E-Learning Concepts and Techniques

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E-Learning Concepts and Techniques is a collaborative e-book project by Bloomsburg University of Pennsylvania's Department of Instructional Technology students and guest authors. It was a project-based assignment for the online class, E-Learning Concepts and Techniques Spring 2006 and is dedicated in memory of Justin Bennett (1989-2006). It is also dedicated to those who love to learn as well as to those who inspire that love in others.

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Introduction

This e-book, *E-Learning Concepts and Techniques*, is the result of a collaborative effort by students in the Bloomsburg University, Department of Instructional Design spring 2006 E-Learning Concepts and Techniques online class as well as several guest authors and contributors from around the world.

In order to properly introduce the E-Learning Concepts and Techniques e-book, it is important to share a little bit about our department. This description currently appears on our home page:

The Department of Instructional Technology has become a nationally acclaimed, unique program for the preparation of instructional designers, eLearning designers and interactive multimedia developers.

The program integrates extensive experiences in all phases of instructional design: analysis, design, development, implementation, and evaluation. Students are provided with "hands-on" experiences with authoring, web development, graphics, eLearning, and project management tools.

In addition, the eclectic nature of this program focuses on teamwork as students combine their theoretical learning with practical, *hands-on* projects that are being designed and developed by our nationally known Institute for Interactive Technologies .

As is our custom in the Department of Instruction Technology, I felt it was important to use an actual e-learning project as the final for this class; one involving just as many potential *issues* as other e-learning projects.

This project, involving the creation of an e-book, was a novel project for us. We did not have the benefit of having standards and guidelines in place. This meant we had to work these things out as we progressed through the project. Even though this made the project more complex, we all had an opportunity to experience something none of us had ever done before.

With every project I use as a teaching tool, I feel it is very important to provide each participant with an opportunity to *experience* the processes involved in completion of project such as:

- Instructional design (We were able to get through the analysis, design, and partial development of the e-book.)
- Communication
- Working in groups
- Creativity
- Critical analysis

I also strongly believe it is important to provide, when possible, maximum learner control regarding the choice of topics and the path to completion of the project assignments. In my experience, allowing participants to struggle through a process without providing all the answers right away tends to produce lots of critical moments that allow me, as the instructor, to maximize *learning opportunities*; learning on demand, which is how people tend to learn informally on the job. The need for more information in order to complete some task (especially one in which the learner has a vested interest) drives the desire to learn and tends to make the learning experience more meaningful. In addition, certain concepts and procedures remain abstract until experience makes them concrete so my intention was to create challenges throughout the project and through other related assignments, allowing issues to become apparent (and therefore concrete) before we discussed them in class.

I did not expect things to be perfect. From an instructional design standpoint, how much learning actually comes from perfection? Non-examples are a critical part of learning and the classroom is a safe place in which to learn from those things that don't work. Although many participants were skeptical that this project could be accomplished in 15 weeks, I had and continue to have faith in the process. I feel comfortable with and have experienced the value of a certain amount of imperfection while, at the same time, knowing the project can still succeed. This was something I wished to share with our students. This is the nature of our business and we are committed to providing our students with the skills they will need to be successful in the field. For many of us, instructional design and development is not just a job; it is a life-long passion and we do what we do for the learners.

I consider myself quite fortunate to have known people who have fueled my love of learning through the years. Many thanks to my friends and colleagues Tina Barnes, Vince Basile, Regina Bobak, Celina Byers, Dave Cerreta, Robyn Defelice, Helmut Doll, Beth Holmes, Karl Kapp, Eric Milks, Mary Nicholson, Richard Peck, Tim Phillips, Karen Swartz, and Kelly Woltornist. I would also like to thank a few other people with whom I have had the pleasure to work in various contexts. They have graciously shared their knowledge and wisdom, which I, in turn, have shared with our students: Hank Bailey, Robert Berman, Tom Brown Jr. as well as all the instructors and students at the Tracker School , Charles L. Chen (CLC-4-TTS), Kathy Ergot, Joel Holmes, Jonathan Jones, Gez Lemon (Juicy Studio), Kermit Mantz as well as all the scouts in Boy Scout Troop 50, Livio Mondini, Ben Mackiewicz, Amy McDaniel, Dave McFee, Julie Myer, Rebecca Ohl, Mike Phillips, T.V. Raman, Roberto Scano, Lisa Seeman, Sam Slike, and June Trudnak.

I especially want to thank the students, without whom this endeavor would never have come to fruition with a big thanks to Luis Vidal who is preparing the e-book for PDF and RTF formats and to Dave Cerreta for creating the title and web page graphics. I would like to take this opportunity to remind all the participants once again (as well as all those reading this), “Collaboration and teamwork can be a powerful thing. Have faith in yourselves and have faith in the process.”

I would also like to thank Josh Bersin and Jennifer De Vries for permission to use several charts as well as Bob Johnson for permission to use a graphic, all of which can be found in Chapter 2 - Instructional Design Models for E-Learning.

This e-book is dedicated in memory of Justin Bennett (1989-2006). It is also dedicated to those who love to learn as well as to those who inspire that love in others.

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Michael is a recent graduate of Bloomsburg University's MSIT program. He is currently pursuing a career in Web Design that utilizes his skills attained from his Bachelor Degree of Multimedia & Web Design from the Art Institute of Philadelphia. He enjoys freelance web design as well as many facets of graphic design and teaching others about it whenever he has the chance.

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Chontel would like to thank God first and foremost because she is truly blessed. She would also like to thank her mom who is always there for her, supporting her in everything that she does. “I love you so much, Mom, smooches!” - Chontel

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Brian really would like to express his heart felt thanks to his wife Robin, for putting up with him and his constant whining through this project. He would also like to thank his two girls, Jade and Kadyn, who had to tip toe around the house while he attended class online.

Daniel Hoffmaster

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Livio began his computer experience began a long time ago, on Windows for the 386, Pagemaker 1.03, the DTP, the Mac cost too much. His first publishing work was a volume on the Commodore 64, with Word 3. His Apple LaserWriter did not manage accented letters, which for the Italian language created delirium. A lot of time has passed since then; in computer time an eternity and much has changed, including the author. For over a decade, he has been busy in education and training for commercial and non profit organizations. Books have a natural evolution: he did not find suitable documentation and began to produce the course handbook independently. After a period in the technical support for Net, he decided to return to his main interest of books, and has created numerous Italian versions of manuals, mostly regarding the Web and Web-related tools. From there to cross meda it is a short but laborious jump... His recent jobs are listed on www.tiuvizeta.it.

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Roberto is the Advisory Committee Representative of IWA/HWG inside W3C and is an expert of user interfaces accessibility. He works as consultant for companies, for the Italian Government and for Public Administrations supporting the creation of accessible software and World Wide Web user interfaces and work for normative harmonization between countries and international standards consortium like W3C and ISO. He is a member of W3C's Web Content Accessibility Guidelines (WCAG) and Authoring Tool Accessibility Guidelines (ATAG) working groups as well as other numerous groups such as The European Design for All e-Accessibility Network (EDeAN) and the Italian National Standards Organization. In 2004, he wrote a web accessibility bible: "Accessibilità: dalla teoria alla realtà (Accessibility: from theory to reality); the first book in the world to be offered in a new format: the “Tetralibro” (4-in-1: paper version that contains also CD-ROM with three accessible version: XHTML, Accessible PDF and version for PDA with Microsoft Reader). He also developed a content management system (CMS), <fruibile /> - L'elemento che mancava(tm) (“the missed element”), the first CMS developed in ASP (Active Server Pages) that conforms to Italian accessibility law and also to the requirements of European Union. In 2006, he organized an ISO meeting in Venice and is working on two different ISO documents directly involved with ISO 9241-151 (Ergonomics of human system interaction — Part 151: Software ergonomics for World Wide Web user interfaces) and ISO 9241-171 (Ergonomics of human-system interaction — Part 171: Guidance on software accessibility).

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Rebecca is an Instructional Designer/Instructional Technologist with 8 years of experience in the Instructional Systems Design process. She has worked on paper-based, CD-ROM, and web-based delivery and is now delving into synchronous online delivery - but her motto still is - it's not the tool, it's the content and the audience. The content itself has included systems training, standards, customer service, analysis, system integration, and even problem solving. She has some experience in creating game-like scenarios for learners and is currently a member of the International Game Developer's Association

(IGDA), which allows her to gain the perspective of future tools for instruction, as well as, her changing audience. She is also helping pilot a Mentor's program at her company, Science Applications International Corporation (SAIC). In her spare time, Rebecca is usually reading, playing the latest RPG game, gardening, playing with her dogs, or discussing ISD with whoever will listen.

T. V. Raman

T. V. Raman is an accomplished Computer Scientist with over 11 years of industry experience in advanced technology development and now works at Google Research. He has authored 3 books and filed over 25 patents; his work on auditory interfaces was profiled in the September 1996 issue of Scientific American. He has leading edge expertise in Web standards, auditory interfaces and scripting languages. He participates in numerous W3C working groups and authored Aural CSS (ACSS); in 1996 he wrote the first ACSS implementation. He has led the definition of XML specifications for the next generation WWW including XForms, XML Events, and Compound Document Formats such as X+V, which enables the creation of multimodal Web content by integrating XHTML and VoiceXML. In his spare time, he works on EMACspeak, a fully functional audio desktop that provides complete eyes-free access to all major 32 and 64 bit operating environments and is now voluntarily bundled with all major Linux distributions.

About the Institute for Interactive Technologies (IIT)

The Institute for Interactive Technologies (IIT) at Bloomsburg University in Bloomsburg Pennsylvania was established in 1985 as a research and development group focusing on emerging interactive learning technologies used in corporations and government agencies. It is a consortium of faculty, staff, instructional designers and graduate students in Bloomsburg University's Department of Instructional Technology who write, research and consult within the field of instructional design.

This working consortium offers students practical hands-on experiences as they apply theoretical knowledge to real-life projects and, at the same time, fosters the development of effective and innovative instructional solutions for government, profit and not-for-profit organizations.

The Institute seeks to help business and government leaders to understand the impact of interactive learning technologies on their workforce, improve the performance and competitiveness of their organization, and provide a factual basis for sound instructional interventions.

The IIT undertakes such instructional technology projects as: designing workshops to convert stand-up trainers to web-designers, delivering distance education courses to five sister universities, designing interactive e-learning for a large cosmetics company, developing e-learning for several large healthcare companies, conducting a needs assessment for a utility company, conducting Return on Investment studies, and helping the Pennsylvania Department of Public Welfare to implement e-learning for over 7,000 employees.

Each of our efforts provide an opportunity to apply our technical capabilities to provide a solution to practical business issues and provides students within the Masters of Science in Instructional Technology program an opportunity to contribute to a project that is being used in the field.

To learn more about the Institute for Interactive Technologies consulting and development services or to enroll as a student in our on-line program or face-to-face program at Bloomsburg University, look us up on the World Wide Web at http://iit.bloomu.edu or call (570) 389-4506.

Karl Kapp

Chapter 1 – What is E-Learning?

This chapter contains information on understanding the fundamental concepts of e-learning. In this Chapter, e-learning is defined and the advantages and disadvantages of use are discussed. This chapter also describes corporate as well as the elementary and secondary use of e-learning and explores the impact of e-learning on the traditional school infrastructure.

- 1.1 Matt Comerchero introduces e-learning as a means of education that incorporates self-motivation, communication, efficiency, and technology.
- 1.2 Dan Hoffmaster relates the evolution from traditional face-to-face instruction to e-learning.
- 1.3 Kristy DelVecchio and Megan Loughney present some advantages and disadvantages of e-learning.
- 1.4 Cedrick Osavandi presents a case for using e-learning in the corporate world.
- 1.5 Ann Keiser Edler examines the uses of e-learning in the Pre-K-12 market and provides some recommendations for its success.
- 1.6 Ben Riley takes a look at the effect of e-learning on traditional educational institutions.

