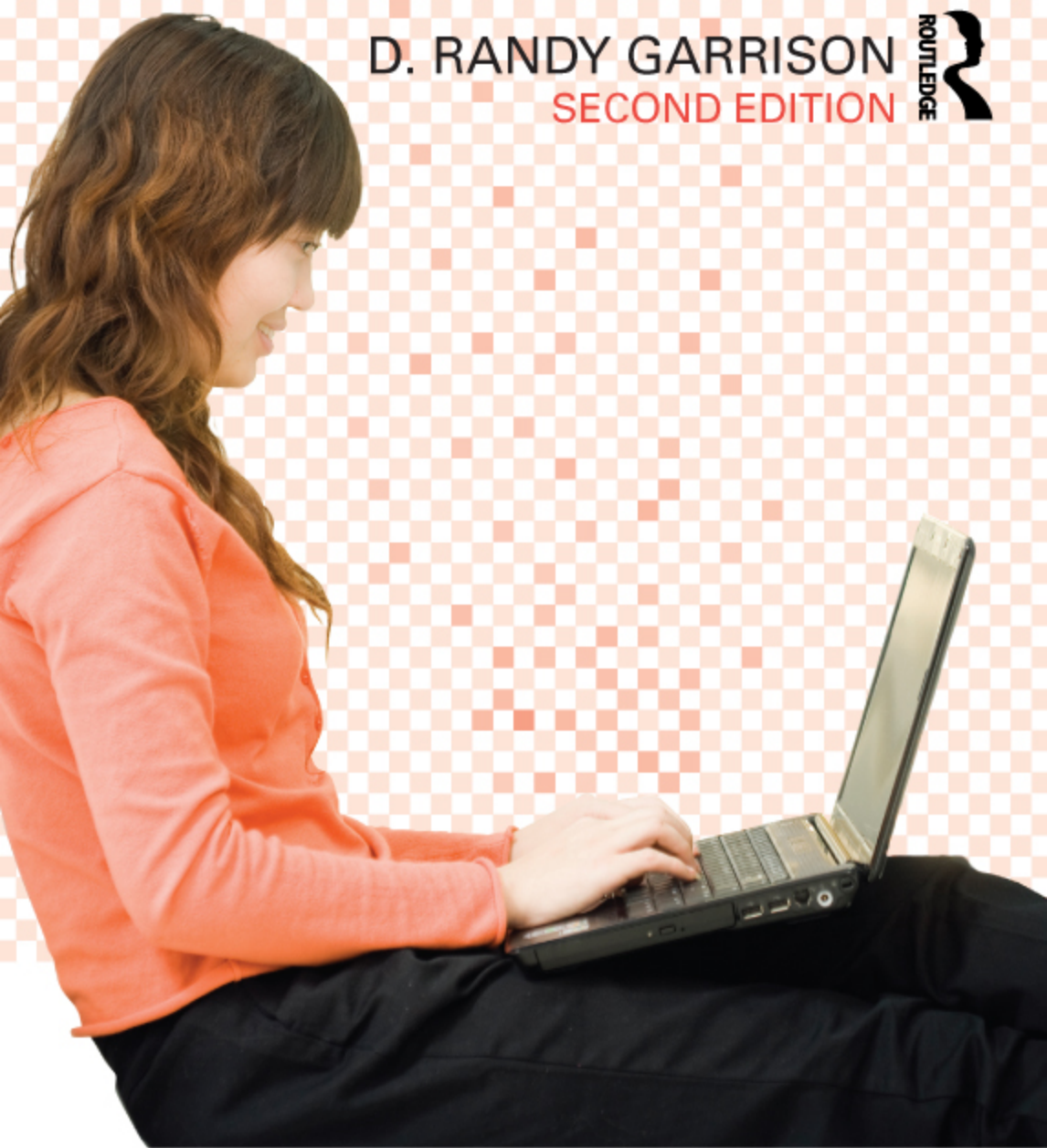


D. RANDY GARRISON  
SECOND EDITION



# E-LEARNING IN THE 21<sup>ST</sup> CENTURY

A FRAMEWORK FOR RESEARCH AND PRACTICE

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# E-Learning in the 21st Century

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The second edition of *E-Learning in the 21st Century* provides a coherent, comprehensive, and empirically-based framework for understanding e-learning in higher education. The author draws on his decades of experience and extensive research in the field to explore the technological, pedagogical, and organizational implications of e-learning. Most importantly, he provides practical models that educators can use to realize the full potential of e-learning. This book is unique in that it focuses less on the long list of ever-evolving technologies and more on the search for an understanding of these technologies from an educational perspective.

