INTRODUCTION

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The Online Learning Series is a collection of works by practitioners and scholars actively working in the field of distance education. The text has been written at a time when the field is undergoing fundamental change. Although not an old discipline by academic standards, distance education practice and theory has evolved through five generations in its 150 years of existence (Taylor, 2001). For most of this time, distance education was an individual pursuit defined by infrequent postal communication between student and teacher. The last half of the twentieth century witnessed rapid developments and the emergence of three additional generations, one supported by the mass media of television and radio, another by the synchronous tools of video and audio tele-conferencing, and yet another based on computer conferencing. The first part of the twenty-first century has produced the first visions of a fifth generation—based on autonomous agents and intelligent, database-assisted learning—that we refer to as the educational Semantic Web. Note that each of these generations has followed more quickly upon its predecessor than the previous ones. Moreover, none of these generations has completely displaced previous ones, so that we are left with diverse yet viable systems of distance education that use all five generations in combination. Thus, the field can accurately be described as complex, diverse, and rapidly evolving.

However, acknowledging complexity does not excuse inaction. Distance educators, students, administrators, and parents are daily forced to make choices regarding the pedagogical, economic, systemic, and political characteristics of the distance education systems within which they participate. To provide information, knowledge, and, we hope, a measure of wisdom, the authors of this text have shared their expertise, their vision, their concerns, and their solutions to distance education practice in these disruptive times. Each chapter is written as a jumping-off point for further reflection, for discussion, and, most importantly, for action. Never in the history of life on our planet has the need for informed and wisdom-filled action been greater than it is today. We are convinced

that education—in its many forms—is the most hopeful antidote to the errors of greed, of ignorance, and of life-threatening aggression that menace our civilization and our planet.

Distance education is a discipline that subsumes the knowledge and practice of pedagogy, of psychology and sociology, of economics and business, of production and technology. We attempt to address each of these perspectives through the words of those trained to view their work through a particular disciplinary lens. Thus, each of the chapters represents the specialized expertise of individual authors who address that component piece of the whole with which they have a unique familiarity. This expertise is defined by a disciplinary background, a set of formal training skills, and a practice within a component of the distance education system. It is hardly surprising, then, that some of the chapters are more academic than others, reflecting the author's primary role as scholar, while others are grounded in the more practical application focus of their authors.

In sum, the book is neither an academic tome, nor a prescriptive "how to" guide. Like a university itself, the book represents a blending of scholarship and of research, practical attention to the details of teaching and of provision for learning opportunity, dissemination of research results, and mindful attention to the economics of the business of education.

In many ways the chapters represent the best of what makes for a university community. The word "university" comes from the Latin *universitas* (totality or wholeness), which itself contains two simpler roots, *unus* (one or singular) and *versere* (to turn). Thus, a university reflects a singleness or sense of all encompassing wholeness, implying a study of all that is relevant and an acceptance of all types of pursuit of knowledge. The word also retains the sense of evolution and growth implied by the action embedded in the verb "to turn." As we enter the twenty-first century, the world is in the midst of a great turning as we adopt and adapt to the technological capabilities that allow information and communication to be distributed anywhere/anytime.

The ubiquity and multiplicity of human and agent communication, coupled with tremendous increases in information production and retrieval, are the most compelling characteristics of the Net-based culture and economy in which we now function. The famous quote from Oracle Corporation, "The Net changes

everything," applies directly to the formal provision of education. Institutions that formerly relied on students gathering in campus-based classrooms are suddenly able (and many seem eager) to offer their programming on the Internet. Similarly, institutions accustomed to large-scale distance delivery via print or television are now being asked to provide more flexible, interactive, and responsive Net-based alternatives. Each of the chapters in the book reflects the often disruptive effect of the Net on particular components of a distance education system.

Open Source Licensing

This book is written by authors from a single university—Athabasca University—which has branded itself "Canada's Open University." As an open university, we are pleased to be the first such institution to provide a text such as this one as an open and free gift to others. The book is published under a Creative Commons license (see http://creativecommons.org) to allow for free use by all, yet the copyright is retained by the University (see the copyright page for license details). This open-source license format was chosen for a number of reasons. First, it is true to the original spirit of the university, and especially of an open university. We believe that knowledge is meant to be shared, and further, that such sharing does not diminish its value to its creator. Thomas Jefferson eloquently expressed these ideas in 1813 when he wrote

> He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me. That ideas should freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature, when she made them, like fire, expansible over all space, without lessening their density in any point, and like the air in which we breathe, move, and have our physical being, incapable of confinement or exclusive appropriation. (1854, pp. 180-181)

As you will see from the quotations and references that augment the text in most chapters, we have learned much from the works of others, and thus feel bound to return this gift of knowledge to the wider community.