1.1 - Introduction

Matt Comerchero

E-learning is a means of education that incorporates self-motivation, communication, efficiency, and technology. Because there is limited social interaction, students must keep themselves motivated. The isolation intrinsic to e-learning requires students to communicate with each other and the instructor frequently to accomplish their assigned tasks. E-learning is efficient as it eliminates distances and subsequent commutes. Distance is eliminated because the e-learning content is designed with media that can be accessed from properly equipped computer terminals, and other means of Internet accessible technology.

E-learning is a flexible term used to describing a means of teaching through technology.

The different types of e-learning are based on:

- Means of communication
- Schedule
- E-learning class structure
- Technologies used

Means of Communication

There are several different means for individuals to communicate with each other and their instructor. E-learning can be conducted solely through on-line applications. In other cases, if distance is not a factor, some face-to-face communication can be included to create *blended e-learning*. Blended e-learning includes elements of web interaction and in-person interaction. Technology broadens the definition of *face-to-face* as there can be the use of two way video, and two way audio. Introducing these elements of participation create a blended e-learning experience.

Schedule

E-learning can either be Synchronous or Asynchronous. Synchronous means that real-time communication is implemented, such as video conferencing, teleconferencing, and on-line chat programs. Asynchronous indicates that other means of communication are utilized that do not require real time responses. Examples of asynchronous e-learning include; e-mail, list serves, threaded discussions, blogs, and on-line forums.

E-Learning Class Structure

E-learning class structure addresses how the instruction is administered. E-learning can be self-paced, instructor-led, or self-study with an expert. Self-paced instruction is administered by giving the learner the materials she needs to complete the training/instruction. Instructor-led training affords the learner a guide to implement the instruction. Self-study with an expert is a combination of self-paced and instructor-led. As in self-paced, the learner is responsible for staying on task and on schedule, however as in instructor-led, there is interaction with an authority figure that checks the learners' progress.

Technology

Technology used to implement instruction is not limited to web-based materials. E-learning can be achieved by utilizing any form of technology that sustains information yielding media. Video/Audio tape, aside from being an obsolete technology is a viable means to implement instruction. More current technology aids the learning experience because there are more means to convey the information. Technology is the most variable element in e-learning. The more advanced the technology becomes, the more options there are to further e-learning. The creation of the Internet subsequently created e-learning, as dial-up connections were replaced by cable modems, speed and bandwidth increased; correlatively the quality of on-line instruction improved because computers were able to support the media. As speed increases and devices become smaller and more mobile; training will become more flexible and further boost the growth and popularity of e-learning.

The topics mentioned previously are not mutually exclusive; they can be used in any combination to create the best instruction possible. Given e-learning's conceptual versatility and advancing technology, e-learning currently has increasingly limitless potential.

1.1 References

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1.2 – The E-Learning Evolution

Dan Hoffmaster

Up until about ten years ago, training was not done in front of a computer, but in the classroom with a qualified trainer. As technology improved, companies began to integrate training with the computer and the field of e-learning began to take shape.

In the early 1990s, many companies were using videotape-based training for their employees. At this point, the industry "...represented a very small market and lacked the 'scalability' that is so important in today's applications." (Cooke, 2004) The idea of putting training on video was a good idea, though it was lacking in a few areas (1) Customization based on needs of users, (2) Expensive to maintain and (3) Could not be upgraded easily. There is also the issue of employees having to hunt down the proper equipment in order to watch the videos. These videos often had limited interactions which lead to the nearly impossible task of tracking progress and assessment. (Cooke, 2004)

Since it was obvious that video was not the best solution, a new form of training evolved, CBT or Computer Based Training. "Windows 3.1, Macintosh, CD-ROMs, PowerPoint marked the technological advancement of the Multimedia Era" (Kiffmeyer, 2004). CD-ROMs could be cheaply produced so that the problem of checking in and out videos was eliminated. Employees would also be able to simply pop in a CD to their personal computer at their desk and complete the training.

Although the CD-ROM Computer-Based Training made advances toward the better, it still lacked the ability to track employees' performance in a central database and was also not as easy to upgrade. All these problems would disappear with the use of the Internet as a means of delivering content. The problem was, when the content was placed on the web, it was simply text to begin with and maybe a few graphics. "No one really cared about the effectiveness of this new medium – it was just really cool." (Cooke, 2004)

People in the field of e-learning began to realize that you simply can not put information on the web without a learning strategy for the users. "...In order for technology to

improve learning, it must 'fit' into students' lives…not the other way around. As a result, e-learning was born." (Clark, 2002)

One of the first innovations in actual e-learning was the LMS or Learning Management System. "The first Learning Management Systems (LMS) offered off-the-shelf platforms for front-end registration and course cataloging, and they tracked skills management and reporting on the back-end." (Clark, 2002) This enabled schools and companies to place courses online and be able to track students' progress, communicate with students effectively and provide a place for real-time discussions.

The eClassroom evolved shortly after, which are "...web-based synchronous events with integrated CBT and simulations." (Clark, 2002) Centra is a great example of an eClassroom that is used quite often today. eClassrooms are often called Live Instructor-Lead Training or ILT. "Live instructor-led training (ILT) via the Web can be combined with real-time mentoring, improved learner services, and up-to-date, engaging "born on the Web" content to create a highly-effective, multi-dimensional learning environment." (Kiffmeyer, 2004)

E-learning has come a very long way since its early days of being text-based via the Web or CD-ROM. So what does the future hold? There really is no saying where the field is headed. As long as training is continually geared towards the learners and strategies are used in the training, there is no end in sight for e-learning.

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1.3 Advantages and Disadvantages of E-Learning

Kristy DelVecchio and Megan Loughney

Advantages of E-Learning

E-learning is beneficial to education, corporations and to all types of learners. It is affordable, saves time, and produces measurable results. E-learning is more cost effective than traditional learning because less time and money is spent traveling. Since e-learning can be done in any geographic location and there are no travel expenses, this type of learning is much less costly than doing learning at a traditional institute.

Flexibility is a major benefit of e-learning. E-learning has the advantage of taking class anytime anywhere. Education is available when and where it is needed. E-learning can be done at the office, at home, on the road, 24 hours a day, and seven days a week. . E-learning also has measurable assessments which can be created so the both the instructors and students will know what the students have learned, when they've completed courses, and how they have performed.

Students like e-learning because it accommodates different types of learning styles. Students have the advantage of learning at their own pace. Students can also learn through a variety of activities that apply to many different learning styles learners have. Learners can fit e-learning into their busy schedule. If they hold a job, they can still be working with e-learning. If the learner needs to do the learning at night, then this option is available. Learners can sit in their home in their pajamas and do the learning if they desire.

E-learning encourages students to peruse through information by using hyperlinks and sites on the worldwide Web. Students are able to find information relevant to their personal situations and interest. E-learning allows students to select learning materials that meet their level of knowledge, interest and what they need to know to perform more effectively in an activity. E-learning is more focused on the learner and it is more interesting for the learner because it is information that they want to learn. E-learning is flexible and can be customized to meet the individual needs of the learners.

E-learning helps students develop knowledge of the Internet. This knowledge will help learners throughout their careers. E-learning encourages students to take personal responsibility for their own learning. When learners succeed, it builds self-knowledge and self-confidence in them.

Educators and corporations really benefit from e-learning. Learners enjoy having the opportunity to learn at their own pace, on their own time, and have it less costly.

Web-based Examples

You can check out some examples on the Web:

Benefits of E-Learning

- http://www.exomedia.ca/elearning/benefits.cfm

Why E-Learning

- http://www.study-center.com/welearn.asp

Key Benefits of E-Learning

- http://www.mindiq.com/elearning/dac/key_benefits.html
- http://knowledgenet.com/corporateinformation/ourhistory/history.jsp
- http://www.elearners.com/resources/elearning-faq8.asp

Disadvantages of E-Learning

Next we look at the disadvantages of e-learning. One disadvantage of e-learning is that learners need to have access to a computer as well as the Internet. They also need to have computer skills with programs such as word processing, Internet browsers, and e-mail. Without these skills and software it is not possible for the student to succeed in e-learning. E-learners need to be very comfortable using a computer. Slow Internet connections or older computers may make accessing course materials difficult. This may cause the learners to get frustrated and give up. Another disadvantage of e-learning is managing computer files and online learning software. For learners with beginner-level computer skills it can sometimes seem complex to keep their computer files organized. Without good computer organizational skills learners may lose or misplace reports causing them to be late in submitting assignments. Some of the students also may have trouble installing software that is required for the class.

E-learning also requires just as much time for attending class and completing assignments as any traditional classroom course. This means that students have to be highly motivated and responsible because all the work they do is on their own. Learners with low motivation or bad study habits may fall behind. Another disadvantage of e-learning is that without the routine structures of a traditional class, students may get lost or confused about course activities and deadlines causing the student to fail or do poorly.

Another disadvantage of e-learning is that students may feel isolated from the instructor. Instructions are not always available to help the learner so learners need to have discipline to work independently without the instructor's assistance. E-learners also need to have good writing and communication skills. When instructors and other learners aren't meeting face-to-face it is possible to misinterpret what was meant.

1.4 E-Learning and the Corporate World

Cedrick Osavandi

E-Learning makes Business Sense

Since the conventional *distance learning* that utilized television and radio to broadcast a topic to a number of people in different locations at different times, the various forms of learning have evolved greatly. Through the immense increase in technological innovation we have far surpassed the conventional method of *classroom learning* and are now able to deliver lessons directly into people's homes, offices, or any other location that is accessible by way of technology. Can e-learning be the solution to keep people in sync with the rapidly changing corporate world? Corporations are using e-learning as a means of quickly communicating business-critical information across organizations and across the country.

Corporate E-Learning

E-learning within the educational industry provides educators and learners with a solution to their specific needs; e-learning for corporations addresses the business world's specific requirements. Quickly communicating a business-specific concept, training various departments across the country at the same time, introducing a new product into the company, those are just some of the business specific applications of e-learning in the corporate world.

The Cost (Savings!!!)

Corporations are constantly looking to increase efficiency and effectiveness. Being able to educate employees while keeping them on the job is extremely valuable to any business. A well-structured e-learning solution is the answer that supports the overall business objective. With technology evolving at its current pace, the bounds of e-learning are virtually limitless. Being able to train employees from different departments within different locations throughout the country has become a commonly applied training procedure in today's world. On-the-job training, for individuals or groups, is replacing in-person training sessions. Utilizing the advances in mobile technology, e-learning can now be employed on various handheld devices and PDAs. The mere travel cost savings that are realized make this an invaluable tool. Overall, e-learning has proven it is here to stay! Future advances in technology will provide the learners with even more interactivity and simulations, which will help maximize learning.

Comfort and Convenience

Enabling employee's access to training materials on the job has also increased job satisfaction enormously. This intern heightens worker motivation and results in increased

work performance. Picture yourself being able to sit comfortably at your desk while completing the newest training module on your companies' newest product. The learning program enables you to review the information as often as you like, move forward and backward through the instruction at the pace you are comfortable with. This adds to the countless benefits a corporation can realize through the successful use of e-learning.

The Bottom Line

While it has taken some time for the business world to jump on the bandwagon, E-learning is here to stay and will only become more advanced and more widely used. E-learning is a must for any successful corporation and offers limitless opportunities to those who use it wisely. In the business world everything culminates to the bottom line: Profit! Employing a successful e-learning strategy allows a corporation to cut costs tremendously, while increasing workplace satisfaction and raising employee motivation. All this lets you wonder where the future of e-learning will take us!

1.5 E-Learning in the Pre-K-12 Market

Ann Keiser Edler

E-learning has been used at the post-secondary level, corporate, and government levels for many years. Siphoning down the educational funnel, e-learning is quickly gaining popularity in the Pre K-12 market. E-learning is gaining popularity among the educational community as schools search for ways to meet the standards set forth in the No Child Left Behind policy. While it is early to draw conclusions about the effectiveness of e-learning in the PreK-12 market, one thing for certain is that local school districts will have to adapt and incorporate E-learning into their curriculum offerings.