This second edition has been fully revised and updated throughout and includes discussions of social media and mobile learning applications as well as other emerging technologies in today's classrooms. This book is an invaluable resource for courses on e-learning in higher education as well as for researchers, practitioners, and senior administrators looking for guidance on how to successfully adopt e-learning in their institutions.

**Dr. D. Randy Garrison** is the Director of the Teaching & Learning Centre and a professor in the Faculty of Education at the University of Calgary. He is the author of eight books, including *Blended Learning in Higher Education* (2008) and *An Introduction to Distance Education: Understanding Teaching and Learning in a New Era* (2010). Dr. Garrison was the recipient of the 2009 Sloan-C Award for Most Outstanding Achievement in Online Learning by an Individual.



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# E-Learning in the 21st Century

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D. Randy Garrison

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## Preface to the Second Edition

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The goal of the second edition of *E-Learning in the 21st Century* is to provide an update based on a decade of research since the first publication of the Community of Inquiry framework (Garrison, Anderson & Archer, 2000). The first edition essentially compiled the original set of articles authored by the principle researchers. In the second edition, Chapters 1, 4 and 12 have been completely rewritten, a new chapter has been added ([Chapter 8](#)) and the remaining chapters have undergone significant revision to incorporate the considerable research of an e-learning community of inquiry since the first publication. The revisions provide new perspectives and understanding that enhance considerably the Community of Inquiry framework as a theoretical and practical guide.

This book is an inquiry into e-learning in higher education. By inquiry we mean the process of transforming an “indeterminate situation” into one that is unified and coherent—to paraphrase Dewey (1938, p. 117). The primary product of this inquiry has been the Community of Inquiry theoretical framework. The framework has also provided guidance in the subsequent inquiry into e-learning. While this may sound like a closed loop, true inquiry is open to new evidence and insights; and there have been many insights over the years that we will explore in this new edition.

I do want to express how grateful and indebted I am to all those who believed in and contributed to the development of the Community of Inquiry (CoI) framework since the publication of the original articles. There is a core group of researchers who have formed a very productive community, have provided important insights, and have been instrumental in moving the CoI framework to becoming a credible theory for e-learning. In this regard, I wish to acknowledge and sincerely thank the following for their support, ideas, and belief in this work: Zehra Akyol, Ben Arbaugh, Marti Cleveland-Innes, Sebastian Diaz, Phil Ice, Jennifer Richardson, Peter Shea, Karen Swan, and Norm Vaughan. In particular, I want to thank former doctoral students of mine Norm Vaughan and Zehra Akyol, for their friendship and for keeping me immersed in research associated with the CoI framework. Of course, I remain indebted to my colleagues Terry Anderson and Walter Archer for

their creative contributions to the original CoI framework. Finally, I must also acknowledge the many other researchers and graduate students that have used and contributed to the development of the CoI framework and the acceptance of online and blended learning in higher education.

It has been an exciting and fulfilling journey and I hope there will be further adventures as we move into the second decade of this research. I feel we have just begun to take flight as e-learning and the CoI theoretical framework enter the mainstream of higher education.

D. Randy Garrison  
January, 2011

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## Preface to the First Edition

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The goal of *E-Learning in the 21st Century* is to provide a framework for understanding the application of e-learning in higher education. We view e-learning as that learning facilitated online through network technologies. This does not preclude any number of other technologies or approaches, including components of face-to-face educational experiences. However, we will confine our discussion to those learning activities conducted through electronic means online.

Various authors have described the growth of e-learning as explosive, unprecedented, amazing, and disruptive. In fact, there are those who argue that we are experiencing a revolution in higher education (Report of a University of Illinois Faculty Seminar, 1999). Others suggest that e-learning technology is unique (Harasim, 1989) and represents a new era of distance education (Garrison, 1997a). Regardless of the rhetoric, what has changed is the “speed and power of communications and the expanded capacity to send, receive, and use information” (Ikenberry, 1999, p. 57) and the capacity to bridge time and space for educational purposes.

