E-collaborative technologies have helped to facilitate the boom in distance learning by being a means for delivering course content. The enrollment of students in distance learning classes and predicted growth of this education segment is noteworthy. An estimated 87 percent of all large public universities offer some form of distance education course (Worley, 2000). Further, in 2000, the enrollment of students in distance learning classes was estimated at 1.6 million (Gagne & Shepherd, 2001). A recent study by Penn State University predicted that distance learning will grow 10 times faster than traditional classrooms over the next 10 years (Burns, 2006). While many distance learning courses target nontraditional students (adult audiences), over 40 percent of students who were home schooled in 2003 participated in some type of distance education according to a survey conducted by the National Center for Education Statistics (NCES, 2003).

There appears to be two primary factors driving the demand for distance education that are somewhat inter-related. The first is the increasing demand for continuing education. In our global, knowledge-based economy, the demand for increasing intellectual assets and keeping current through life-long learning is growing. Skill specific courses, often leading to advanced degrees, can
catalyze advancement within a career or at a minimum keep individuals current with technical or technological developments.

The second factor is that many of the individuals who require post-secondary or post-graduate continuing education either are currently employed full time or are geographically removed from a university campus. The flexibility of distance education to overcome the impediments of time or distance makes it a compelling alternative to in-class instruction (Gagne, 2001). Virtual classrooms based on computer groupware or other software can be operated over the internet to provide both asynchronous and synchronous instruction. Essentially, it appears that distance education is being utilized to efficiently reach wider audiences and does not seek to challenge or change the structure of the traditional higher learning.

Teaching distance learning courses can be challenging because the delivery is often asynchronous with students having no face-to-face contact with instructors, thereby significantly changing the dynamics of the classroom. Teaching through this modality lacks the visual cues that can either send or receive messages to enable instructors to make assessments and take corrective actions in real time (Hirschheim, 2005). Some of the controls present in a classroom setting for taking exams and completing other graded assignments may be difficult. A common misunderstanding of teaching online is that it merely involves putting up a website that posts lectures and makes them available to the student. Communication scholars hold that the facilitative role for faculty in a classroom is more effective than the role of knowledge dispenser (Easton, 2003).

Adding to the challenge of effectively designing and delivering distance learning content is evidence that relatively few faculty members possess the necessary skills to implement these courses (Easton, 2003). Lan (2001) conducted a survey of faculty from a university widely recognized as a national leader in integrating technology in the classroom to assess faculty competence in delivering Web-based instruction. The findings suggest that a majority of the faculty (75 percent) felt the skills of their faculty were moderate and only six percent of the respondents thought their faculty were sophisticated enough to incorporate Web-based instruction into the curricula. Though this research is now five years old, it does indicate the need for properly training faculty members to effectively deliver distance learning courses.

Resources for parties interested in learning more about issues related to management and implementation of distance learning abound. There are conferences and journals devoted entirely to the topic of distance education. Books and articles range from detailed technical treatises on Web design and communication protocols to a multi-volume encyclopedia of distance learning. As such, the resources are available
for any faculty member who desires to deliver effective distance learning courses.

The subject of this book review, *The Design & Management of Effective Distance Learning Programs* (hereafter Discenza, et al., (2002)), was written to assist providers of distance learning with an understanding of the major issues, challenges, and solutions related to this method of course delivery. This book is a good introduction to issues related to the design and implementation of distance learning rather than a treatise on how to deliver and manage these types of courses as the title suggests. It is an important resource for those interested in administering, delivering or taking a distance learning course.

Discenza, et al., (2002) is a collection of related chapters written by a variety of authors who are experts in various aspects of distance learning. The book is logically organized into three sections, with the first section providing a background on the role and evolution of distance learning in higher education. Challenges faced by both students and faculty are addressed in the second section of the book. The final section encompasses experiences in designing and implementing distance learning programs. Though each section of the book is tied together through a common theme, the diversity of authors and experiences provides different perspectives on the important issues related to distance learning. Another strength of Discenza, et al., (2002) is that it gives readers a broad coverage of a number of issues that are important to any distance education program.