According to data from the National Education Technology Plan 2004 by the US Department of Education, “At least 15 states provide some form of virtual schooling to supplement regular classes or provide for special needs. Hundreds of thousands of students are taking advantage of e-learning this school year. About 25 percent of all K-12 public schools now offer some form of e-learning or virtual school instruction.” (page 34) The federal government predicts that in the next decade a majority of schools will be on board and offering distance-learning classes to students.

Success or Failure

Early research indicates that online classes are an effective means for delivering education to the Pre K-12 market. Students in the market have a positive attitude toward online instruction, having grown-up surrounded by the technology used in instruction, primarily computers and the Internet. (United States Distance Learning Association [USDLA], 2006) In a 2004 report, The Effects of Distance Education on K-12 Student Outcomes: A Meta-Analysis found that distance education had the same effect on

measures of student academic achievement when compared to traditional instruction. (Cavanaugh, Gillam, Kromrey, Hess, and Blomeyer, 2004). Students enrolled in virtual Advanced Placement courses are experiencing a high success rate. (Solomon, 2005)

However, there is data indicating that e-learning or virtual schools are not making the cut. 2003 proficiency data from students who attended Pennsylvania's six cyber schools were below the state average. Data from Colorado indicates that the attrition rate may be higher for students in virtual schools than of traditional schools. In addition, a higher percentage of students were rated as *unsatisfactory* in math when compared with the state average. (Solomon, 2005)

Meeting Needs

E-learning is used to meet the needs of special groups of students which may be, homebound, home schooled, incarcerated, or child entertainers, athletes or models. In addition, e-learning often allows students to adapt the material to meet their individual learning requirements.

School districts are quickly adopting e-learning. Right now, it is up to the states and individual school districts to develop the policy when adopting e-learning into their curriculum. Some school districts use online classes to offer additional classes that are not available in the general curriculum while other school districts use e-learning in an attempt to reach students who may be in danger of dropping out of high school or need to repeat a class to fulfill graduations requirements.

E-Learning in Lower Grades

As might be expected, there is a lot of debate concerning the use of e-learning for students younger than middle school. Opponents of e-learning claim that students who are younger than 12 do not have the necessary cognitive abilities to learn via a strict e-learning environment. Opponents are also concerned about the social development of young students and claim that young students in an e-learning environment will fail to develop appropriate social skills.

An emerging solution is what we call blended learning. In a blended learning environment, students do part of their instruction online, supplemented with face-to-face interaction in the traditional classroom environment. Curriculum designed within the *blended* learning environment hopes to incorporate strengths of both e-learning and the traditional classroom to assist student learning.

Recommendations

States and school districts must develop effective policy to prepare for and incorporate e-learning into curriculum offerings. Policy issues cover a range of topics including:

- Teacher certification
- Credit for classes
- Class ranking
- Quality of online instruction
- Funding
- Alignment of online instruction with national and state standards
- Student access to equipment and Internet
- Evaluation of e-learning courses and materials
- Teacher training
- Accessibility for students with disabilities

Recommendations in regards to e-learning from The National Education Technology Plan for states and schools districts include:

- Provide every student with access to e-learning
- Enable every teacher to participate in e-learning training
- Encourage the use of e-learning options to meet No Child Left Behind requirements for highly qualified teacher, supplemental services and parental choice.
- Explore creative ways to fund e-learning opportunities.
- Develop quality measures and accreditation standards for e-learning that mirror those required for course credit. (page 42)

1.5 Summary

E-learning will continue to become more thoroughly integrated into the preK-12 market. E-learning will enable schools to offer more classes to their students, make learning more flexible to meet individual needs and help schools meet the requirements of No Child Left Behind. While the data is still being collected on the success of e-learning, proactive schools will prepare for the future by investing in the technology and teacher training necessary to develop and implement e-learning.

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1.6 E-Learning and the Demise of Brick-and-Mortar Schools

Ben Riley

“Thirty years from now the big university campuses will be relics. Universities won't survive... It's as large a change as when we first got the printed book.” (Clayton, 2000) There is now a huge increase in online education that is fueled by learners who don't fit the stereotypical mold. There are learners who might work during the day and aren't close enough to a university and would rather take the courses from the convenience of their own home. Others might have children or family obligations that prevent them from making the trip to a formal classroom setting. The shift in our culture lends itself to being more suited toward online learning environments.

E-Learning, or distance learning, has progressed through the years from VHS video tapes that were sent through the mail, to elaborate synchronous online meeting tools through the internet. Now the response time is much quicker, results are tabulated faster and learners get through material at a rapid pace.

The ideal of one-on-one instruction is not practical in today's classrooms. It is neither efficient nor practical with the massive amounts of students being crammed into classrooms now. “A computer can give you more one-on-one interaction than a human can when that human has 30 other humans to deal with. In a classroom, people who are curious, inquisitive, and questioning take up too much time.” (Galagan, 2000) Students prefer the online environment because they can question the professor or experiment with a project without fear of ridicule by other students.

The e-learning initiative is relatively easy and inexpensive to get involved in. Many people are afraid to get involved with e-learning programs because they think there will

be too many obstacles to overcome. There are really only two things required to get involved in an e-learning program (Rossen, 2001):

- Desktop or portable computers for learners (in the workspace or in the lab)
- Access to the Internet

How does this growing trend fit into the corporate arena?

The corporate sector is made up of a lot of stand up training, but is slowly moving to CBT. Computer-Based Training is an uncharted map for the corporate sector. “Corporate trainers better figure out how to be part of that,” warns Schank. “The ones who are part of the ancient system [of classroom training] are going to watch that ancient system disappear on them.” (Galagan, 2000)

Companies must reexamine their core processes, which includes customer service and employee management. They must see it through the eyes of someone implementing an e-learning system. Certain things that have worked in the past might not work once there is a system of e-learning in place.

“What do a former junk bond king, a real estate tycoon, and a Wayne Huzenga wannabe have in common? They're all major stakeholders in new companies that have entered the training market in the past five years. And they are just the tip of the iceberg. A flood of entrepreneurs and their management teams are emigrating from formerly hot market niches in the industrial economy to superheated niches in the knowledge economy.” (Galagan, 2000) This *knowledge economy* seems to be attracting the attention of investors around the globe. Certainly there is some validity in the in the corporate e-learning programs. Stand up training could become a thing of the past in some global companies.

There is a new idea of the *connected economy* and the niche that e-learning can find in an economy where networked computers can and do directly affect the market for goods and services. (Sloman, 2001) This is another factor that reduces the amount of stand up training today in the corporate sector.

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Chapter 2 - Instructional Design Models for E-Learning

- 2.1 Robert Dunkleberger shows that Instructional Design Models permit us to feel confident in a proven process that we undoubtedly know will achieve the objectives of any training. It is simply up to you to understand your objectives well enough to pick the right model to meet your assessed needs.
- 2.2 Ryan Noel invites you to consider the learners first when designing and developing e-learning, and to put yourself in the position of the learner. Furthermore, the philosophy suggests you incorporate the needs of the learners throughout the entire design and development process.
- 2.3 Robert Dunkleberger discusses growth within the e-learning industry towards this model and its ability to minimize knowledge gaps within a short period of time from concept to implementation. Despite its popularity, the article discusses the importance of understanding when it is and is not appropriate to utilize Rapid E-Learning as your instructional design model.

2.1 Instructional Design Models for E-Learning

Robert Dunkleberger

“To a large degree, Instructional Design is the process whereby learning, not technology, is kept at the center of e-learning development.” (Siemens, 2002)

At the root of Instructional Design and/or Instructional Design Models, is a systematic process that Instructional Designers should follow in order to achieve the creation of efficient and effective instruction. Or more simply put, Instructional Design (ID) “is a framework for learning” (Siemens, 2002). This framework asks the Instructional Designer to assess the desired outcomes of the learning and begin to apply an ID model that is most appropriate to assist in achievement of these desired outcomes. Despite some ID models being quite generic in nature, they are incredibly popular and capable because they present a very effective, yet general, model to build various types of instruction to meet different objectives in learning.

Below you will see a variety of popular models listed. These items do not attempt to outline the specifics of any Instructional Design model, but rather serve to convey the variety and possible application of these models to your specific instructional task. As you may notice, or soon come to learn, most of these models can be modified to meet your specific needs. Their systematic *frameworks* allow you to borrow from their strengths and retrofit several models to meet your differing needs.

ADDIE (Assess – Design – Develop – Implement – Evaluate)

- Very generic, yet very successful
- Probably one the most followed models

Algo-Heuristic

- This theory suggests all cognitive activities can be analyzed into operations of an algorithmic (measure of complexity), semi-algorithmic, heuristic (computational method), or semi-heuristic nature.
- Once these operations are determined, they can form the basis of instructional strategies and methods.
- “Don't just teach knowledge, but the algorithms and heuristics of experts as well.”

Dick and Carey Model

- Breaks instruction down into smaller components
- Used to teach skills and knowledge

Robert Gagné's ID Model

- Gagné's Nine Events of Instruction
    1. Gain Attention
    2. Inform learners of objectives
    3. Stimulate recall of prior learning
    4. Present the content
    5. Provide *learning guidance*
    6. Elicit performance (practice)
    7. Provide feedback
    8. Assess performance
    9. Enhance retention and transfer to the job

Minimalism

- Developed by J.M. Carroll
- Framework to design instruction specific to computer users
- Learning tasks should be meaningful and self-contained activities.
- Learners should be given realistic projects.
- Instruction should permit self-directed reasoning and improvising.
- Training materials and activities should provide for error recognition and recovery.
- Provide a close linkage between the training and actual system.

Kemp, Morrison, and Ross

- Nine step instructional design model
    1. Identify instructional problems.
    2. Examine learner characteristics.
    3. Identify subject content.
    4. State instructional objectives.
    5. Sequence content within each instructional unit for logical learning.
    6. Design instructional strategies.
    7. Plan the instructional message and delivery.
    8. Develop evaluation instruments to assess objectives.
    9. Select resources to support instruction and learning activities.

Rapid Prototyping (Rapid E-Learning)

- Learners and/or subject matter experts interact with prototypes and instructional designers in a continuous review and revision process.
- Development of a prototype is the first step.
- Analysis is continuous throughout the process.

Empathic Instructional Design

- 5-step process (Siemens, 2002)
    1. Observe
    2. Capture data
    3. Reflect and analyze
    4. Brainstorm for solutions
    5. Develop prototypes

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2.2 Applying User-Centered Design to E-Learning

Ryan Noel

"User-Centered Design is an approach to creating experiences for people with their needs in mind." - Nate Shedroff (Evans, 2002)

Essentially e-learning is a product. Quality e-learning takes a significant amount of time and thought to develop. However, if the e-learning product produced is not useful to the end-users it is a failed product. The majority of design models incorporate the end-user in the beginning of the design process when analyzing the need and at the end during the testing and evaluation of the product. This may result in the discovery of an unusable product and the design cycle will need to be repeated, similar to rapid-prototyping. However, incorporating User-Centered Design within the design model will ensure a product that is useful, usable, and meaningful to the end-user and allow for shortened development cycles (Evans, 2002).

What is User-Centered Design?

"Peter Merholz: Contrary to common wisdom, user-centered design is not a process, but a philosophy. User-centered design requires the inclusion of a product's end-users throughout the design process." (Evans, 2002)

"Nate Shedroff: User-Centered Design is an approach to creating experiences for people with their needs in mind. Usability is one of the primary foci but only one of several. Others include usefulness, desirability, legibility, learnability, etc. The benefits are that these experiences are often easier to use and learn; more appropriate in terms of function and use, and more compatible with existing processes." (Evans, 2002)

"Principally, user-centered theory argues for the user as an integral, participatory force in the process. Users are encouraged and invited to *have a say*, in other words, and thus they are physically or discursively present in the decision-making process..." (Johnson, 1998, p. 30-32).

The user-centered process places the user as an active participant in the design of the product. The process is best summarized in the following figure.