Second, we believe that education is one of the few sustainable means to equip humans around the globe with the skills and resources to confront the challenges of ignorance, poverty, war, and environmental degradation. Distance education is perhaps the most powerful means of extending this resource and making it accessible to all. Thus, we contribute to the elimination of human suffering by making as freely available as we can the knowledge that we have gained developing distance education alternatives.

Third, the Creative Commons license provides our book as a form of "gift culture." Gift giving has been a component of many cultures; witness, for example, the famed Potlatch ceremonies of Canadian West Coast First Nations peoples. More recently, gift giving has been a major motivation of hackers developing many of the most widely used products on the Internet (Raymond, 2001). Distributing this text as an open source gift serves many of the same functions gift giving has done through millennia. The gift weaves bonds within our community and empowers those who benefit from it to create new knowledge that they can then share with others and with ourselves. Interestingly, new recent research on neuro-economics is showing that freely giving and sharing is a behavior that has had important survival functions for humans groups since earliest times (Grimes, 2003). David Bollier (2002) argues that gift cultures are surprisingly resilient and effective at creating and distributing goods, while protecting both long-term capacity for sustained production and growing cultural assets. Bollier also decries the private plunder of our common wealth, and discusses the obligation that those employed in the public sector have to ensure that the results of publicly funded efforts are not exploited for personal gain.

Open source gifts also provide those from wealthy countries with some small way to redress many economic inequalities and to share more equitably the gifts we receive from our planet home. We hope especially that this text will be incorporated into the syllabi of the growing number of programs of distance education study that are being offered by both campus and distance education universities throughout the world. In the words of Sir John Daniel,

former Vice Chancellor of the Open University of the United Kingdom, sharing offers a viable means to "increase the quality and quantity of electronic courseware as materials are refined, versioned and adapted to academics around the world and made freely available in these new formats" (2001 p. viii). We believe that the free sharing of course content is a powerful tool to encourage the growth of public education institutions. We also think that such sharing will not result in a net value loss for the delivering institution. Rather, its reputation will be enhanced and its saleable services will increase in value.

Fourth, providing this book as open source frees us from potentially acrimonious debates over ownership, return for value, and distribution of any profit. Educational books rarely make large profits for their authors, and most of us have personally witnessed the old aphorism that "acrimony in academic arguments runs so high because the stakes are so low." Open source licensing allows us to go beyond financial arguments that are likely to have little consequence in any case.

Finally, we hope that open sourcing this book will allow it be more widely distributed and read. Through this dissemination, the ideas proposed will be exposed to critical dialogue and reflection. We hope that much of this commentary will make its way back to the authors or flow into the discussion forums associated with the text's Web site. Through review within the community of practice, ideas are honed, developed, and sometimes even refuted. Such discourse not only improves the field as a whole, but also directly benefits our work at Athabasca University, and thus handsomely repays our efforts.

In summary, we license the use of this book to all—not so much with a sense of naïve idealism, but with a realism that has been developed through our life work—to increase access to and opportunity for all to quality learning opportunities.

# Book Organization and Introduction to the Chapters

In the following pages, we briefly review the main themes covered in this book and its chapters. We used the *value chain of online learning framework* to help organize our themes and chapters. The value chain framework is an approach for breaking down the sequence (chain) of an organization's functions into the strategically relevant activities through which utility is added to its offerings and services. The components of an online learning organization's value chain are depicted in the following figure.

Inbound logistics	Operations	Outbound logistics	Delivery, collaborations, and marketing	Service

Inbound logistics involves preparations for course development, including curriculum planning and related activities. Operations involve the actual process of course development, including writing, multimedia creation, editing, formatting, graphic design, printing, and Web publishing. Outbound logistics concerns the packaging and storage of courses, and the process of mailing, e-mailing, or otherwise delivering the material to the students. The delivery, collaborations, and marketing value chain involves a series of value adding activities, such as student registration through a Web portal; course delivery; the preparation of brochures, advertising materials, and the university calendar; developing a branding strategy for the online learning offerings; and establishing strategic partnerships and alliances. The service value chain provides online support (technical and academic) to learners, including counseling, tutoring, marking of assignments and examinations, delivery and invigilation of examinations, and maintenance of student records. It also includes learner self-service through Web sites and Web portals. For a more detailed discussion of the online learning value chain, refer to Chapter 3 in this volume.