The first section encompasses a discussion defining distance learning and the student base, with an emphasis on the implications for higher education, particularly traditional universities. While some may have predicted that distance education would compete with traditional education delivery, it seems more feasible that the two types of course delivery are complementary, rather than substitutes. Distance education is often targeted at adults with working schedules or located at a distance from a university may preclude their participation in a live class. Traditional universities have the potential to broaden their student base by offering distance learning alternatives in addition to courses delivered on campus. While virtual universities have emerged to meet the demand of distance learners, traditional universities have comparative advantages such as name recognition, various accreditations, and possibly better trained professional faculty than virtual universities. One issue that remains of great importance to any university involved in distance learning is course quality and effectiveness.

Discenza, et al., (2002) focuses on the key challenges of distance learning in the second section of the book. Issues related to the advantages and disadvantages of this mode of course delivery, strategies for success, and quality controls over courses are explored in six chapters. While distance learning has the potential to be a powerful form of in-
struction, there are several challenges to effective implementation and administration of distance learning courses. Faculty perceptions and readiness to staff distance learning courses is oftentimes the major impediment to the success of a distance learning program. A survey of faculty revealed that improvement in the following areas would assist in their efforts to implement distance learning courses: Rewards and recognition for efforts, support resources (including technical and course personnel), access to state-of-the-art equipment, and quality assurance procedures. Maintaining quality in distance learning on parity with classes taught on campus is an important challenge for institutions implementing and managing distance education courses. One convenient method to assess the quality of distance learning courses is to employ methods already in place for traditional courses via student evaluations of their course experience. Student perceptions should be augmented with some other form of assessing whether outcomes for the course are being met. Discenza, et al., (2002) contains a description of the quality assurance methods employed for an online construction equipment course.

The book’s third section focuses on best practices and factors that contribute to success in distance learning, along with providing descriptions of experiences in teaching distance learning courses. Three major factors in successfully implementing a distance learning course are helping students to become independent learners, accommodating the extra time for delivering a course (estimated to be two to three times that of a traditional course), and creating online communities in lieu of a classroom environment. Student evaluation of instruction may take on many of the same forms as traditional classroom assignments, however a strong feedback loop is recommended to provide students with guidance. Discenza, et al., (2002) provides a list of traditional universities who have virtual campus settings, such as Penn State, Washington State, U.C. Berkeley among a host of others. In citing these universities, the authors also discuss models for successful distance education.

As an introduction to distance learning and strategies for success, Discenza, et al., (2002) is a valuable resource. Multiple viewpoints from various authors who contributed to the text and addressed a broad number of issues make the reading balanced and interesting. The writing style by all contributors is clear and concise, reflecting an effective editorial and review process. However, the book is not without its weaknesses. Too much text is devoted to the role and evolution of distance learning in higher education. While this discourse is valuable background material, one chapter would have been sufficient. Additionally, the book would seem more cohesive if each of the three sections concluded with a summary of the most salient points.
REFERENCES

Jeffrey Wong is an assistant professor at the University of Nevada at Reno. He received his PhD from the University of Oregon. Professor Wong has published work in journals including, Behavioral Research in Accounting, Database, International Journal of e-Collaboration, and Internal Auditor. His research interests focus on understanding how a firm’s strategic decisions and actions ultimately map to financial results. This research focus has most recently examined how a company’s information systems and investments in technology enhance the value of a firm.

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E-collaboration technologies enable the work of groups of individuals engaged in common tasks (Kock, 2005; 2005b). Those technologies provide support for human-to-human interaction mediated by computers. Each individual interacts with others through a user interface, which can be the same for all individuals in the group, or differ across individuals, depending on a number of factors. For example, some group members may use a PDA device while others may use desktop computers. (PDA stands for “personal digital assistant”; e.g., Palm Pilot, Blackberry). The interface look and functionality of a PDA-based interface is likely to differ significantly from that used on a desktop computer.