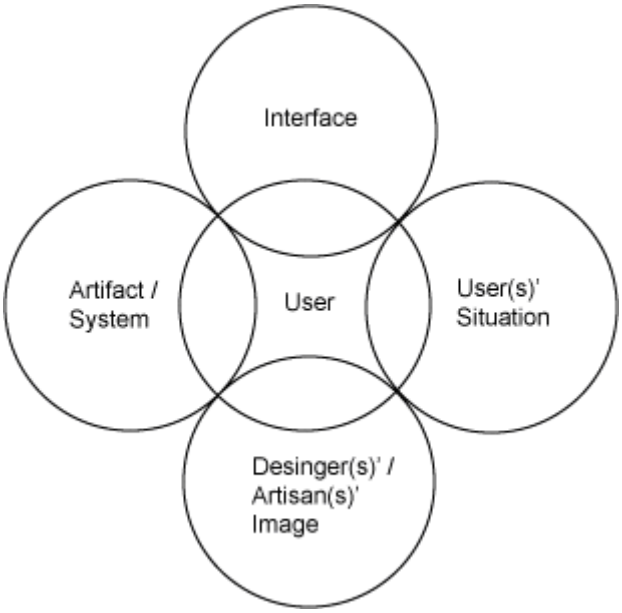

Figure 1: The User-Centered Model (Johnson, 1998, p. 30) Used with permission.

The user's situation can be explained as the totality of an end-users experience with a product (Evans, 2002), it encompasses the user activities of learning, doing, and producing (Johnson,1998, p. 31) and the experiences the user encounters in those activities such as emotions, time, social context, etc. (Evans, 2002)

How can User-Centered Design be incorporated in the creation of e-learning?

After the need, target audience, and a basic e-learning solution have been determined the design process begins. This is a great opportunity to start actively involving the end-user of the learning in the design process. The initial step can be accomplished through various forms of inquiry each with its own advantages and disadvantages, such as interviews, focus groups, and questionnaires/surveys. Questions should focus on pre-design issues such as:

- Do you have any experience with the following e-learning platforms? Or please rate your experience with the following e-learning platforms.
- How would you accomplish the goal of this solution using e-learning?
- How do you learn best (include examples, such as short lessons vs. longer lessons, visually, case-studies, etc.)?
- What motivates you to learn?
- Include a pre-test of users' technology skills and experience with the e-learning content to be provided in the solution.

By no means is this list exhaustive. The goal is to include the users in the decision-making process. This may mean, as a designer, you need to educate the users on some e-

learning aspects, such as synchronous vs. asynchronous platforms, features and examples of e-learning interfaces, etc. However, you should not attempt to dissuade the user from one platform in favor of another, let the user make their decisions and use this input in the design decision.

The steps to include the user after the design decision has been made can vary based on the situation. If the e-learning solution is a large project you may want to incorporate the users as often as possible, but overall getting feedback on storyboards and navigation, continually conduct tests of the product with users, run them through tasks, and form a set of tests, use all this to highlight problems with the e-learning product and let the users suggest recommendations for improving the usability (Evans, 2002).

2.2 Summary

Users are often the best judges of a product but are often voiceless during the design process resulting in a finished product that will never be used. User-Centered Design is a philosophy, that on paper seems like a lot of extra steps in the design process, but once implemented and followed can save a lot of time and other resources by ensuring a useable product. Although User-Centered Design is not often viewed as a necessary process in the field of learning design, it is of the utmost important that the implemented e-learning be usable by the end-user in order for learning to occur. In the end, User-Centered Design is very effective and efficient in creating useable learning products.

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2.3 Rapid E-Learning – Accomplishing *more with less*

Robert Dunkleberger

“Rapid E-Learning changes the development model, leverages new tools, and dramatically changes the economics of content development.” – Jennifer De Vries (De Vries & Bersin, 2004)

What Is Rapid E-Learning?

As we continue to experience growth within Internet-based technologies as well as human competencies in the use of these technologies; we see sustained growth in the area of e-learning to help meet the ever-changing needs of people and organizations. Rapid Prototyping, or Rapid E-Learning, is one approach to the development of learning content that has experienced exponential growth. Through a survey conducted in 2004, 89% of organizations need to develop e-learning in three weeks or less (De Vries & Bersin, 2004). The instructional design model called Rapid E-Learning begins to answer the needs of these people and their organizations.

A variation of the ADDIE model (Assess, Design, Develop, Implement, Evaluate), Rapid E-Learning "borrows from the most valuable aspects of this systemic approach" (Kruse). It allows instructional designers, subject matter experts, and Instructional Developers to quickly determine the objectives of the training and develop a prototype of that training.

Rapid E-Learning Model

As part of the Rapid E-Learning Model, constructing and utilizing the prototype is done concurrently with the later part of the *Assess Needs and Analyze Content* stage and the *Set Objectives* stage. The *Construct Prototype* and *Utilize Prototype* stages form a loop in which multiple utilizations of prototypes provide feedback for the construction of ensuing multiple prototypes. (Hoffman & Margerum-Leys)

In developing a prototype so early in the design phase, it enables all those invested in the training to visualize and evaluate what the final product truly needs to resemble. This approach helps by developing a possible product while not investing a large amount of time and money. More emphasis can then be placed on the evaluations of the prototypes to help ensure good sound instructional content.

When Rapid E-Learning is the Right Direction

In order to successfully design, develop, and implement e-learning, it is important to identify the appropriate instructional design method to use based upon the objectives and needs of your training. There may be industry growth towards the utilization of the Rapid E-Learning model, but is it the right model to meet your needs?

Rapid, Traditional, and Strategic E-Learning

Category	Development Timeframe	Budget for Development	Developed by ...
(De Vries & Bersin, 2004) Used with permission.			
Rapid	< 3 weeks	Staff of 1 to 3 professionals and little or no budget	SMEs with templates and training professional guidance
Traditional	3 to 11 weeks	$5,000 to 30,000 per instructional hour	Training professionals such as Instructional Designers, Instructors, Course Authors, etc.
Strategic	12+ weeks	Often blended costs can go higher.	A cross-functional team that includes HR, Instructional Design and others.

Rapid E-Learning:

- Responds to an URGENT training need (i.e. product launch or competitive situation)
- Developed in less than 3 weeks
- Creates training that has little long-term usefulness
- Has a small budget
- Makes use of authoring tools (i.e. PowerPoint)
- Is developed with internal staffing (1-3 professionals)
- Is developed by subject matter experts by template tools

Traditional E-Learning:

- Focuses on learners acquiring necessary skills (i.e. needs analysis)
- Developed in 3 to 11 weeks
- Is part of an organizations annual training plan ($5000 - $30,000/instructional hour)
- Offers preparation for professional certification programs
- Results in decisions being made whether to build or buy the training to make efficient use of the training budget
- Is developed by internal and external staffing (instructional designers, instructors, etc)

Strategic E-Learning: (De Vries & Bersin, 2004)

- Developed in conjunction with an organizations development or change strategy (i.e. long-term training needs) (12+ weeks)
- Has a substantial cost structure to produce
- Designed to be deployed in phases over a period of time
- Developed by cross-functional teams (i.e. employees and/or contractors)
- Often blended learning (i.e. combination of classroom, workshops, instructor led, conference calls, and other media)

When to Consider the Use of Rapid E-Learning

The following bullets may help further explain when to consider the use of Rapid E-Learning and a possible delivery method for the instruction (Bersin, 2005). As you will notice from both these and the previous bullets, Rapid E-Learning is not always the instruction design model to answer your training needs. It is always important to assess the needs of your organization and then design the instructions to meet those needs; this includes you method of developing the instruction.

To Generate Awareness:

- Read and Listen
    - Email, conference call, rapid e-learning

To Recall Information:

- Read, listen, discuss, and answer multiple-choice questions
    - Rapid e-learning

To Apply Knowledge to Specific Situations:

- Read, listen, discuss, case study or simulation-based practice
    - Rapid e-learning (sometimes) or traditional e-learning, including case studies, labs, simulations, and assessments.

To Master the Knowledge and Become an Expert:

- Strategies from applying knowledge (above) and practical experiences and testing
    - Traditional or strategic e-learning plus real-world experience with coaching and mentoring.

Bloom's Taxonomy & Media Selection

Category	Example	Instructional Strategies	Delivery Method
(Bersin, 2005) Used with permission.			
Awareness	There is a new pricing model being announced and here it is.	Read, listen.	E-mail, conference call, rapid e-learning.
Recall	Learn to tell your customers about our new pricing model.	Read, listen, discuss and answer multiple-choice questions.	Rapid e-learning.
Application	Learn how to apply the multifaceted pricing model to your customer's situations.	Read, listen, discuss, case study or simulation practice.	Rapid e-learning (sometimes) or traditional e-learning, including case studies, labs, simulations and assessments.
Mastery	Become a recognized pricing expert in the regional sales office, with authority to give discounts.	The application-level strategies, plus practical experiences and testing.	Traditional or strategic e-learning, plus real-world experience with coaching or mentoring. May include certification testing.

Rapid E-Learning and the Models for Delivery

Rapid E-Learning asks us to contemplate two models of delivery for your training that may be used: self-paced or live training. The bulleted items below will help you to understand which approach is right for your objectives. Again, it is very important to understand the needs of your organization as well as the needs of your learners before making this decision.

When to use Self-Paced	When to use Live
• Hard to schedule learners into scheduled sessions • Learners work at home or off-hours • SME is not available to teach • Low bandwidth or no connectivity • Widely varied prerequisite skills.	• Need structure to drive attendance • High value placed on SME or peer interaction. SME's are experts, celebrities, or key managers. • Attitudinal or soft-skill objectives that would benefit from discussion • Audience discomfort with e-learning in general.

Figure 2: (De Vries & Bersin, 2004) Used with permission.

Self-Paced (asynchronous): (De Vries & Bersin, 2004)

- Difficult for learners to schedule (set a specific time) a session.
- Learners work via the home or non-standard hours.
- Subject matter expert is not able to teach at a specific time.
- Internet connectivity and speeds are issues.
- Learner's prerequisite skills vary.

Live (synchronous): (De Vries & Bersin, 2004)

- Traditional-like classroom structure is appealing to learners.
- Perception of subject matter expert/instructor is quite high.
- Synthesis of information is viable with learner discussions.
- Learners may be new to e-learning.

Tools Used to Build Rapid E-Learning Training

Before choosing a tool it is important, first, to understand what the objectives entail (i.e. learners' needs, presentation method, etc) and then choose the best tool to complete the task. In building instruction through the Rapid E-Learning Model there are several tools available for you to use. I've mentioned a few of them below, but I am sure that my list is less than complete.

Microsoft PowerPoint

- http://office.microsoft.com/en-us/FX010857971033.aspx

Macromedia Breeze

- http://www.macromedia.com/software/breeze/

Macromedia Captivate

- http://www.macromedia.com/software/captivate/

Articulate Rapid E-Learning Studio

- http://www.articulate.com/

Articulate Presenter

- http://www.articulate.com/

Brainshark (Bersin, 2005)

- http://www.brainshark.com

CourseAvenue (Bersin, 2005)

- http://www.catavo.com

These Rapid E-Learning tools are "designed for simplicity and integration with desktop applications such as PowerPoint" (Bersin, 2005). One of your objectives may be to build AICC, SCORM, or Section 508 compliant training. If that is the case, make sure your tool of choice truly can output instructional content that is compliant to these standards. Additionally, you may require the capabilities to build assessment at the end of your training modules. Always make sure to evaluate the assessment capabilities of your chosen tool before beginning development.

