis Germanakos, University of Cyprus (Cyprus), and Constantinos Mourlas, National & Kapodistrian University of Athens (Greece), argues that the knowledge management paradigm of communities of practice can be efficiently realized in Web-based environments, especially if one considers the extended social networks that have proliferated within the Internet. In terms of increasing performance through the exchange of knowledge and shared learning, individual characteristics, such as learners’ preferences that relate to group working, may be of high importance. These preferences have been summarized in cognitive and learning styles typologies, as well as emotional characteristics which define implications that could serve as personalization guidelines for designing collaborative learning environments. The chapter discusses the theoretical assumptions of two distinct families of learning style models, cognitive personality and information processing styles, and the role of affection and emotion, in order to explore the possibilities of personalization at the group level of communities of practice.

Chapter 10, “From ‘Collecting’ to ‘Deciding’: Facilitating the Emergence of Decisions in Argumentative Collaboration” by Manolis Tzagarakis, Nikos Karousos, George Gkotsis, Vasilis Kallistos, Spyros Christodoulou, Christos Mettouris, Panagiotis Kyriakou, and Dora Nousia, Research Academic Computer Technology Institute (Greece), elaborate argumentative collaboration issues in the context of communities of practice. As argued by the authors, current tools aiming at supporting argumentative collaboration provide either means to successfully tame wicked problems or advanced reasoning mechanisms to facilitate decision making creating a gap in today’s landscape of systems supporting argumentative collaboration. The consequences of this gap are in particular severe for communities of practice when they have to employ tools from both sides to support their collaboration needs. The authors claim that a key factor in bridging this gap is viewing argumentative collaboration as an emergent phenomenon. Proper support of the emergent aspects of argumentative collaboration would benefit systems supporting argumentative collaboration as this would enable those systems to support the evolution of the entire
collaboration at different levels. The authors also describe how such an approach has been implemented in CoPe_it!, an innovative Web-based argumentative collaboration support system.

Chapter 11, “An Organizational Knowledge Circulation Management System for Universities” by Toshie Ninomiya, Fumihiko Anma, and Toshio Okamoto, The University of Electro-Communications (Japan), deals with the concept of an organizational knowledge circulation management system of e-learning. Aiming at convincing their university’s faculty about the benefits of e-learning by providing them with hands-on experience in online education, the authors have developed a mentoring system module and a learning design repository based on technological and pedagogical aspects, and evaluated the system in two case studies. The chapter also describes important functions and evaluation aspects of new information technology system of e-learning.

Chapter 12, “Using Web-Based Technologies and Communities of Practice for Transformative Hybrid & Distance Education” by Nory Jones and Omar Khan, The Maine Business School, University of Maine (USA), explores the use of Web-based technologies incorporating communities of practice and social networks to enhance the learning experience in hybrid and distance classes. Research suggests that using a variety of technologies and methods to reach people with different learning styles improves overall learning in a class delivery though different methods are more effective in traditional vs. online classes. Moreover, using new, emerging Web-based technologies, including both Web 1.0 and Web 2.0 software, further enhances the engagement and value of the learning experience in these classes. This chapter examines the methods and technologies that can be potentially used to create excellence learning environments in traditional hybrid and online classes.

Chapter 13, “The Role of Learner in an Online Community of Inquiry: Instructor Support for First-time Online Learners” by Martha Cleveland-Innes, Athabasca University (Canada), and Randy Garrison, The University of Calgary (Canada), presents findings from a study of adjustment to online learning from the instructor’s point of view. These findings validate five main areas of adjustment identified in previous research: technology, instructor role, modes of interaction, self-identity and course design. Using a confirmatory research model, instructors from two open and distance institutions were interviewed. Data confirmed that instructors also perceive adjustment in the five areas of online experience identified by students. In addition, student adjustment in these five areas can be understood in light of core dimensions of learner role requirements in an online community of inquiry. Instructor comments provide understanding of the experience of online learners, including the challenges, interventions and resolutions that present themselves as unique incidents. Recommendations for the support and facilitation of adjustment are also given.

Chapter 14, “Visualising the Invisible in Science Centres and Science Museums: Augmented Reality Technology Application and Science Teaching” by Hannu Salmi, University of Helsinki (Finland), Sofoklis Sotiriou, Ellinogermaniki Agogi Foundation (Greece), and Franz Bogner, University of Bayreuth (Germany), presents an implementation of augmented reality technology in science education. While this technology up to now mainly was used by very special users such as the military and high-tech companies, it gradually converts into wider educational use. Specific research programs applied this technology with a specific focus on selected learning scenarios by a close co-operation of formal education and informal learning. As discussed in detail in this chapter, empirical effects related to intrinsic motivation and cognitive learning of students were encouraging.

In addition to the above, this volume includes six chapters (Chapters 15-20), considered as selected readings, which aim to provide supplementary related information in support of the book’s concepts, principles and results. These chapters increase the appeal of this book as a one-stop reference source on Web-based learning solutions for communities of practice.
Advances reported in this book are expected to augment current learning-related practices in diverse CoPs’ contexts, including organizations, academia and Web-based communities. The book is also expected to advance research being conducted in the field of technology-enhanced learning by assigning equal importance to its underlying technological, social and pedagogical dimensions. *Web-Based Learning Solutions for Communities of Practice: Developing Virtual Environments for Social and Pedagogical Advancement* is valuable to people from both academia and industry (teachers, researchers, professionals or practitioners in the field of e-learning). It covers a large number of topics concerning the appropriate information, knowledge management and collaboration services to be offered in order to facilitate collaboration and augment learning in diverse communities’ contexts. By also paying attention to the social dimension of technology-enhanced learning, the book is of particular importance to researchers and supporters of the so-called social software.

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