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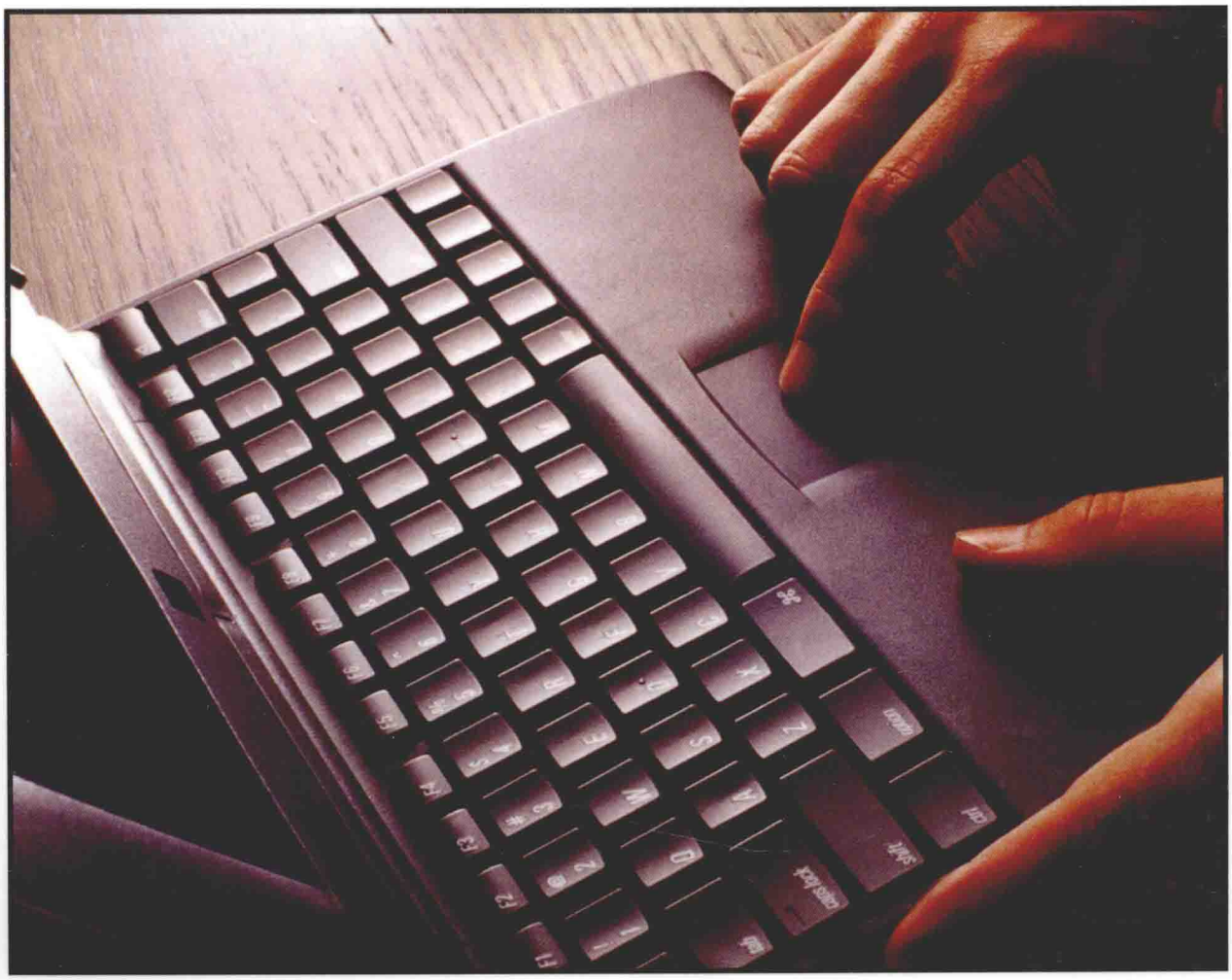
Collective Intelligence and E-Learning 2.0

Implications of Web-Based Communities and Networking



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Collective Intelligence and E-Learning 2.0:
Implications of Web-Based Communities and Networking

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Foreword

For most of history, humans have made tools to extend the human body.