2.3 Summary

A contemporary business philosophy held by many executives and administrators is to *do more with less*. In some respects technology has enabled us to accomplish more with less. I believe the *more* indicates the faster pace at which organizations now operate. The *less* is representative of stretching budgets to help meet the needs of the *more*. A recent survey of e-learning developers indicated that their "biggest challenge continues to be time. Developers and managers complain that development times are too long and they lack trained resources to get programs developed." (De Vries & Bersin, 2004)

Rapid E-Learning, as an instructional design model, borrows from the proven and systematic approach of instructional design and the ADDIE model. It allows organizations with certain needs to develop e-learning at a much faster pace while minimizing the investment of capital to accomplish the tasks. For example, pharmaceutical companies can truly benefit from the use of Rapid E-Learning because of the pace of product releases and the need for sales representatives to quickly become familiar with these new products. They are already familiar with pharmaceutical sales. They just need to become knowledgeable on new product offerings. Another example would be technology companies that develop and release new products. Their sales force is already familiar with the company and their current product offerings. They would just need to become familiar with the new products being manufactured and sold.

My last example is on e-learning within education. Many institutions lack the necessary resources to build e-learning content to either offer complete courses online or supplement classroom courses. Rapid E-Learning helps to put the tools in the hands of the subject matter expert in an attempt to leverage technology and knowledge to build quality e-learning content in a short period of time.

Over the next several years, the market for e-learning tools is expected to “grow at a rate of 80%”. (Bersin & Vries, 2004) This indicates growth within the Rapid E-Learning market and the markets focus on tools that are capable of *doing more with less*.

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Chapter 3 – E-Learners

- 3.1 Ann Kieser, Kathy Kollar and Julie Schmidt discuss various types of e-learners as well as characteristics that draw people to e-learning.
- 3.2 Julie Schmidt relates ways to be a successful as an e-learner or e-instructor.
- 3.3 Brian Heisman explains some potential dangers e-learners may not be aware of when networking and sharing information on the Web.

3.1 E-Learners

Ann Kieser, Kathy Kollar and Julie Schmidt

An Introduction to E-Learners

According to Iowa State University (2001), e-learning can be defined as "web-delivered and/or web-supported teaching and learning using computer, multimedia, and internet technologies." Therefore, e-learners are those students that participate in the e-learning process.

You might be asking yourself, yes, but how prominent is e-learning and how many e-learners are actually out there? The answer is probably more than you think. Some statistical studies have shown that the amount of e-learners drastically increases with each and every school year. For instance: according to a 2000-2001 school year study, 56% of two and four year colleges offered distance education courses. An addition, 12% of those colleges not included planned on starting to offer these e-learning courses within the near future. ("Educational technology fact sheet") Keep in mind that this study occurred in the year 2000, which is over six years ago.

E-learners do not just encompass college enrolled students. An astonishing one third of public school districts offered some form of distance education for their students. These school districts include e-learners of the elementary and secondary level. ("Educational technology fact sheet")

As you will see throughout this chapter, e-learners exhibit a variety of characteristics and styles. Topics discussed will include gender, age, and location of e-learners. Other areas include characteristics with even a section dedicated solely to, *Is e-learning right for you?* Also mentioned is netiquette, a commonly ignored, though very important piece regarding successful e-learners.

E-learning is a unique and relatively new concept as far as learning is concerned. Though important, without e-learners, e-learning would not be able to flourish. So much is dependant on e-learners for making this new form of distance learning a success.

Netiquette

E-learners are faced with many academic challenges, including the act of being highly self-motivated and self-disciplined. E-learners must also demonstrate an ability to be comfortable with participation, open-mindedness, and communication. Netiquette or universally known as *internet etiquette* is an often overlooked, though extremely important aspect in becoming a successful e-learner.

Netiquette is commonly practiced within group situations, or more specifically during class or small group meeting times. It is the etiquette of the Internet, or what may be a certain practice or tolerable behavior when participating in online situations. Though many have their own idea of etiquette, there are common guidelines that will make your e-learning experience more successful and rewarding for both yourself, and all participants.

Iowa State University states that following these specific netiquette guidelines will aid in your success as an e-learner. (“Netiquette for eLearners”)

- Respect other participants
- Don't type in ALL CAPITAL LETTERS
- Be careful with humor
- Respect people's time and bandwidth
- Only post relevant items
- Be forgiving
- Represent yourself well
- Be brief, precise, and clear
- Be quick, and don't monopolize the chat
- Be prepared

As with any other situation, one must remember the golden rule, or “treat others the way you would like to be treated.” This can be put in simpler terms; in fact one word may suffice; that word is *RESPECT*. E-learners must be aware that there will be some, if not many, situations during discussions where they may disagree with what is said or posted. Of course one may not always agree or even pretend to agree, but e-learners must be particularly careful when offering constructive criticism. People can often misconstrue comments or ideas posted if not face to face as in traditional learning situations. For example, an e-learner may make a comment and the respective learners may think nothing of it. However, if that e-learner makes the same comment, but this time uses all capital letters, the comment may be perceived with a totally different tone; usually negative.

As with typing in all capital letters, e-learners must also be careful with inserting humor in online situations. Because of the lack of visual and sometimes audio cues, the intended humor may be interpreted as sarcasm which could result in others becoming guarded or offended. In order to control this foreseeable problem, an e-learner may insert hand-typed icons called emoticons. Some emoticons are as follows:

- :) Happy
- :(Sad
- :o Surprised
- ;) Winking

These emoticons aid in the conveying of various emotions, and can offer some insight into how the e-learner is feeling or what they might want to convey in their post.

E-learners have an extremely wide range of computer and internet accessibility. Some e-learners may be sitting in an actual lab designated for distance learning while others may be participating from their residence in a less controlled environment. With different environments comes a variety of bandwidths. Labs are commonly equipped with the latest technology and internet capabilities, while personal computers may not. This can definitely make a difference when in a group discussion environment. Obviously an e-learner that has a *dial up* connection will find it very difficult with competing or keeping up with one that has high speed. Keeping this in mind, e-learners must remember to be forgiving or patient in these various group situations. It is also wise to remember to try to keep files at a minimum size.

E-learners are virtually all here for one reason; and that reason is to learn. In order to sustain a smooth e-learning environment with the utmost opportunities for learning, one must exhibit qualities of actual learners. For instance, e-learners should only post relevant information regarding the situation. Though collogues may develop into friends, this distance learning environment's primary focus is education related. E-learners must represent themselves well and may accomplish this through being brief, precise, and clear. As if the e-learning process wasn't difficult enough, a long-winded, broad, *fuzzy* learner will not fit the type. One must not forget to be quick with posts and words, and never monopolize that chat. In any learning situation, time is valuable and under no circumstances would anyone benefit from an opinionated learner *taking over* the discussion.

The e-learning process involves a great deal of communication and group work in order to be successful. With any learner, being prepared is a priority. However, with e-learning, it is extremely important. As if communicating with peers via technology solely isn't hard enough, one who is unprepared for group situations makes the process virtually impossible. The same is true for individual aspects. If an e-learner is consistently unprepared with assignments and such, the chances of them succeeding will decrease dramatically. Netiquette will aid in dispersing common e-learner difficulties. If following these guidelines and putting forth your best effort, the success of e-learning can be in your reach.

E-Learning Market

E-learning is being used across different markets to educate individuals. E-learning courses have been developed and implemented in the PreK-12 market, post-secondary education market, government and corporate market. Each of these different markets has

different goals and objectives for the use of e-learning. However, a common thread tying these markets together is that e-learning continues to grow and is becoming integrated into the education and training curriculum.

Pre K - 12 Market

One of the "newest" markets in e-learning is the pre K-12 market. While educators continue to debate the benefits and success of e-learning for this age group, growth continues, causing states and public schools to align policies and standards for e-learning.

Students in grades K-12 select e-learning for various reasons. Among the common reasons are being able to take a class not available at their school, retake a *failed* course, advance at their own level, and take additional classes to graduate early. In addition, states and school districts continue to add e-learning opportunities for students categorized as being at risk, either academically or behaviorally.

Finding *exact* data on the number of students receiving online instruction is difficult due to the lack of study in this area and the classification of distance education by the state and school district. The important factor is that this market is growing and it is estimated to keep growing.

According to the research published on the website of the US Department of Education Office of Educational Technology:

- 16 states had at least one cyber charter school operating in 2004-2005.
- 22 states had established virtual schools in 2004-2005.
- 36% of school districts and 9% of all public schools have students enrolled in distance education courses.
- There were an estimated 328,000 enrollments in distance education courses by K12 students during the 2001-2002 school year.
- 68% of the enrollments were in high school with an additional 29% in combined or ungraded schools.

Post-Secondary Market

Like the pre K-12 market, the post-secondary market is continuing to see growth in the e-learning market. International Data Corporation predicts that the current increase of 33 percent per year in online enrollments will continue into the future (Embrey, 2005). A 2003 survey of 990 educational institutions by the Sloan Consortium revealed that only 18.7% of all institutions and 2.4% of public institutions did not offer some sort of online or blended web-based learning. (“Measuring the success in e-learning: The academic perspective”) Online course and programs are merging into the mainstream offerings of many educational institutions.

In a publication titled Growing by Degrees, Online education in the United States, 2005 by I. Elaine Allen and Jeff Seaman reported that the number of students enrolled in online

classes grew to 2.35 million students in 2004. (p. 3) Additional data from the study revealed that:

- 65% of schools offering graduate face-to-face courses also offer graduate courses online.(p. 1)
- 63% of schools offering undergraduate face-to-face courses also offer undergraduate courses online. (p. 1)
- Among all schools offering face-to-face Master's degree programs, 44% also offer Master's programs online. (p. 1)
- Among all schools offering face-to-face Business degree programs, 43% also offer online Business programs. (p. 1)
- 56% of schools identified online education as a critical long-term strategy (p. 2)

While online education is growing among course offerings, the age of the student enrolling in these online programs are older than the traditional college student. According to data from the University of Phoenix online, the average age of an e-learning student is 38. While the traditional college student is still attending face-to-face class, e-learning is growing with the older, non-traditional student who is returning to school to either acquire new skills or as part of life-long learning.

Corporate Market

Businesses in the US are addressing the need of training their employees by developing e-learning programs. Faced with an aging workforce, companies are beginning to prepare to educate their new employees. In fact, it is estimated that corporate America will have to retrain 50 million workers. Companies are taking advantage of the flexibility, cost savings and effectiveness of e-learning to efficiently train employees.

The respondents in E-Learning Trends 2004 study by Learning Circuits (Ellis, 2004) detailed how organizations are using e-learning to train and educate their workforce. The highest ranking courses being delivered via e-learning are: End-user/desktop training, 38.4%; General business skills, 35.7%; task-specific skills, 30.4% and Customer service training, 30.4%.

The format of e-learning is changing in the corporate market. Courses are moving from being delivered in an asynchronous format to a synchronous format. Responses to a 2006 survey by Learning Circuits in conjunction with E-Learning News found that 97% of the respondents had participated in a synchronous e-learning and that 86% expect to participate in synchronous e-learning within the next 6 months.

Location of E-Learners

The premise of e-learning is that the e-learner can be located anywhere geographically. However, the accessibility barrier plays a significant role in the location of the e-learner.

Global Accessibility

In order for people participate in the e-learning environment, they must have access to the necessary technology. E-learners in countries with developed internet backbones are able to participate and take advantage of e-learning. Countries without a reliable network system, either through telephone or broadband, are not able to participate in e-learning. The lack of a solid internet infrastructure is of great concern for the underdeveloped, and often poorer, nations. These nations worry that their countries economy will be left even further behind due to their lack of accessibility in the e-learning market.

Rural vs. Urban/Suburban Communities in the United States

It is interesting to note that while those living in rural areas in the US lag behind in terms of broadband access, rural internet users were more likely to take a class online for credit as compared to those in an Urban or Suburban setting. Online learners in the rural setting are taking advantage of the Internet as a bridge to eliminate the distance between the learner and institution. (Burns)

Characteristics of Successful E-Learners

When e-learning was developed, advocates were quick to state that e-learning was for everyone! However, as e-learning has evolved and developed, it is becoming evident those who achieve success in the e-learning environment possess some similar characteristics.