The design of user interfaces is at the core of the design of e-collaboration technologies. A well designed and user-friendly interface is likely to play a key role in the success of an e-collaboration technology. This is particularly true for the quality of the outcomes generated by a group. On the other hand, a poorly designed interface, if adopted, is likely to lead an e-collaboration technology to provide poor support for e-collaborative work.

The above can be illustrated based on past research findings in connection with interface naturalness. Past research shows that a more natural interface (Kock, 2005c) is likely to lead to less ambiguity and more excitement in tasks involving knowledge sharing.
through e-collaboration technologies than a less natural interface. The degree of naturalness of an interface is essentially the degree to which it incorporates elements of face-to-face interaction. For example, computer-mediated communication interface supporting videoconferencing is more natural than one supporting only asynchronous text-based interaction. The difference in terms of communication fluency through computer-mediated communication interfaces at different extremes in terms of naturalness can be staggering. While that fluency can be as high as 100 words per minute through videoconferencing, it can go down to as little as 10 words per minute through asynchronous text-based interaction. (This is not to say that naturalness is the only attribute of an e-collaboration interface that matters. Often the fit between an e-collaboration technology and the characteristics of a task significantly outweighs naturalness in importance.)

Ben Shneiderman and Catherine Plaisant are the authors of the 4th edition of *Designing the User Interface*, a book published in 2005 by Pearson Addison-Wesley that will help e-collaboration technology developers design effective user interfaces. The book is divided into four main parts totaling 14 chapters. The first two chapters form an introduction to the rest of the book, which is also labeled Part I. The first chapter consists of an introduction with some general information on user interfaces. It points out a number of qualities an interface must possess in order to be considered not only functional, but worthy of admiration. The authors also highlight the importance of taking into consideration the differences between users’ cultural backgrounds in the design of interfaces. Next, in Chapter 2, the authors cover interface design guidelines, principles, and theories. Guidelines are provided addressing navigability, organization, user’s attention grabbing, and support for data entry. A number of general interface design principles are then discussed, culminating with their examination within the context of theories underlying human-computer interface design and implementation.

Part II of the book is titled “Development Processes” and contains the next three chapters. Chapter 3 introduces a number of strategies for the early stages of interface design. The authors warn the reader that interface design varies according to the situation and that the advice provided must be adapted to the individual objectives of the designer. This chapter offers a number of illustrative analogies such as that of the three pillars of design - guidelines and processes, user interface software tools, and expert reviews and testing. Each pillar provides a different set of foundational elements for a successful interface. Part II of the book also contains a number of user-centered data collection examples, such as in Chapter 4, where the authors provide the reader with examples of surveys that can be used in the evaluation stages of the interface design. Chapter 4 focuses
on providing a number of instruments and information on testing and evaluating interfaces. Chapter 5 provides information on the use of grammars, dialog-box trees, transition diagrams, and state charts. Design tools for the development of interfaces are also discussed together with tools that can be utilized in evaluating the quality of the user interface created.

Part III of the book focuses on styles of interaction, which are detailed in chapters 6 through 10. The first topic covered in Part II is direct manipulation, whereby a user is able to conduct and master a number of actions in an interface as well as a virtual environment (Chapter 6). Examples of direct manipulation in computer-aided design and office automation are also discussed. The authors believe that there are some problems related to direct manipulation, such as the degree of difficulty associated with the representations used. Chapter 7 provides alternatives to direct manipulation, and thus solutions to those problems. The use of menus is presented as a desirable alternative in many situations, and various types of menus are discussed together with recommended layouts. The next chapter in Part III, Chapter 8, provides information on the different types of command languages available to the interface designer. The authors point out that choosing a command language should include an analysis of the functionality provided by the language vis-à-vis the user interface’s objective and the tasks that the user is expected to accomplish using the interface. This chapter also reviews different names and abbreviations used in command languages, which in turn can influence the ease of learning involved with an interface. Chapter 9 reviews the different interaction devices used in an interface. These devices include keyboards (which may have different layouts), pointing devices (such as a mouse or touch screen), speech or auditory devices (e.g., speech recognition software) and displays. The final chapter in Part III of the textbook, Chapter 10, focuses on collaboration among individuals, and is particularly relevant for those involved in the design, implementation and use of e-collaboration technologies. Chapter 10 discusses different types of collaboration technologies—such as email, discussion boards, blogs, and video conferencing—along with an exploration of the applications of those technologies.