Using a value chain perspective to understand how we have organized the themes in this book will help the reader focus on the strategic activities of the online learning institution. Part 1 provides a foundation to educational theory for online learning, to prepare the ground for discussing the different components of the online

learning value chain in Parts 2-4. Part 2 deals with inbound logistics, Part 3 with production and with aspects of outbound logistics, and Part 4 with delivery, marketing, and service to learners. The following figure illustrates the organization of this volume.
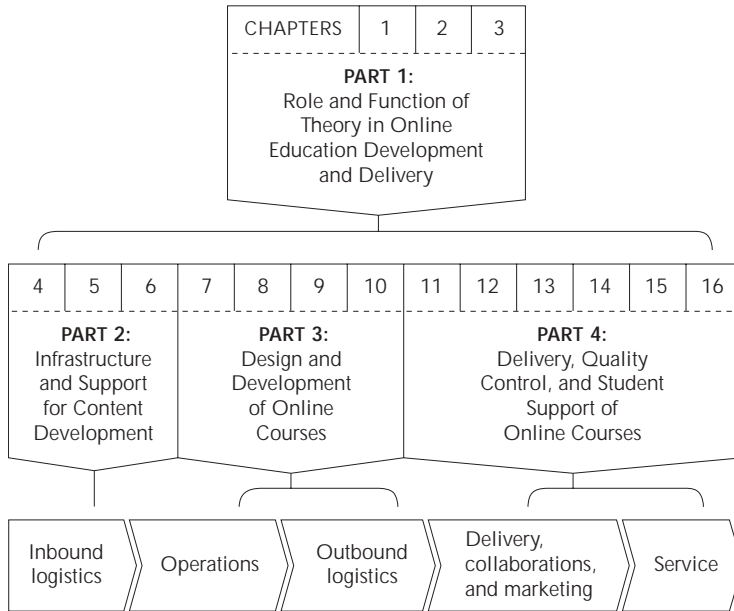
"Part 1: Role and Function of Theory in Online Education Development and Delivery" provides the theoretical foundations for this volume. Chapter 1 presents the foundation of education theory for online learning. It opens the debate by discussing the contributions of behaviorist, cognitivist, and constructivist theories to the design of online materials, noting that behaviorist strategies can be used to teach the facts (what), cognitivist strategies the principles and processes (how), and constructivist strategies the real-life and personal applications and contextual learning. The chapter mentions a shift toward constructive learning, in which learners are given the opportunity to construct their own meaning from the information presented during online sessions. Learning objects will be used to promote flexibility and reuse of online

materials to meet the needs of individual learners, and online learning materials will be created in such a way that they can be redesigned for different learners and different contexts. Finally, online learning will become increasingly diverse to allow it to respond to diverse learning cultures, styles, and motivations.

Chapter 2 presents a general assessment of how people learn. It assesses the unique characteristics of the Web to enhance these generalized learning contexts, and discusses the six forms of interaction and their critical role in engaging and supporting both learners and teachers. The author presents a model of online learning, a first step toward a theory in which the two predominant forms of online learning—collaborative and independent study—are considered, along with a brief discussion of the advantages and disadvantages of each. Finally, the chapter discusses the emerging tools of the Semantic Web, and the way they will affect future developments of the theory and practice of online learning.

Chapter 3 discusses the value chain framework in online learning. It presents the online learning value chain components; highlights its strategic power; presents the methodology for constructing, analyzing, and using a value chain in an online learning institution; and portrays the online distance teaching value system and market map.

"Part 2: Infrastructure and Support for Content Development" covers aspects of the inbound logistics value chain. Chapter 4 discusses the various factors that must be considered in developing the infrastructure for online learning, including planning, structural and organizational issues, the components of a system and the interfaces among them, and various related issues, such as human resources, decision making, and training. The author explains why any designed online learning infrastructure must also be able to evolve and work in a context of constant and accelerating change to accommodate changing student needs, technologies, and curricula.

Chapter 5 examines some available and potential technologies and features used in online instruction. Rather than continue to focus on how technology has helped or can help the instructor, teacher, or tutor, this chapter concludes with a look at how technologies—existing and emerging—can aid the first generation of online learners.