In a survey of the Department of Instructional Technology's E-Learning Concepts and Techniques Spring 2006 online class, participants were asked to respond to “what factors and/or skills contribute to being a successful student in an e-learning class?” The responses included:

1. Self-discipline
2. Patience
3. Self-motivation
4. Communication
5. Asking questions
6. Knowledge of how e-learning works
7. Familiarity with the software
8. Time management
9. Ability to work independently
10. Ability to communicate with groups via distance
11. Active participation in the class
12. Being able to compromise and communicate effectively
13. Ability to multitask

When asked which one of the factors and/or skills was the most important 39% responded that self-motivation was the most important, followed by communication at 23%.

Additional studies have found that those who are successful in the e-learning environment also tend to be comfortable with computers, can use the Internet to find information, learn through reading, see the teacher in the role of facilitator and are independent learners.

There are many short surveys available online to help a person decided if he or she is ready for an online class. One such survey can be found at eLearners.com. This survey questions a potential e-learner in regards to Technology Access; Personal Factors such as personality, time, scheduling, meeting deadlines, personal goals; Technical Skill; and Learning Style.

Is E-Learning For You?

People all over the nation and even the world are increasingly turning to e-learning to provide their professional development and training needs. But how do you know if e-learning is right for you? The most frequently cited resource tool to determine e-learning readiness is the survey found at the eLearners.com website. Potential e-learners are asked about access to technology; personal factors such as personality, time, scheduling, meeting deadlines, personal goals; their own technical skills; and learning style.

Bagnato (2006) discusses e-learning benefits from the corporate perspective, highlighting global companies that have successfully integrated e-learning into their training curriculum. Variables that corporations need to consider include balancing scheduling issues across time zones, understanding the time and fiscal commitment of e-learning's implementation, determining which format to employ (asynchronous, synchronous, or blended approach), and which system to use. Bagnato (2006) quotes Denise Link, "... On its own or blended with other training methods, such as classroom sessions or periodic seminars, e-learning has the power to: increase product knowledge, simplify compliance training, build technical skills, sharpen soft skills, foster company culture, communicate complex messages, and all the while, save us time and money!" Koskela et al (2005) found that the higher education environment is also suitable for virtual learning. Highlights for students include the ability to control their own pace of learning, the flexibility to move back and forth amongst learning modules without others knowing they had to review or having to wait for others to complete a section, and the fact that "VLEs [virtual learning environments] can be used to standardize the teaching of a large number of students in their early step of studies."

A number of different factors help individuals, corporations and educational institutions determine whether e-learning is the right tool for their training needs.

Questions for Reflection

1. Name five characteristics of successful e-learners.
2. List three skills that successful e-learners possess.
3. Netiquette recommends that e-learners "treat others as you'd want to be treated". Share three common netiquette errors and explain why they are disruptive to learning online.
4. In which market is e-learning the most prevalent? Why?
5. Do you agree that e-learning is more widely used in rural rather than urban areas? Defend your answer.
6. With the number of e-learners increasing each year, how do you foresee this affecting the way public K-12 schools operate in the future?
7. According to one survey, 30% of customer service training is being conducted through e-learning. Do you believe communication and people-skills can be effectively taught through e-learning? Explain your answer.
8. The Sloan Consortium study noted that currently 65% of schools with graduate face-to-face courses also offer graduate courses online and 63% of schools offering undergraduate face-to-face courses also offer undergraduate courses online. With more than half (56%) of schools identifying online education as a critical long-term strategy, how will the colleges and universities be different in 20 years? What will happen to the brick-and-mortar ivory towers of old?
9. Discuss how the lack of a solid internet infrastructure in underdeveloped, and often poorer, nations contributes to the digital divide for e-learners.
10. States and school districts are providing e-learning opportunities for students categorized as being at-risk either academically or behaviorally. Is e-learning being used as a reward for poor behavior? Should troubled high school students be left at home to navigate the e-learning process without teachers' guidance? Defend your answer.

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3.2 Julie Schmidt: Success in E-Learning

“Success is a science; if you have the conditions, you will get the result.” - Oscar Wilde

So what are the conditions? Unfortunately, the answer is not as simple as one might think. If one knew of the conditions, wouldn't e-learning be successful all of the time?

E-learning can frequently be viewed as a more varied approach to learning, which in turn may have an increased difficultly with obtaining success. As with traditional learning environments, the success with e-learning depends on both the instructor and learner itself. However, people often agree that e-learning requires a certain type of learner and even instructor. The demands may be greater and the ability to fall behind is as well. Overall, the conditions to ensure success simply revolve around two necessary parties; the learner and instructor.

E-Learners

Though an e-learner may succeed with a variety of different learning styles, one must exhibit qualities such as self-determination and an overall strive for excellence. With these qualities being absent, the e-learner may struggle to move forth throughout the experience due to the many high demands.

According to the article, “Ten strategies for a successful eLearning experience”, there are ten learner controlled strategies for a successful e-learning experience. These strategies are as follows.

E-Learning Concepts and Techniques

1. Time Management

Designate a certain amount of time each week to dedicate to e-learning experiences. The time may vary each week, though make sure enough is allotted.

2. Web Experience

E-learners should have an adequate background in computers and be comfortable with various computer tasks. If one has little or no experience in this area, reference books are available to make the internet-related tasks more simple.

3. Awareness of Written Tones

When corresponding with peers or educators, the e-learner must recall that visual cues are not evident. If not careful with the written language, one may misconstrue the implied meaning.

4. Frequent Study Group Formation

As with designating time to complete various tasks, the e-learner must also take initiative in developing study groups or opportunities for peer interaction. Doing this will keep confusion and questions about the experience at a minimum.

5. System Requirements

Without the appropriate technology, the e-learning experience will be unsuccessful from the start. Appropriate software may be required as well as internet access and multimedia plug-ins.

6. High Motivation

As stated earlier, motivation is one of the most important qualities and e-learner may possess. It is essential for e-learners to be highly motivated and is the key to e-learning success.

7. Interest in the Subject

Keeping an open mind and developing an interest regarding the fascinating world of e-learning will keep negativity at bay.

8. Controlled Learning Environment

As with any learning situation, the environment in which the learner chooses will have an indication of to whether they will be successful. Be aware that a focused, controlled environment will foster a greater amount of learning than a distracting one.

9. Ability to Take Breaks

Taking short frequent breaks away from the computer will decrease headaches and fatigue.

10. Avoidance of Procrastination

Keep procrastination at a minimum. Where procrastination is not beneficial to traditional learning environments, the same is true for e-learning experiences.

E-Instructor

Would you accept the idea that the success of e-learners is not solely based on the e-learner themselves? The answer may surprise you as some believe it has a lot to due with the e-learning instructor.

According to eLearning, Teaching and Training: A First Look at Principles, Issues and Implication, Ryan (2001) states that successful e-learning is based on a Virtual Learning Environment (VLE). This specific internet-based environment is based on four pieces of criteria.

- Courseware - self study learning materials, simulations, multimedia components
- Supporting Materials - reference materials such as articles, case studies, books, World Wide Web links
- Online Assessment - both formative and summative tests, quizzes, and assignments
- Online Support - via email, Computer Media Communication (CMC), chat rooms, bulletin boards

Ryan states that other components that are an extension of the learning environment include: course outlines, syllabuses, exercises, links to resources and learning packs.

3.2 Conclusion

As with any situation, whether it be distance-learning-based or not, success is based upon determination and experiences. If given the opportunity for utilizing the correct tools, both by the e-learner and e-instructor, success can be within your reach.

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3.3 Social Networking - A Growing Phenomenon

Brian Heisman

There is a growing phenomenon of social networking sites on the Internet with young teens and young adults that are being labeled as a warning to parents. Social networking on the net has been around since the days of IRC, ICQ, AOL instant messenger (IM) and many others chat programs. Individuals would go into a chat room or speak with someone through private channels, it was a way for someone to expand out of their community and meet someone new. At that time it was all text-based with the ability to send images as file transfers.

The term globalization could be used when an individual wants to learn what is happening in the world around them and expanding their knowledge base outside of the community in which they live. Social networking allows this to happen on the Internet 24 hours a day. We are no longer locked in our *tiny world*, hence a new world dawns for us to experience and learn from along with a few cautions.

Globalization and social networking can open your eyes to other experiences as well as meeting other individuals with common interests all over the world. The Internet has *no boundaries* in the realm of social networking, and sites such as MySpace, Flogz, Facebook, Xanga along with many others allow users to begin their online experience.

Social networking sites are primarily set up for a purpose or a particular area of interest for a user. Sites such as Flogz or Digg are set up for financial and investment purposes. Flogz (www.flogz.com) , in particular “is a personal finance and investing website that allows users to submit links that are voted on by other users, and promoted to the main page based on their popularity.” “The goal of Flogz is to eliminate the need to visit multiple websites for personal finance and investing news.” ("New social networking site allows users to decide what personal finance and investing news is important", 2006)

The fastest growing social networking site is MySpace (MySpace.com) , they boast “more than 57 million users and 160,000 new users a day” (Smith, 2006). MySpace was originally created for musicians, artists and individuals who wanted to be known in the online community. It has changed drastically in its growth; it resembles an online dating or matchmaking service that allows registered users to add anything their heart desires; music, slideshows, pictures, blogs, etc. MySpace has become a terrific social networking site that encourages globalization of individual users by creating friend lists and discussion groups. Everyone becomes linked to one another and it appears to grow as one large family community.

Other similar sites such as Facebook or Xanga draw other crowds of individuals that focus on particular groups of diversity such as college students, *social or interest* groups. All social networking sites are essentially designed to bring people together in one large electronic neighborhood.

The dilemma and controversy that has arisen out of these social communities is nothing new; the larger the company or site the larger the problems become. Recently, it has been documented in the news, magazines and even on TV about the concerns of this growing *nightmare*. Parents are to be on the alert, law enforcement is said to be working on overtime, and added reports of misbehavior and misconduct have been displayed time and time again across the world. The hottest stories seem to revolve around teens and their stalkers, or inappropriate intentions online.

When an individual registers with a site such as MySpace, they have to be 14 years of age or they are prohibited from registering. The problem occurs when the teens lie and do not register with their correct age. They usually pose as an older individual and have no realization of the consequences of what they are posting. You can find personal information such as their full name or "when they lost their virginity, what drugs they like, where they go to school, what cars they drive, pictures of them in lingerie & handcuffs, and sexually explicit positions." I have found images of nudity, cell and phone numbers, locations of their homes, pictures of teens holding hand guns or alcohol.

This is just the start of what these individuals can post if they are creative enough. Commander Michael Rayball of Phoenix, AZ says, "They're putting out everything a potential pedophile or stalker needs to find them. Anyone can signup and that's just what we did within seconds of searching MySpace by school and age group. We found hundreds of profiles." ("Teen Web warning: My Space.com", 2006)

"Teens think that, what they do on the Internet is anonymous and no one will have access to the information..." (Stollings, 2006). Kids and young teens don't believe strangers are looking at their sites. They think it's all protected. They think that only their friends are looking at it. In fact, my daughter said it was an invasion of her privacy, that I had no right looking at her site, she thought that it was protected by other viewers.

Athletes and future employees are also effected by what they post online and have had numerous reports about their behavior and discussions of whether their freedom of speech rights have been violated. Athletes have been suspended or removed from playing the sport as a result of inappropriate pictures of themselves drinking alcohol or even at a party which has alcohol present.

"Three McMinnville High School athletes received athletic suspensions when someone - a teacher and/or coach by some accounts - presented school administrators with copies of photos posted there following a party where drinking and smoking occurred." "Athletes are required to sign a pledge in which they promise to avoid situations involving underage drinking and smoking, triggering disciplinary action." (Rowland, 2006)

There are other articles as well where college athletes are removed from sports due to images of their exploits on Facebook or MySpace. It is not only the images that hurt these individuals it is what they say online to the world about their college. “Two Louisiana State swimmers were kicked off the team last spring for criticizing their coaches on Facebook.” (USA Today, 2006)

Private institutions are and have been removing individuals from attending their institution due to their actions online. In USA Today on March 9, 2006, it was reported that a student “was kicked out of John Brown University after officials saw pictures of him in drag.”