Since the development of writing, humanity has increasingly shifted to designing tools to extend the human mind. This shift has accelerated in the last century as the industrial age has waned and the so-called information age has grown in prominence. During this time, tools and methods have been developed to improve the capacity for people to *think together*.

In 1916, public relations pioneer Ivy Lee made the bold proclamation: "The people now rule. We have substituted for the divine right of kinds, the divine right of the multitude". Nowhere is the participatory power of the people more evident than online in sites such as YouTube, Wikipedia, blogs, podcasting, and social networking services. When seen from the perspective of higher education, open educational resources and open access journals promise a new information cycle, where the creation, dissemination, validation, sharing, and re-creation of information are available to all.

Yet, as is often the case, times of change also offer new beginnings. Uncertainty exists about how existing education systems will absorb and utilize new technologies and respond to the development of participative information creation evident in mainstream society. Power shifts are not readily absorbed by established segments of a society. As power flows from one system to another, the world appears to be unchanged: control, access, and information interaction are still supported the facade of previous systems. Newspapers and academic journals continue to publish in the same environment that produces blogs and open educational resources. The transition from individual genius to collaborative and collective genius is at a similar point – indications exist of a foundational change in social and information interactions, yet the curricular models of universities remains largely unchanged. Classroom teaching coexists with online learning. Traditional pedagogy reigns even as emerging social and networked pedagogies grow in prominence.

Imagine a future where learners have greater personal control in accessing experts, in joining groups of interest. A future where learner's education is not confined to one institution and where subject matter exploration is achieved through networks of experts and novices, rather than the one-educator model evident in classrooms today. Image a future where classrooms are not confined to physical space, but permit learners from around the world to share and create resources. A future where educational resources – text, videos, podcasts, simulations - are readily accessible by all learners. Imagine a future where technology plays a greater role in performing grunt cognition tasks of presenting patterns, relations, and connections between people and data, thereby permitting learners and academics to more readily consider implications of those patterns and connections. Imagine a future where the collective expertise of learners and educators is harnessed through social technologies.

The seed of this future has already been planted in many schools, universities and colleges, and the task now remains for administrators and educators to explore how our current education system can be transformed to embrace the potential of participatory pedagogy.

Many questions remain about collective intelligence and about how emerging technologies will impact traditional institutions. While Wikipedia demonstrates the ability for collectives to create content, questions of quality remain. What is the value of individual expertise? How are individuals to be related to the larger group. And, while many technologies for collective action already exist, what do we still need? Nascent tools for information and relationship visualizes offer a glimpse.

Collective Intelligence and E-Learning 2.0: Implications of Web-Based Communities and Networking tackles important outstanding questions about the foundation and extent of change impacting education. Learning networks, new literacies, emerging pedagogies, new institutional models, and more are considered. The methods and tools of collaborative information creation are prominent in our daily lives. It is important for educators to explore how to best implement these approaches in the service of teaching and learning.

Collective Intelligence and E-learning 2.0 addresses what will surely become one of the most important educational discussions of our generation: how does collective intelligence impact the current individualistic structure of education?

George Siemens
University of Manitoba
March, 2009

George Siemens *is a prominent writer, speaker, and researcher on learning, networks, technology and organizational effectiveness in digital environments. He is the author of Knowing Knowledge, an exploration of how the context and characteristics of knowledge have changed and what it means to organizations today, and the recently released Handbook of Emerging Technologies for Learning. Siemens is also Associate Director, Research and Development, with the Learning Technologies Centre at University of Manitoba. He is founder and President of Complexive Systems Inc. (www.complexive.com), a learning lab focused on helping organizations develop integrated learning structures to meet the needs of global strategy execution. He is an international speaker and consultant, detailing the changes universities, colleges, and corporations must make in order to address the challenges of an increasingly complex world. Siemens maintains www.elearnspace.org , www.connectivism.ca and www.knowingknowledge.com . Additional background information is available at www.elearnspace.org/about.htm.*