Chapter 6 discusses some attributes of media and of the modes of teaching presentation and learning performance they support, in relation to some influential learning models. It also clarifies some of the implications in the choice of any specific delivery or presentation medium. The author notes that the decision to adopt online technology is always complex and can be risky, especially if the adopting organization lacks structural, cultural, or financial prerequisites, and concludes that, while education has a responsibility to keep pace with technological change, educational institutions can reduce the costs and uncertainties of invention by following the technological lead of the corporate sector. Chapters 4 through 6 thus present three perspectives on the inbound logistics value chain for online learning, and open discussions about opportunities and challenges in selecting, developing, and adapting infrastructure and support for content development.

"Part 3: Design and Development of Online Courses" is concerned with the two following segments of the organization's online learning value chain: operations and outbound logistics. Four chapters are organized to shed light on these processes. Chapter 10 describes the role of instructional design, multimedia development, and editing in the design and development process by describing a professional role that has been developed to accommodate all these functions—that of the Multimedia Instructional Design Editor (MIDE). Mainly, this role is concerned with facilitating communication between the author and the learner, and between the author and the technical staff who create the multimedia tools and instructional technology used in course delivery. The MIDE brings together elements and participants in the value chain, and adds value to the course development process by enhancing the ability of other participants to produce effective online learning experiences. One of the MIDE's most important contributions to the course design and development value chain is quality control. The quality control function has become more critical as courses have come to contain multimedia components and have begun to move into the online learning environment.

Chapter 9 deals with another aspect of design, development and quality control in online courses: copyright. Copyright, in Canada and throughout the modern technological world, is described as being in a state of flux. Advances in information and communication technologies are stressing existing copyright Acts, and

forcing changes to them. As they embrace new electronic technologies, online educators are in a position to lead advances in copyright law, and to help ensure that the rights of both users and creators are respected, and that the intellectual property ownership issues that are emerging in the electronic world are widely understood and respected.

Chapters 7 and 8 discuss the process of developing effective instructional materials. Chapter 7 presents the role of instructional media developers in the course development process. These professionals are involved from the beginning, to consult with and advise course team members on development-related topics as they arise. The author presents pedagogical standards designed to help all those involved in online instructional development to ensure that their efforts are rewarded, ultimately, with satisfied learners. Chapter 8 describes several experiences in developing knowledge of team dynamics and communications, and accomplishing team project work, in an online environment. In describing aspects of teaching and applying team dynamics online, the authors highlight the unique values and capabilities of an online learning environment.

"Part 4: Delivery, Quality Control, and Student Support of Online Courses" is concerned with the last two parts of the organization's online learning value chain: delivery and service. Chapter 11 focuses on the role of the teacher or tutor in an online learning context. It uses a theoretical model that views the creation of an effective online educational community as involving three critical components: cognitive presence, social presence, and teaching presence. The chapter provides suggestions and guidelines for max-imizing the effectiveness of the teaching function in online learning.

Chapter 12 presents the call center concept for course delivery and student support in online courses. In distance education in particular, the call center can be an effective communication tool, enabling the institution to provide and improve service to students in many areas, including instruction. This chapter describes how the call center concept is used at Athabasca University and how it has proven to be effective in three areas: increasing student service and retention, allowing for direct marketing, and enhancing management information and learner feedback.

Chapter 13 presents a system that supports asynchronous discussion for online learners (the ASKS system). This system is designed to allow students in both paced and unpaced online learning environments to participate in grouped assessment activities. It also permits instructors to assess individual contributions quickly, and to provide tailored, automated feedback to students. The ASKS system addresses some of the problems associated with group participation in any online environment, such as immediate and relevant feedback for students, evaluation, and instructor workload.

Chapter 14 discusses the library support needed by online learners. It examines how libraries are responding to the challenges and opportunities of delivering core services to online learners. This chapter portrays some of the library practices and technologies now being applied in the construction of virtual libraries. The authors stress the importance of providing support within a collaborative environment, which considers human factors, such as communication and interaction. Chapter 15 continues this discussion by stressing the importance of setting up a supportive learning environment for online learners, and provides some practical advice. Underlying this advice is a philosophy that encourages an environment that aims to develop the learner's independence, while ensuring that supports are readily available when needed. Student supports that are flexible, clear, and continually available are described, and best practices outlined.

Chapter 16 provides a discussion of the contexts of quality assurance activities in higher education in general, and of the competing paradigms highlighted by online learning. The author notes that the greatest challenge for trying to define quality is that quality remains a relative experience, realized in large part through an individual's level of expectation. On the basis of this insight, the chapter goes on to examine quality standards that have been proposed for the delivery of online instruction in four jurisdictions: Australia, the United Kingdom, Canada, and the United States.

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