“Educators say the explosion of web activity at Facebook and other sites has forced them to respond. And that is raising a new set of free speech concerns. In, general students at private schools or universities are bound by the rules of their institution and not protected by the First Amendment right of speech.” (USA Today, 2006)

Future employers of individuals have logged on to perspective employees' profiles and have found some disturbing images or textual behavior that would cause the future employee not to be hired stated in USA Today.

To this point social networking is sounding like a nightmare, but common sense should tell you a few things, the first would be to use common sense. Do not post anything whether it is an image or text that you would not want to see on the 6 o'clock news or would be embarrassed about. Most teens could stop some of their online shenanigans if they used common sense and their parents had a careful eye on their technology use. “Most parents feel too ignorant to even start this conversation because they know less than their kids.” (Smith, 2006)

“Nearly nine out of 10 teens aged 12 to 17 use the Internet, according to a report by the Pew Internet and American Life Project, a nonprofit research organization. Kids can get scammed, bullied, solicited by marketers and scoped out by pedophiles - all while sitting in front of the family computer.” (Smith, 2006) According to wiredsafety.org, parents need to place the computer in a visual and open place where it can be monitored. Parents need to set guidelines and teach their kids the dos and don'ts of the Internet. If parents aren't aware of technology or need help there are trainings, seminars and awareness programs out there.

Online activity and social networking sites can be insightful and fun for all ages. The learning that could occur from a positive encounter can be immense. Online friends and groups can work together on projects, e-books, socialization, writing and communication in general. What better way to learn about a topic then to talk directly to the source. The possibilities of this globalized phenomenon of online experiences and learning are endless, just a little common sense and knowledge goes along way.

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Chapter 4 – E-Learning Tools

- 4.1 Jeffrey Border, Kimberly Stoudt and Mary Warnock present an in-depth discussion on various types of e-learning tools.
- 4.2 John Zelenak looks at e-learning and e-learning tools as the next big *killer application* in business and education.
- 4.3 Lauren Jade Ferrett explores the history of the wiki and its reliability as an e-learning tool.

4.1 E-Learning Tools

Jeffrey Border, Kimberly Stoudt and Mary Warnock

4.1 Introduction

"As academic staff, we all have our own preferred teaching methods which suit our personal style and discipline area. For many of us, the carefully considered integration of e-learning tools can enhance these pedagogic approaches and enable varied and improved interaction with students at all levels, both on and off campus. We are reminded by Biggs (2002) that aligning all aspects of our teaching, from learning outcomes through teaching methods to assessment, is vital to ensure the continued quality enhancement of the learning experience we offer to students. In this context, e-learning needs to be considered as a fully integrated component of the whole educational process." (Introduction to eLearning at GCU)

"E-learning is firmly embedded in many of the current educational theories. For example, it is widely recognized that learning is a social process (Wenger, 1999, Vygotsky, 1978) and Fowler and Mayes (2000) explain how learning relationships can encourage the conceptualization and re-conceptualization cycle which facilitates deep understanding. They describe how interactive courseware and online discussions can play a major role in supporting these cognitive processes by engaging the learner in meaningful dialogue with tutor and peers. Laurillard's Conversational Framework (2001) also illustrates the crucial nature of communication in the learning process and highlights a series of actions and interactions which can be supported to varying degrees by new technologies." (Glaskow Caldonian University, 2004)

E-learning tools such as Blackboard, Centra, Wimba, etc. encourage student collaboration; improve team working skill and independent thinking. Many of the developing e-learning tools encourage student motivation and desire to remain in online educational environments.

The online learning community offers a wide array of e-learning tools. As educators and developers we must determine which tools fit our pedagogical needs before we can determine which tool to incorporate into our e-learning strategy.

This chapter will provide a guideline to various e-learning tools and how they can empower instructors and learners to develop e-learning specifications to meet individual instructional goals.

4.1 Overview

There isn't one single tool that brings e-learning to life. E-learning requires tools in three different categories to be successful. These categories are access, offer and create. By what means will the e-learners locate and experience the content? By what means will your e-learners be able to access the content? By what means will the content be authored and integrated? For a complete e-learning solution, software is required to meet each of these categories.

There are also levels of learning at which the content is administered from the curricula to an individual component. In e-learning this is called the level of granularity. The levels are curriculum, course, lesson, page and media.

Levels of Granularity

In their book, E-learning Tools and Technologies, William and Katherine Horton (2003) break down each category into the level of granularity. The definitions are as follows:

Create

- **Curriculum** - Creating curricula consisting of locating and integrating separate courses into a coherent sequence or other structure.
- **Course** - Creating courses requires integrating separate clusters and pages of content as well as providing overall navigational mechanisms such as a table or content or index.
- **Lesson** – Creating lessons requires selecting and linking pages or other objects into a coherent navigational structure.
- **Page** – Creating pages requires entering text and integrating it with graphics and other media. It may also include inserting cross-reference hypertext links.
- **Media** - Creating medial components requires creating the individual pictures, animations, sound, music, video sequences, and other digital media.

Offer

- **Curriculum** – Hosting curricula and setting up online schools requires presenting these collections of courses to learners in ways that show relationships among the individual products and perhaps tracks which the learner had accessed or completed.
- **Course** – Offering individual courses requires ways of making them available to learners as a coherent whole. It may also require tracking the parts of the individual courses they have accessed and completed.
- **Lesson** – Offering lessons requires the ability to present multiple pages or other components as a coherent whole.
- **Page** – Offering individual pages requires dispatching them to learners as requested.
- **Media** - Offering media components requires supplying them as requested. It may also require storing them economically and streaming them efficiently.

Access

- **Curriculum** – Accessing collections requires tools to find them where offered and enroll or subscribe to them.
- **Course** – Accessing individual courses requires the capability to open the course for display, choose from its lessons, and navigate among them.
- **Lesson** – Accessing pages requires a way to request them and to display them when they arrive.
- **Page** – Accessing pages requires a way to request them and to display them when they arrive.
- **Media** - Accessing media components requires the ability to play or display the individual media.

Tools for the Different Categories

William and Katherine Horton list different tools for the different categories. They are:

Create

Definition: processing of authoring and integrating content

Types:

Course Authoring

- **Definition:** Creating a course without the webmaster; includes implementing instructional strategies, creating menu and navigation schemes, and authoring pages
- **Interact with:** Media Editor, Web Server, LMS
- **Level of Granularity:** Course, Lesson, Page

- **Examples:** Authorware, DazzlerMax, Lector Publisher, ToolBook, OutStart, Web Course Builder

Website Authoring

- **Definition:** Creating HTML pages and linking them to produce entire websites
- **Interact with:** Course Authoring, Media Editor, Web Server
- **Level of Granularity:** Lesson, Page
- **Examples:** Dreamweaver, FrontPage, GoLive, NetObjects Fusion
- **Specific type:** Blog
- **Definition:** Web-based personal diaries
- **Examples:** Blogger, Radio UserLand, Manila, MySpace

Testing and Assessment

- **Definition:** Creating and conducting assessments
- **Interact with:** Course Authoring, Website Authoring, LCMS
- **Level of Granularity:** Media
- **Examples:** Respondus, Perception, Hot potatoes, Quiz rocket, RandomTest generator Pro, Test Generator

Media Editors

- **Definition:** creating, editing and "web-readying" drawings, icons, photographs, animations, sound, video and other medial included in e-learning
- **Interact with:** Course Authoring, Website Authoring, LCMS, MediaServier, Media Player and Viewer
- **Level of Granularity:** Media
- **Examples:** Director, Flash, Fluition, GRiNS Pro Editor for SMIL, HotMedia, LiveMotion, LiveStage Professional, Producer, PresenterOne
- **Specific types:**

  Graphic
  Definition: guide and inform the learners
  Examples: Canvas, Fireworks, Freehand, Illustrator, Paint Shop Pro, Photoshop, Visio
  Animation
  Definition: create drawings in motion
  Examples: 3ds max, Animation Master, Cool 3-D, Poser
  Audio
  Definition: capture analog and digital audio
  Examples: Acid Pro, Cool Edit Pro, Multitrack Studio, Peak, Sonar
  Video
  Definition: edit streaming images
  Examples: Final Cut, Movie Maker, Acid Pro, Premier, VideoStudio
  Virtual World

Definition: create 3-D scenes
Examples: 3D Canvas Pro, AC3D, Internet Space Builder, SiteSculptor
Media Utilities
Definition: special-purpose tools such as screen capture, screen recording, and software simulation
Examples: FullShot, HyperSnap, SnagIt, Snapz Pro, Camtasia, Captivate, TurboDemo

Content Converters

- **Definition:** for transforming documents, presentations, graphics and other content to formats that can be used in e-learning and on the Web. With converter tools, you author content in your familiar word processor, spreadsheet, presentation program, drawing program or other tool.
- **Interact with:** Web Server, Web Browser, Media Player and Viewer
- **Level of Granularity:** Course, Lesson, Page, Media
- **Specific Types:**

  Microsoft PowerPoint
  Examples: Impatica, Breeze
  Microsoft Word
  Examples: WordToWeb, Transit Solutions

Offer

Definition: Makes sure the e-learning you create can be accessed by learners conveniently and efficiently by making e-learning available over a network, administering your e-learning offerings, and controlling and tracking access

Types:

Web Servers

- **Definition:** To deliver web pages and other medial requested by a web browser
- **Interact with:** Content creation tools, Web Browsers
- **Level of Granularity:** Course, Lesson, Page, Media
- **Examples:** Apache HTTP server, Internet Information Services

Learning Management Systems (LMS)

- **Definition:** To administer courses and students
- **Interact with:** Course Authoring, LMS, Web Browser
- **Level of Granularity:** Course, Lesson, Page
- **Examples:** Aspen, Blackboard, Pathlore, Docent, ANGEL, Moodle

E-Learning Concepts and Techniques

Learning Content Management Systems (LCMS)

- **Definition:** To assemble and offer courses made up of reusable content modules
- **Interact with:** Course Authoring, LCMS, Web Browser
- **Level of Granularity:** Curriculum, Course
- **Examples:** Centra, Aspen, Docent

Collaboration Tools

- **Definition:** To enable fluid communication among distributed learners; Help people work and learn together at a distance
- **Interact with:** Web Browser, Medial Player and Viewer
- **Level of Granularity:** Course, Lesson, Page
- **Types:**
    - Synchronous – existing at the same time
    - Chat and instant messaging– immediate, spontaneous exchange of messages
    - Whiteboard – online blackboard
    - Application sharing – presenter shares programs or windows with participants
    - Presentations – add visuals to a lecture
    - Audio conferencing – participants talk with one another
    - Video conferencing – participants see and hear each other
    - Online meeting tools – meet with participants from distant locations
    - Asynchronous – not occurring at the same time
    - Email - sending and receiving messages electronically
    - Online discussion – exchange of ideas from distant locations
    - Test messaging – spontaneous exchange of messages
    - Web tour – taking a tour of a distant location
    - Online Voting – voting from distant locations

Virtual-School Systems or Course Management Systems (CMS)

- **Definition:** To conduct instructor-led learning over the network; Hybrid category combining capabilities from learning management content management, and collaboration systems
- **Interact with:** Website Authoring, Media, Testing and Assessment, Web Browser
- **Level of Granularity:** Curriculum, Course, Lesson, Page, Media
- **Example:** Mambo

Media Servers

- **Definition:** To deliver sound, video and other dynamic media efficiently over the network
- **Interact with:** Web Servers, Media Editors, Media Player and Viewer
- **Level of Granularity:** Media
- **Examples:** Darwin Streaming Server, Helix Universal Server, QuickTime Streaming Server, SGI Media Server, Video Charger, Windows Media Services

Access

Definition: Learning requires tools to find, navigate, display and play e-learning content

Types:

Web Browsers

- **Definition:** a program used to view HTML documents
- **Interact with:** Web Servers, Media Players and Viewers
- **Level of Granularity:** Course, Lesson, Page, Media
- **Examples:** Internet Explorer, Netscape, Mozilla / Firefox, Amaya, AOL, Opera, Lynz, MSN TV, Palm OS and Pocket PC

Media Players and Viewers

- **Definition:** Play dynamic media, such as video and audio or property file formats, such as PDF or flash. Media players can play many file formats; media viewers are generally play only their own file formats
- **Interact with:** Web Server, Web Browser, Media Server
- **Level of Granularity:** Page, Media
- **Examples of Media Player:** QuickTIme Player, Windows Medial Player, RealOne Player, WinAmp Player
- **Examples of Media Viewers:** Flash, Acabat Reader, Microsoft Office Viewers, Authorware, Director, Quest, ToolBook

Synchronous Tools

Centra

Saba's Centra is a synchronous e-learning tool that can be utilized in many different ways, and has many capabilities. Centra can be used to set up a virtual classroom; it can be used in a university setting and school setting. Centra can also be used for Web seminars and virtual meetings. Some of the features associated with Centra are real-time interactivity, allowing student and teacher, or two corporations to connect and meet with each other, as if in the same room. There is a whiteboard available for interactivity, you can poll students, or the students can raise their hand, there is a text chat, as well as the

microphone feature which allows one to talk instantly and another to give instant feedback verbally. It is also possible to show websites and other software during a Centra session. The teacher or meeting leader has the use of multimedia, and the ability to manage the multimedia. The teacher can also integrate various multimedia capabilities such as Flash, Shockwave, animated pictures, and streaming audio and video, as well as PowerPoint slides. It is also possible to give online tests and quizzes to evaluate the learners understanding of the subject matter being presented. Another powerful feature is its ability to be integrated with other learning management systems and software such as Blackboard.