While lifelong learning has become an imperative, and communications technologies are transforming higher education, in most instances “the revolution proceeds without any clear vision or master plan” (Ikenberry, 1999: 58). Considering the massive adoption of e-learning, what is surprising, and cause for concern, is that we know so little about the use of this medium to facilitate learning (Gilbert, 2000). To date, published research and guides consist of innumerable case studies and personal descriptions and prescriptions but little in the way of rigorous, research-based constructs that lead to an in-depth understanding of e-learning in higher education.

Considering the ubiquity of e-learning, and the enormous opportunities and risks that it presents for higher education, we need more than a fragmented approach to studying and understanding this phenomenon. Is e-learning to be used simply to enhance inherently deficient existing practices (e.g., lecturing)? Or does this technology have the potential to transform the educational transaction towards the ideal of a community of inquiry?

Such questions can only be addressed and explored through empirically based research frameworks like those presented in this book.

## **HOW THE BOOK CAME TO BE**

The authors will provide educators with a deep understanding of the characteristics of e-learning. This in-depth understanding will give direction and guidance to educators who wish to facilitate critical discourse and higher-order learning through the use of electronic technologies in a networked learning context. All universities and colleges now have large numbers of faculty members using e-learning to enhance their campus-based and distance-education programming. Some of the most innovative technological e-learning approaches are being built in corporations to improve performance and retain competitive advantages.

## **OVERVIEW OF CONTENTS**

The first chapter describes the context and outlines the challenges of exploring and understanding the potential of e-learning. It makes the point that e-learning is not just another learning technology. There is every reason to believe it will transform teaching and learning.

The second chapter outlines the philosophical perspective and theoretical concepts that frame our understanding of e-learning. It also outlines a set of principles that guide a deep and meaningful approach to e-learning.

The third chapter speaks to the organizing concept for realizing the potential of e-learning. The Community of Inquiry model is the conceptual framework that defines the three constituting elements of e-learning—social, cognitive, and teaching presence. This conceptual model takes us back to the roots and core values of higher education. We then discuss the place of technology in this learning community.

The fourth chapter provides an overview of technology and its development. The impact of the Internet as well as the role and nature of interaction in e-learning is then discussed.

The fifth chapter explores the challenge of creating a climate for higher-order learning in an e-learning environment. Categories, indicators, and suggestions that have practical value in establishing social presence are provided.

The sixth chapter offers an analysis and model of critical thinking and practical inquiry for cognitive presence. From this, descriptors and indicators for each of the phases of practical inquiry are described. This provides insights into the cognitive dimensions of e-learning.

The seventh chapter completes the Community of Inquiry model with a discussion of teaching presence and its central function in e-learning. Categories and indicators of teaching presence are outlined and practical implications for structuring, facilitating, and directing are addressed.

The eighth chapter shifts to the practical issues of implementing e-learning. It begins by discussing the purposes and strengths of various learning activities. The rest of the chapter approaches e-learning from the perspective of teaching presence and its dimensions but focusing on issues of social and cognitive presence. Guidelines and specific suggestions for practice are provided.

The ninth chapter addresses assessment and evaluation that is arguably the most influential element of any educational experience. Assessment of e-learning goes beyond judging student performance. Assessment of the development and delivery of e-learning is also necessary to advance our understanding of meaningful and worthwhile learning.

The tenth chapter moves out of the classroom to consider institutional issues to prepare for e-learning in the twenty-first century. The chapter explores the dynamics of change and the need for leadership, policy, and infrastructure with regard to innovation and the strategic integration of e-learning in institutions of higher education.

The last chapter provides an imaginative look into the future with regard to e-learning. Its unique properties are described and a glimpse into the future provided.

## **CONTRIBUTION**

The early chapters demonstrate that e-learning can create asynchronous communities of inquiry which have the potential to support the development of collaborative communities of learning, while still allowing “anytime, anywhere” access by students. We are convinced that such technology, when combined with effective pedagogy and reflective teaching, will transform higher education. In the later chapters of the book, this potential is translated into practical guidelines intended to be used by educators working to realize the full potential of e-learning.

This book contributes a meaningful framework and approach to the understanding of the fundamentals of e-learning and explains why it is proliferating throughout a rapidly evolving learning society. This is the first comprehensive and coherent framework to guide our understanding of e-learning in higher education and society.