Preface

The Web is shifting from being a medium, in which information is transmitted and consumed, into being a platform, in which content is created, shared, remixed, repurposed, and exchanged. Learners become part of a global human network in which they can harness the collective intelligence of people in the world that could have never been possible previously. With the advent of Web 2.0, e-learning has the potential to become far more personal, social, and flexible. Consequently, e-learning 2.0 can capitalize on many sources of content aggregated together into learning experiences and utilize various tools including online references, courseware, knowledge management, collaboration, and search. *Collective Intelligence and E-Learning 2.0: Implications of Web-Based Communities and Networking* introduces theoretical aspects of e-learning 2.0 as well as disseminates cutting-edge research and first-hand practices regarding game-based simulation, podcasting, Second Life, social bookmarking, social networking, YouTube, Wiki, and so forth, on e-learning. In addition, instructional design models, strategies, and furture trends of e-learning are covered this book.

The book is written for broader audiences including educators, trainers, administrators, and researchers working in the area of e-learning or distance learning in various disciplines (e.g., educational fields, corporate training, instructional technology, computer science, library information science, information technology, and workforce development). The book can be used as a research reference, pedagogical guide, or educational resource in the area of Web 2.0 technologies and related applications applied to e-learning.

ORGANIZATION OF THE BOOK

Collective Intelligence and E-Learning 2.0: Implications of Web-Based Communities and Networking is designed to be used in a flexible manner, and it can adapt easily to suit a variety of educational technology related courses and needs by students, instructors, and administrators. The book includes a selection of chapters addressing current research, case studies, best practices, pedagogical approaches and strategies, related resources and projects related to e-learning 2.0. The book is organized into two sections, From Web 2.0 to E-Learning 2.0 and Beyond (chapters 1-6) and Web 2.0 Technologies in E-Learning (chapters 7-16). The book covers beyond theoretical insights of Web 2.0 and e-learning 2.0. It shares practical aspects of e-learning 2.0 and provides readers with a balance of research, theory, and applications on both innovative Web 2.0 technologies and future e-learning.

Chapter 1: Learning Networks and Connective Knowledge. This chapter introduces theoretical views on factors impacting the future of e-learning. It discusses connectivisim theory, networked learning, connective knowledge, and network semantics that form a new e-learning approach (e-learning 2.0).

Chapter 2: Conceptualizing Codes of Conduct in Social Networking Communities. This chapter reviews the capabilities of social networking tools and links those capabilities to recent legal and ethical controversies involving use of social networking tools such as Facebook and MySpace.

Chapter 3: Fulfilling the Promise: Addressing Institutional Factors that Impede the Implementation of E-Learning 2.0. As online learning continues to expand and evolve, new challenges emerge regarding the implementation of Web 2.0 tools and technologies in online pedagogy. This chapter examines institutional factors that impede implementation of e-learning 2.0. The business model approach to online learning being embraced by many institutions may actually work against faculty who want to utilize Web 2.0 technologies to create e-learning 2.0 experiences for their students.

Chapter 4: Designing Dynamic Learning Environment for Web 2.0 Application. This chapter presents a new instructional design model that specifically addresses the cognitive demands involved in Web 2.0 learning, promotes learning that focuses on metacognitive thinking and self-regulation, facilitates knowledge integration and construction of schemas-of-the-moment for ill-structured learning, and delivers a dynamic learning environment in Web 2.0 application.

Chapter 5: Instructional Strategies for Teaching in Synchronous Online Learning Environments (SOLE). This chapter discusses synchronous online learning environments (SOLEs) and their affordances for teaching and learning.

Chapter 6: University 2.0: Human, Social, and Societal Issues. Higher education is changing in important and profound ways. University 2.0 offers amazing potential to fundamentally change the way higher education functions in the future. This chapter describes many of the potential problems that will accompany university 2.0 and provides a series of recommended actions that university administrators can take to respond to the problems.

Chapter 7: Use of Wikis to Support Collaboration among Online Students. This chapter discusses the merits and challenges of using a Wiki to support the activities of students during group projects.

