

## Foreword

The new *Handbook of Research on Electronic Collaboration and Organizational Synergy* edited by Janet Salmons and Lynn Wilson is a timely and comprehensive collection of chapters by authors from a number of countries focused on the emerging phenomenon of virtual collaboration. The breadth of topics and expertise contributing to the book are impressive. Even more impressive is the empirical basis for the chapters. Several books on this topic are available with practical tips and tools and high level guidance but none emphasize empirical work that examines techniques and strategies for electronic collaboration across distance and boundaries in education.

Why is this book timely? The world is changing. Globalization is a fact. Retired citizens can sit in their homes and log onto Web sites around the world for material that enriches their lives or communicate with family and friends at a distance. Small businesses can easily develop customer and supplier relationships around the world. Large businesses operate more efficiently and effectively, particularly in developing countries, because of virtual communications. Expertise in a variety of disciplines can be brought together from many locations to focus on particular problems and issues. More importantly, with the change in how we communicate comes change in how we think and work. The development of these trends which began a decade or more ago has accelerated. Everyone's life is now affected by globalization and electronic collaboration.

This era has several labels attached to it by observers including "information age," "knowledge age," "innovation economy," and "creativity economy." All are accurate and represent fundamental shifts in how we create value and what we value. Electronic communication has made that possible.

Electronic collaboration has limited value without purpose in a knowledge-driven age. Knowledge and its form as intellectual capital flows rapidly around the globe, grows quickly, and leads to changes that transform our lives. The ability to generate, share, and utilize knowledge for problem solving and change lies at the foundation of society and the economy. The world has become more complex and the possibilities more unlimited.

Collaboration involves people coming together to work on a problem or opportunity together. Collaboration is not new. Work teams in industry represent a form of collaboration that has been studied for 80 years beginning with the Hawthorn studies in the U.S.A. and the long wall coal mining studies in England. New forms of collaboration have continued to evolve and now include forms that rely heavily on electronic communications. The newest forms of collaboration are referred to as mass collaboration which has quickly become popular for sharing knowledge and opinions. Wikis and blogs and social sites represent popular examples of mass collaboration. One extraordinary example is open source product development. It began with the UNIX community, but has spread as a method of collaborating across product development and problem solving in industry as open collaboration.

When people collaborate, they organize into social-intellectual systems for sharing goals, energies, and knowledge. When people e-collaborate, their sharing is moderated by technology. That technical

dependence adds hurdles to the collaboration that demand extra effort, patience, and competency. Ignoring the need for that extra investment results in mediocre or poor quality outcomes—a waste of resources we cannot afford. The term “social-intellectual” is hyphenated to emphasize the interdependency of the two. Knowledge sharing, learning, and the creative generation of synergies in knowledge are socially determined. Relationships are a key. Social constructivist, social cognition, and collaborative learning theories explicitly described in some of the *Handbook* chapters make a similar point. The question in e-collaboration becomes: how can we minimize the negative impact of the technical on the social in collaboration or find ways that help build the relationships that lead to learning and creativity?

Competencies developed in most schools have continued to emphasize traditional and basic areas including reading, writing, and arithmetic which are fundamental for dealing with information in our society. However, the changes driven by globalization and new technology have created a new playing field with evolving rules for success. The new field requires additional competencies for managing information and communication. Primary among those competencies is relationship building—the skills that enable a student to recognize and appreciate diverse points of view, integrate multiple sources of input, communicate ideas effectively to a broad audience, and think systemically. Such competencies are needed for daily face-to-face interaction, but are even more essential in e-collaboration. Communicating at a distance imposes hurdles that can only be overcome through competence, sensitive, and persistent efforts. Schools described in this *Handbook* are exposing students to e-collaborations and diverse student bodies across the world through classroom assignments that prepare them for the future. The pedagogy around that competency has yet to be developed. These chapters provide an early glimpse of what it will look like in 10 years when the majority of schools have begun to pay attention to what pioneers are doing today.

E-collaboration is becoming ubiquitous if one includes mass collaboration such as wikis, blogs, and social Web sites. However, the study of e-collaboration is limited by our access to data and the methodologies and instruments we have available. Chapters in the *Handbook* have done a good job of adapting existing methodologies to this new social-intellectual environment. The use of electronic portfolios, digital repositories, content analyses, multiple judges using scoring rubrics, interventions with mentors or facilitators, and so on illustrates the possibilities that will make cumulative research in e-collaboration a reality, so our joint wisdom about collaborating through technology will grow.

Through most of history, people have tended to live in geographic, political, intellectual, and social silos. Boundaries have been taken for granted or relied on for convenience and a sense of safety. Globalization challenges that historic pattern. E-collaboration creates opportunities to transcend boundaries. In science, the crossing of boundaries leads to creation of new disciplines, such as bio-technology or bio-chemistry. In business, boundary crossing creates new markets and joint ventures. In education, boundary crossing develops students with new competencies. The ability to communicate effectively with other cultures is rare. Europe may have less of a problem than most of the rest of the world, but even there, the importance of building cultural competency and boundary crossing skills has been recognized and researchers and teachers are addressing it in their work with students. Chapters in the *Handbook* from several European countries illustrate this trend. An extreme perspective might be captured by a statement like “one world or no world” as a way of communicating the critical nature of educating the next generation with global consciousness and global skills to minimize the isolation and lost opportunity that silo thinking creates.

Globalization through communications, trade, and immigration has forced the crossing of many boundaries and created a demand for new levels of collaboration. The change results in individuals struggling with strange circumstances, groups attempting new synergies, organizations responding to new sources of competition, and institutions changing their missions. School systems are being pushed

to change. The new global environment demands new competencies for collaboration, communication, valuing diversity, and so on. Pioneering teachers and schools have begun the work to find ways of building those competencies. The *Handbook* provides examples of such schools and of the methods they used to prepare their students for this new world. In addition, there are chapters included in the *Handbook* that have done evaluation work to determine if the methods are working and to identify how to improve them. As with earlier areas in the research on collaboration, these pioneering efforts will be the forerunners for a wide range of innovations in theory and practice in the next decade.

Within the emerging field of e-collaboration, e-research or e-science is rapidly evolving with scientists across the globe working together on complex projects. Some of the research questions in science address the challenges of climate change, the energy crisis, the problem of clean water, disease epidemics, war, poverty, and fragile economies that require investigators and instrumentation that is geographically dispersed. Climate predictions, currency studies, migration of fish, tsunami studies, and so on, must reach beyond local conditions to global conditions to look at subsystems embedded in larger systems. Areas like these cannot be studied without collaborations that transcend national boundaries. E-science is a new way of organizing researchers. Studies of e-science have just begun. Studies of the competencies of e-scientists should drive curriculum decisions but few exist. The chapters in this book that address e-science point us toward the next generation of studies as we look for ways of making the social and intellectual processes that must be communicated electronically more effective, so answers to critical questions in science can develop more quickly and policies and practices be better informed by their results.

The authors of the chapters in the *Handbook* are leading the way with their e-collaboration experiments and publication of the results. There is a growing community of thoughtful, passionate educators working on the issues related to e-collaboration. However, as with most new ideas and technologies, adoption by the masses can take time. The next challenge will be technology transfer or diffusion of the frameworks, methods, and practices described in this *Handbook*. For the ideas and methods described in the *Handbook* to have the impact they deserve, a critical mass of schools needs to be practicing them around the world. The students in today's classroom will be living and working in a world changed radically by technology and globalization. Preparing them to enter that world as young adults is a challenge worth committing to. The authors in the *Handbook* have modeled that behavior for the rest of us.

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