To this point, communications technologies have been driving the unprecedented growth of e-learning. The focus in this book is less on the specifics of the ever-evolving technologies used for e-learning, and more on the search for a deep understanding of these technologies from an educational



perspective. It is to the purpose of mapping the territory of e-learning, then providing directional choices for higher education and specific guidelines to reach worthwhile destinations, that this book makes its contribution.

This book is of particular relevance to those who are less impressed with technological gadgetry but who have been waiting for a strong pedagogical reason to participate in the paradigm shift in teaching and learning that e-learning represents. This book will appeal to a broad audience interested in e-learning. The primary audiences, however, are researchers, practitioners, and senior administrators in higher education who must guide the adoption in their institutions of this unique and rapidly proliferating technology.

This book can be used as a basic research framework and tool to study and understand the characteristics of e-learning and to explore its optimal educational applications. It will also be useful as a textbook for adult education and training as well as any number of instructional-technology and distance-education courses. Finally, it will be a valuable reference and guide for senior decision-makers in higher education.

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# Acknowledgments

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The research on which this book is based originated most directly from a major research grant which allowed the author to study the characteristics and qualities of e-learning, with specific reference to the ability of e-learning to foster higher-order learning. It also represented the culmination of years of experience in this field by the original researchers who have brought to the project a broad range of different but complementary perspectives and expertise gained through their teaching and learning experiences and original research.



# Introduction

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Pedagogical and technological innovations are redefining higher education. At the nexus of this convergence is e-learning. Concurrent quality and cost reduction pressures are creating the conditions for the transformation of higher education. The ubiquitous and cost-effective technologies used to access information and connect learners have significantly shifted thinking in higher education. At the core of this shift in thinking is the idea that students should be actively engaged in sustainable communities of inquiry. It has been shown that active engagement in a learning community is associated with reflective discourse and deep learning outcomes (Akyol & Garrison, in press a; Brown, 2001; Chapman, Ramondt, & Smiley, 2005; Rovai, 2002). The point has been made that if e-learning approaches “do not deepen the learning experiences of students, they are not worth much” (Weigel, 2002, p. 1). The affordances of new, ubiquitous and powerful communications technologies and their ability to create and sustain communities of learners have quietly established e-learning in the mainstream of higher education.

It is the convergence of the technological and pedagogical developments that is driving e-learning innovation in higher education and the focus of *E-Learning in the 21st Century*. This book provides a coherent understanding of e-learning and how the possibilities are transforming approaches to teaching and learning. E-learning is described here from an educational perspective and its collaborative potential to create and sustain a community of learners. In the context of a rapidly changing knowledge society, it is essential to evolve the learning experience in a way that models and prepares students for an active and collaborative working life. The greatest mistake is to try to integrate new communications technology into passive educational approaches. E-learning will fail if we merely add on to or repackage our current educational designs. We must be prepared to rethink current dominant approaches and be clear as to what type of learning experiences we wish to design. This will require a theoretical framework and models to guide our study and application of e-learning in higher education. However, before we can explore such a framework we need to be clear as to what we mean by e-learning.

### **E-LEARNING DESCRIBED**

The term e-learning came into use in the mid-1990s along with developments in the World Wide Web and interest in asynchronous discussion groups. The goal of e-learning described here is to create a community of inquiry independent of time and location through the use of information and communications technology. An educational community of inquiry is a group of individuals who collaboratively engage in purposeful critical discourse and reflection to construct personal meaning and confirm mutual understanding. This perspective, of course, reflects a particular educational approach using the possibilities of new and emerging technologies to build collaborative constructivist learning communities.

E-learning is formally defined as electronically mediated asynchronous and synchronous communication for the purpose of constructing and confirming knowledge. The technological foundation of e-learning is the Internet and associated communication technologies. Beyond the general description of e-learning, the two primary applications that constitute e-learning are online and blended learning. Fully online learning is a form of distance education that had its genesis apart from mainstream distance education. However, because of its interactive nature, online learning is very different from traditional distance education with its historical focus on content delivery and independent learning. On the other hand, blended learning is the most prevalent form of e-learning in traditional higher education institutions. Somewhat counter-intuitively, the reality is that much of “e-learning innovation has taken place on-campus” (*E-learning in Tertiary Education*, 2005, p. 69). E-learning in the context of blended learning has shifted the thinking of educators in higher education in terms of transformative course and program redesign.