Chapter 8: Wikibook Transformations and Disruptions: Looking Back Twenty Years to Today. A Wikibook is a transformative and disruptive technology that is finding increasing use in schools and higher education institutions. This chapter describes the adoption of three Wikibooks in cross-institutional higher education settings and discusses collaboration issues, technology issues, knowledge construction and sense of community issues related to the Wikibook technology and the Wikibook design process.

Chapter 9: Web-Based Video for e-Learning: Tapping into the YouTube™ Phenomenon. The recent explosive growth of Web-based video has expanded the repository of free content that can be tapped into for e-learning. This chapter introduces Web-based video as a new form of educational motion picture, delves into technical aspects of Web 2.0 video tools, describes instructional strategies that integrate Web-based video clips in e-learning, and examines barriers that could potentially inhibit its use.

Chapter 10: From Information Literacy to Scholarly Identity: Effective Pedagogical Strategies for Social Bookmarking. This chapter provides best examples for effective pedagogical applications of social bookmarking and offers insights into how these activities change the way students think and learn.

Chapter 11: VISOLE: A Constructivist Pedagogical Approach to Game-Based Learning. VISOLE (Virtual Interactive Student-Oriented Learning Environment) is a constructivist pedagogical approach to empower computer game-based learning. This approach encompasses the creation of a near real-life online interactive world modeled upon a set of multi-disciplinary domains, in which each student plays a role in this "virtual world" and shapes its development. With sophisticated multi-player simulation contexts and teacher facilitation (scaffolding and debriefing), VISOLE provides opportunities for students to acquire both subject-specific knowledge and problem-solving skills through their near real-life gaming experience.

Chapter 12: Second Language E-Learning and Professional Training with Second Life®. *This chapter addresses the application of e-learning in university degree programs based on exploiting the practical, intensive, and holistic aspects of* Second Life®.

Chapter 13: Empirical Evidence and Practical Cases for Using Virtual Worlds in Educational Contexts. This chapter introduces three cases for educational uses of the Second Life® virtual world and provides empirical evidence for effective usage within the educational contexts.

Chapter 14: A Pedagogical Odyssey in Three-Dimensional Virtual Worlds: The Second Life® Model. This chapter discusses the theoretical perspectives, educational possibilities, as well as challenges of using virtual worlds in teaching and learning. In addition, it offers a pedagogical framework to support teaching and learning in virtual worlds - the Second Life® model.

Chapter 15: Podcasting: A Flexible E-Learning Tool. This chapter discusses the uniqueness of podcasting technology in promoting e-learning, examines educational efficacy of podcasting in e-learning, and provides podcasting best practice in e-learning design and delivery.

Chapter 16: Using Social Networking to Enhance Sense of Community in E-Learning Courses. This chapter provides an overview and development of sense of community and social networking, discusses the potential uses of social networking in education, and presents a case study that integrates social networking into e-learning courses for the purpose of building a sense of community, improving communications and interactions, and promoting student-centered collaboration.

Acknowledgment

Throughout this endeavor we have benefited from the advice, encouragement, and support of numerous individuals, including the contributing authors, thoughtful reviewers, supportive colleagues, and patient family members. Without the contributions of all of these people, this book would not been possible.

First, we would like to express our deepest thanks and sincere appreciation to the authors who contributed to this book. We believe the book includes the current works of some of the best practitioners/researchers in the e-learning field. They did an excellent job, and we are confident that you will feel the same way after you read the chapters. We have enjoyed working with all of the authors, for they have made our work interesting, enjoyable, and relatively painless.

Second, we are very grateful for the support provided by the reviewers. They have done outstanding work for providing us detailed comments and constructive suggestions of the chapters. Their comments and suggestions are helpful to us for making editorial decisions and also providing important feedback to the authors for improving and revising their chapters. Special thanks go to George Siemens for writing an insightful foreword for this book and Curtis Bonk for his stimulating suggestions and enthusiasm.