Part IV of the book deals with design issues and includes the last four chapters of the book. It begins with a discussion on the various ways through which one can discover and correct problems with an interface. The authors stress that an adequate interface takes into consideration a user’s needs and attempts to incorporate desirable qualities. One example is an acceptable response time given the task being accomplished by the user through the interface. Chapter 12 argues for the need to strike a balance between having a functional and a “stylish” interface. It is pointed out that designers must take
into consideration the different tastes of customers, and should provide a number of different styles as long as the interface incorporates most of the functionality needed by the users. This chapter includes information on designing displays, designing windows, and choosing color combinations. Once the interface design phases have been finalized, the designer must think about providing manuals, help menus, and tutorials in order to facilitate the users experience (Chapter 13). All these must be available in different formats so that users can choose how they wish to read them; for example they may choose to read a section of an online manual or print it out and read it on paper. Finally, Chapter 14 discusses the elements involved in information searches. The emphasis here is on the idea that users should be able to conduct searches without becoming frustrated. In this chapter the reader will find a discussion of queries, multimedia documents, and filtering capabilities. The authors believe that new methods of searching for information are emerging and may make the process significantly simpler than it is today.

The book has a number of positive characteristics. It is clear and relatively easy to read, and provides useful analogies and exhibits that aid the reader in understanding the ideas the authors are trying to convey. For example, in Chapter 3 the authors provide an illustration of three pillars of design, in which research lays at the foundation, having the three pillars each with a different base, and a ceiling representing a good interface. Analogies such as this aid the reader in bringing together, in a coherent whole, key ideas and methods in connection with user interface design. Particularly useful for researchers and academics are the researcher’s agenda and references sections found at the end of each chapter.

As with almost all books, there are a number of aspects in this book which could be improved with an eye on making future editions more readable. One problem with the book is that it sometimes seems to lack a clear structure, combining a number of different topics in one single chapter without providing a logical connection between them. Also, broad coverage of topics often is emphasized to the detriment of a more focused discussion of key areas. For example, Chapter 1 contains a very broad discussion on interfaces. There, the authors could arguably have paid more attention to concepts and definitions that could serve as the stepping stone for the remaining chapters.

A glossary would also be a good addition to further editions of the book. Certain terms in the book would be more easily understood if a short definition was available in an easy-to-find section at the end of the book. As it is now, often the book offers long explanations of key terms, making it difficult for readers to make sense of later sections where those terms are referenced. In addition to a glossary, a longer summary at the end of each chapter would also be useful. Currently, each chapter con-
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The book is reasonably priced, even though it is in a market segment where there are real bargains. For example, at the time of writing, there were at least three other good user interface design books whose price tags were a third of Shneiderman and Plaisant’s book. However, none of the authors of those other books had the same community standing or professional background of the authors of this book.

All in all, this book is required reading for managers and professionals interested in concepts and methods related to user interface design. The book’s reasonable price and textbook-like organization make it a good choice for graduate and senior undergraduate university courses in user interface design, which are routinely found in both computer science and information systems programs. A companion Web site is available to readers with several resources that include quizzes, links, and discussion questions. These resources will be particularly useful for instructors and students using the book as a basis for their courses.

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