As alluded to previously, e-learning is not an industrialized form of distance education. E-learning in higher education is first and foremost about providing a quality educational experience. While e-learning has an element of distance education, it has evolved from a different field of theory and practice. Distance has become but a relatively minor structural constraint in providing a quality, highly interactive learning experience. E-learning represents a true paradigm shift with regard to distance education. It represents a shift from the ideal of autonomy and the industrial production of prepackaged study materials characteristic of mainstream distance education. E-learning represents a distinct educational branch with its roots in computer conferencing and collaborative constructivist approaches to learning.

This shift in pedagogical assumptions and approaches reflected in the theory and practice of e-learning is a new era of distance education. E-learning in the form of online learning represents the post-industrial era of distance education marked by a return to a craft model of designing context-specific collaborative educational experiences (Garrison & Cleveland-Innes,

2010). Online learning integrates independence (asynchronous online communication) with interaction (connectivity) that overcomes time and space constraints in a way that emulates the values of higher education. In particular, online learning goes beyond the technology and tools to access information. The focus is shifted to the educational transaction in the form of a virtual community of learners sustainable across time (Garrison, 2009a).

At the same time, for e-learning to be fully integrated in the mainstream of higher education, we must not undermine or discount the enormous value of face-to-face educational experience. E-learning should not be viewed as replacing these experiences. Nor should we, however, ignore or resist the obvious advantages of e-learning technologies to access information and sustain educational discourse. The integration of e-learning technologies should not be seen as creating winners and losers. The power of blending online and face-to-face experiences is that it respects the distinct advantages and preferences associated with face-to-face learning communities while recognizing and integrating the enormous strengths of online learning to provide sustained, rigorous discourse.

The potential of e-learning to merge verbal and written discourse, unconstrained by time, has caused educators to rethink the possibilities for engaging campus-based students in face-to-face and online environments. This thoughtful blending of complementary face-to-face and online approaches to meet specific educational goals has been termed blended learning (Garrison & Vaughan, 2008). E-learning in the form of blended learning integrates the best features of online and face-to-face education. Blended learning, however, is not benign. It will inherently precipitate a fundamental rethinking and questioning of current approaches to teaching and learning. Approaches such as the lecture are critically examined in terms of its ability to engage students in critical discourse.

To this point, e-learning has been described in terms of online and blended learning. It has also been argued that e-learning is not a synonym for distance education. With the proliferation of Internet technologies, distance has become relatively meaningless. In an e-learning scenario communities of learners are able to sustain themselves productively across time and space and be enriched immeasurably through the Internet. But this does not just happen by adopting e-learning technologies. It is the ideas that drive this vision, and the core concept here is the community of inquiry. It is this vision and theoretical framework that provide the principles and guidelines that make e-learning a viable reality in higher education.

## **A NEW REALITY**

E-learning is not simply another technological innovation that fundamentally has little impact on the educational experience. With the power of the WWW,

the teaching and learning transaction is exposed to unfathomable amounts of information. E-learning is an open system that blends access to information and purposeful communication into a dynamic and intellectually challenging learning community. E-learning transforms education in ways that extend beyond efficient delivery or entertainment value. It is not issues of access to information but the connection to others that distinguishes e-learning from both conventional face-to-face or distance education. Surfing the Internet is not an educational experience, any more than wandering through a library is, and it is disingenuous to acknowledge it as anything more than informal learning.

Not long ago, the provision of increased learner independence in terms of space and time meant a corresponding loss of collaboration and increased isolation. Independence and interaction were inherently contradictory in an educational context—more of one meant less of the other. The transformational power of e-learning goes to the heart of this issue. E-learning has the potential to fully integrate the benefits of personal freedom with connectivity (belonging to a purposeful group of learners). From an educational perspective the “e” in e-learning stands for more than electronic; it can also stand for extending and enhancing the learning experience. It is how we take advantage of e-learning’s educational properties and potential that is of greatest interest. This will be more fully explored in subsequent chapters related to collaborative constructive learning and critical reflection and discourse.

To realize the potential of e-learning as an open but cohesive system, it is essential that we rethink our pedagogy. Education is about ideas, not isolated bits of information. With its large lecture halls and standardized, objective testing, higher education has taken on an industrial character. Higher education institutions are addressing their financial challenges by increasing class sizes without addressing quality issues. E-learning’s transformative power and capacity to add value is based upon better ways to make sense of the access to unbelievable amounts of information. The current passive information-transfer approaches of higher education are contrasted with the interactive and constructive potential of e-learning.