Finally, we would like to thank our families for their patience and encouragement. Both of our families have been a constant source of understanding, support, and encouragement. We dedicate this book to our spouses, Li Chen and Patrivan K. Yuen, and thank them both for love and support and for letting us disappear into the abyss for hours on end.

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Table of Contents

Detailed Table of Contents

Section 1
From Web 2.0 to E-Learning 2.0 and Beyond

Section one "From Web 2.0 to E-Learning 2.0 and Beyond" introduces the theoretical aspect of e-learning 2.0 based on Web 2.0 technologies. The first part, consisting of six chapters, discusses new learning paradigms and the concept of e-learning 2.0, issues in designing and implementing e-learning 2.0, as well as the future of Web 2.0, e-learning 2.0, and university 2.0. Section one opens with a chapter by Downes who coined the term e-learning 2.0. Downes, in his chapter Learning Networks and Connective Knowledge, introduces his theoretical views on factors that may impact the future of e-learning. He discusses connectivisim theory, networked learning, connective knowledge, and network semantics that form e-learning 2.0. Ewbank and her colleagues review the capabilities of social networking tools and link those capabilities to recent legal and ethical controversies involving use of social networking tools. The third chapter in this part is from Repman, Zinskie, and Downs. They examine institutional factors that impede implementation of e-learning 2.0. Zheng's chapter presents a new instructional design model that specifically addresses the cognitive demands involved in Web 2.0 learning. Jones and Harmon discuss synchronous online learning environments (SOLEs) and their affordances for teaching and learning. Finally, Surry and Ensimger analyze many of the potential problems that could accompany university 2.0 and suggest a series of recommendations for university administrators.

This chapter outlines some of the thinking behind new e-learning technology. Part of this thinking is centered around the theory of connectivism, which asserts that knowledge - and therefore the learning of knowledge - is distributive, that is, not located in any given place but rather consists of the network

of connections formed from experience and interactions with a knowing community. And another part of this thinking is centered around the new, and the newly empowered, learner, the member of the Net generation, who is thinking and interacting in new ways. These trends combine to form what is sometimes called 'e-learning 2.0' - an approach to learning that is based on conversation and interaction, on sharing, creation and participation, on learning not as a separate activity, but rather, as embedded in meaningful activities such as games or workflows.

This chapter reviews the capabilities of social networking tools and links those capabilities to recent legal and ethical controversies involving use of social networking tools such as Facebook and MySpace. A social cognitive moral framework is applied to explore and analyze the ethical issues present in these incidents. The chapter includes a description of current research with preservice students involving an intervention whereby students read and think about real cases where educators use social networking. Recommendations for applying institutional codes of conduct to ethical dilemmas involving online tools are discussed.

As online learning continues to expand and evolve, new challenges emerge regarding the implementation of Web 2.0 tools and technologies in online pedagogy. The business model approach to online learning being embraced by many institutions may actually work against faculty who want to utilize Web 2.0 technologies to create e-learning 2.0 experiences for their students. Faculty and administrators need to recognize that differences in perspectives may significantly impact future directions of online courses and programs.

With its ill-structured learning and rapid incrementation of information in a non-linear fashion, Web 2.0 learning poses enormous challenges to online instructional designers and teachers. The traditional ID models are deemed less fit for Web 2.0 learning due to their linear, well-structured design approach. This chapter proposes a new ID model that specifically addresses the cognitive demands involved in

Section 2
Web 2.0 Technologies in E-Learning

Section two "Web 2.0 Technologies in E-Learning" discusses numerous Web 2.0 technologies and their uses in e-learning. Section two, consisting of ten chapters, discusses current research, case studies, as well as pedagogical approaches and strategies for using Web 2.0 technologies in e-learning environments. The first two chapters of Section two explore the use of Wiki in online learning, opening this part with Alden's chapter Use of Wikis to Support Collaboration among Online Students, in which he discusses the merits and challenges of using a Wiki to support the activities of students during group projects. Bonk, Lee, Kim, and Lin provide dozens of Wikibook collaboration ideas and suggestions from their cross-institutional study. Next, Snelson's chapter introduces Web-based video as a new type of educational