While e-learning can support and even marginally enhance current practices, such as lecturing, the real impact will be to precipitate new approaches that recognize and seize e-learning’s collaborative potential. In reality, this may well be a back-to-the-future scenario as we return to educational experiences founded in communities of inquiry. A community of inquiry is where individual experiences and ideas are recognized and discussed in light of societal knowledge, norms, and values. An e-learning community of inquiry is where autonomy and collaboration are not contradictory ideas but the essential elements of a unified and qualitative shift in how we approach higher education.

In the mid-1980s, the personal computer became accessible to a large and growing number of people. Today, it is the interface to the Internet and the

WWW that is transforming teaching and learning. We are just beginning to discover and understand the extent to which these technologies will transform expectations for, and approaches to, learning. These technologies do not represent more of the same. With the ubiquity of communications technologies and their multiple forms (e.g., text, visual, voice) we are in the early stages of a true educational revolution. The application that is having the greatest influence on education is e-learning.

Although e-learning has attracted much attention, its adoption has largely outstripped our understanding of the technology from an educational perspective. Its value is not faster access to information, or even information itself. The value of e-learning is its capacity to support communication and thinking in the quest to construct meaning and confirm knowledge. Upon reflection, it should be no surprise that most research into using technology for educational purposes has shown no significant differences in learning outcomes between traditional and technically advanced media. Why would we expect to find significant differences if we do essentially the same thing we always have done except change the medium of communication?

Higher education institutions are moving beyond infatuation with the technology and are beginning to address the real challenges of providing a relevant and quality education experience. It is the recognition of the possibilities of e-learning to create and sustain these learning communities that is transforming higher education.

## **CONCLUSION**

E-learning does not represent more of the same. Communication technologies, with their multiple media (text, visual, voice) and their capacity to extend interaction over time and distance, are transforming teaching and learning. The adoption of e-learning applications in the last decade has been accompanied by an increased understanding of how to use them to enhance the educational experience in a cost-effective manner. This book is dedicated to increasing the awareness and understanding of e-learning to enhance a worthwhile educational experience.

However, the challenge is enormous and there are no simple rules or recipes for designing and delivering an effective e-learning experience. The complexities of context and distinct communication characteristics to support communities of inquiry do not lend themselves to easy or simplistic solutions. Any educational experience demands the experience and insight of a reflective and knowledgeable teacher who can translate principles and guidelines to the contingencies and exigencies of their unique contexts. This necessitates an inquisitive attitude and commitment to the process of inquiry not dissimilar to the goals of higher education and the approach described here.



In realistically addressing the complexities of e-learning, the intent is to provide conceptual order along with principles and guidelines that have generalizability and value for educators. Therefore, the challenge for the reader is to make sense of the ideas presented here by translating the concepts and ideas and applying them pragmatically to their unique educational context. This book is about doing things differently. We need to start by asking what e-learning will allow us to do that we could not do before. It is not about entrenching deficient face-to-face approaches such as lecturing by using e-learning to access more irrelevant or incomprehensible information. Nor is it about having students experience the same deficient educational approaches through a different medium.

We find ourselves no further ahead because the regressive activities mentioned above have defined the *status quo* and reinforced a defensive strategy. Marshall McLuhan (1995) argued that the content of a new media is initially always an older media. Thus, the first use of cinema was to record plays and the first use of the Internet was mail. Likewise, the first educational application of the Internet was to disseminate lectures and replace paper syllabi. Now, however, we are challenged to go beyond these early adaptations and develop educational approaches that exploit the possibilities of e-learning to support sustainable communities of inquiry.

Increasingly, higher education is returning to its roots by focusing on the values and practices associated with collaborative approaches to learning. This is a distinct reaction to the dominant individual and isolating approaches to learning that have evolved for fiscal reasons in the last few decades. Perhaps it is time to recast the educational dinosaur and utilize the technologies of e-learning to move away from the transmission modality. Education is but an illusion if it simply disseminates information without actively supporting a critical assessment and the opportunity to construct meaningful knowledge structures that will serve future learning challenges. The goal here is not simply to advocate or promote the use of e-learning. The real challenge and benefit is to understand the nature and potential of e-learning and its implications for a collaborative and constructive educational experience.

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## Appendix: Community Of Inquiry Survey Article

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