Macromedia Breeze

Macromedia's Breeze is also a synchronous e-learning tool that has many of its own capabilities as well and has many of the same features that Saba's Centra exhibits. Again some of the features that Breeze contains are course and content management, integration with other software including other Macromedia products. Breeze also has the survey feature, you can also record the sessions, set up meeting rooms, share applications and use whiteboards, use of a camera is supported as well as real-time verbal communications. Breeze can also have multiple presenters, has the ability to have multiple people in video conferencing, and use of polling. PowerPoint is also available to use through Breeze to control your presentations and meetings, or virtual classroom. Another great feature of Breeze is its ability to convert one language into another to eliminate language barriers when presenting to people of other nationalities or backgrounds.

Horizon Wimba

Horizon's Wimba is a versatile e-learning tool that allows for dual-way live voice and video for real-time classrooms and interaction between student and teacher. Wimba also incorporates a public and private chat. Files such as PowerPoint, Word, Excel, HTML, web pages, images, movie clips, PDF and Flash can be used to present material to the learners. Wimba includes interaction between student and teacher by using the whiteboard feature, using polls and quizzes, and also surveys. Past classes or session scan be recorded and can be made available for playback at a later date. One of the great features of Wimba is its ability to be incorporated with other learning management systems like Blackboard and WebCT.

LearnLinc

LearnLinc is another synchronous learning tool that has many of the features all the other software and tools have only it isn't as well known. LearnLinc has the feature of real-time video and audio conferencing or classroom presentations and participation. LearnLinc allows the sharing of applications such as PowerPoint, between student and teacher, as well as synchronous web browsing. LearnLinc incorporates electronic hand raising, allows for feedback, and question and answer sessions. Some of the other features are

that you can view class lists, view your learner's screens, break into smaller groups, and keep track of participation as well as a group chat room.

Authoring Tools

The concept of an authoring system is not a new one. As long as there has been computer-based learning - and that's well over 20 years now - we've had highly sophisticated tools to assist us in product development.

Most developers agree that e-learning product should conform to the standards of the Web - HTML, JavaScript, perhaps a little Flash or Java - and not require users to download enormous plug-ins just so they can view the output of legacy authoring systems. On the other hand, not all e-learning developers have access to programming support and will not want to be restricted to simple HTML. They need something more than generalist web tools.

Authorware

One of the best tools available for creating online training is Authorware. You can reduce learning time and speed development with the familiar Macromedia user interface. Dockable panels can be grouped together, collapsed, or expanded as needed, providing a smooth, highly configurable workflow. The visual interface lets you develop rich media e-learning applications without scripting. Just drag and drop icons to create your application's logical outline, and use menus to add content. You can leverage existing PowerPoint presentations to rapidly create rich multimedia e-learning content and deliver applications with the click of a button to corporate networks, CD, and the Web. One-button publishing integrates and automates all the steps in the publishing process, and offers such features as batch-processing and customizable settings.

Knowledge Objects are prebuilt templates with wizards that drastically cut your development time. Use them to accelerate both large and small authoring tasks, from creating application frameworks and quizzes to installing fonts or locating a system's CD-ROM drive. Just drag and drop from the Knowledge Object gallery, and then fill in the content. Create courseware that can connect to LMS and that complies with standards from the Aviation Industry CBT Committee (AICC) or the ADL Shareable Courseware Object Reference Model (SCORM). Users work with the wizard to decide what information to get or send to the LMS. The Knowledge Objects handle all the complicated back-end communications with the LMS. LMS Knowledge Objects can communicate through ADL and HACP, as well as over LANs.

PowerPoint

Not many e-learning developers or instructional designers think of PowerPoint as a tool for building online courses. Surprisingly, PowerPoint is the second most frequently used tool for creating computer-based training applications – Dreamweaver being number one.

The truth is that PowerPoint, when used correctly, can help you create rich, compelling, and instructionally sound e-learning content.

Initial content from an SME in many cases is created in PowerPoint. E-learning developers and instructional designers often use PowerPoint to create outlines or storyboards – it's easy, convenient, and quick. Also most organizations have an enormous amount of information that already exists in PowerPoint format, which lives on servers and PCs all over the enterprise. Virtually anyone, whether tech savvy or not, can quickly get up to speed using PowerPoint. In fact, most people have created some kind of presentation with the tool. It's not difficult.

An e-learning developer or instructional designer can take the core materials and enhance them. And this enhancement can be done in PowerPoint - the native format of the content. Rather than convert the SME's training presentation over to another tool, the instructional designer or developer can augment and improve the original within the same tool using the same format. This means a SME's PowerPoint presentation can be used "as is" with narration added in Breeze if the delivery need is immediate. If more time is available the original materials can be enhanced to add richer media, interactivity, quizzing, and improved instructional design. Links can also be added to slide content to provide non-linear navigational design. Materials can also easily be enhanced by inserting pre-existing Flash movies or software simulations directly into a PowerPoint slide.

PowerPoint comes with numerous design and presentation templates. The design templates get you started with the graphical look and feel and the presentation templates provide a skeleton for arranging and outlining your actual content.

Interactivity in any form of e-learning greatly enhances both the appeal and the effectiveness of learning. The PowerPoint Breeze plug-in makes it very easy to add quizzes, tests, and surveys to e-learning content. (The scores and data from these can be sent directly to your AICC/SCORM LMS.)

The Breeze plug-in simplifies the addition of audio narration. Adding narration to online training content has been proven to increase retention rates. In most cases it is also the learner's preferred mode of receiving instruction or information.

Very often the simplest approaches to a problem are the most effective. Tools designed specifically for e-learning authoring can be used to produce some wonderful online content, but only if time permits — and usually it doesn't. By utilizing PowerPoint you can significantly increase the speed of development of e-learning by using an authoring tool with which your SMEs are already familiar.

Using a few customized PowerPoint templates to guide content organization and content creation you can rapidly create online content that is engaging, effective and instructionally sound.

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4.2 What is an e-learning tool?

John Zelenak

There is a multitude of e-learning tools available today. Whether you break it down by the types of e-learning tools, or by the e-learning tools in regular use, the choices of effective e-learning tools is seemingly endless. By the time you are done compiling a list of e-learning tools, it is likely that there are even more of them available then when you started compiling the list. Perhaps the most astonishing aspect of the growth in the number of e-learning tools is not the shear quantity, but the prolific and still growing use of e-learning tools.

“Online learning is not the next big thing, it is the now big thing.” - Donna J Abernathy, Training and Development Editor, 1999 (“E-learning quotations”, 2006)

In a rapidly changing e-world, where the education, or learning, part of e-learning is the deliverable not the delivery system, the better question may be, what is not an e-learning tool? With the kind of growth in e-learning that we are seeing now, every computer application that touches the Internet, and some that do not, has the potential to be an e-learning tool. The online, and offline, e-learning education market is driving the development of e-learning tools.

“The next big killer application on the Internet is going to be education. Education over the Internet is going to be so big it is going to make e-mail usage look like a rounding error.” - John Chambers, CEO, Cisco Systems Imagine education as an application. (“E-learning quotations”, 2006)

How it breaks down:

- What are e-learning tools?
- What is not an e-learning tool?
- What's next?

What are e-learning tools?

E-learning tools come in three main flavors; a content/course or learning management system (CMS/LMS), synchronous collaboration applications, and all other computer tools/applications including asynchronous collaboration applications. Game play or game simulation software is rapidly becoming the fourth type of readily accepted e-learning tool.

CMS/LMS include applications like Blackboard, Moodle, WebCT, Desire2Learn, etc, that create a shell in which to organize the content of the instruction. These CMS/LMS

applications can be quite robust by offering the ability to include self-contained surveys or assessments, to track individual learner use of the course site and all of the components thereof, and to provide forums for asynchronous and synchronous learner-to-learner and learner-to-instructor communication.

Synchronous collaboration tools include applications like Wimba, CentraOne, HorizonLive, Elluminate, NetMeeting, etc. These applications allow real-time communication via voice and video, as well as, a virtual whiteboard, textchat and possibly application sharing capabilities.

Email, instant messaging, blogs, podcasts, surfing the Web, CDs, DVDs, mp3s and online and offline computer applications can be used to deliver e-learning. Just about any computer application can be an e-learning delivery or collaboration tool.

Games and game play is the up and coming fourth type of e-learning delivery tool. From the use of Solitaire in Business Education classes to assess mouse skills to SIMS in middle school Social Studies to teach types of government, gaming is making its way into education.

What is not an e-learning tool?

From sophisticated, online, real-time, multi-player games to basic applications like Solitaire, MS PowerPoint and MS Word, almost every computer application can be an e-learning tool. It is hard to think of a computer application without imagining its use for e-learning. With the possible exception of the parts of the computer software relegated to the administration of the computer such as the software that keeps the time on the computer to the right-click on the desktop that opens the *Arrange Icons by...Properties* dialog box, all computer applications have the potential to be used as e-learning tools. Even these two examples above could be used for e-learning if the content were about how to set your computer clock or how to use the *Arrange Icons by* options.

What's next?

More and more and more of the same is next. Not the same tools, more of those are evolving everyday. Not the same content, e-learning delivery is breaking ground into new content markets all the time. More of the same innovation of e-learning is what's next. As long as training is a big ticket item for business, as long as e-learning delivery is seen as more cost effective than brick-and-mortar classrooms, as long as cost cutting in public education drives school districts to look at alternatives to the traditional stand up instructor, e-learning will continue to prosper and along with it, e-learning tools.

“Learning how to learn has become the most fundamental skill that an educated person needs to master and the instrument that enables learning in almost every field is the computer.” - Dr Peshe Kauriloff, Adjunct Associate Professor of English, University of Pennsylvania (“E-learning quotations”, 2006)

"Someday, in the distant future, our grandchildren's grandchildren will develop a new equivalent of our classrooms. They will spend many hours in front of boxes with fires glowing within. May they have the wisdom to know the difference between light and knowledge." - Plato ("E-learning quotations", 2006)

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4.3 Wikis and E-Learning

Lauren Jade Ferrett

Wiki... sounds more like a Polynesian idol than something that has to do with technology. But if you've been keeping up with the World Wide Web over the last few years, you've undoubtedly come across the term.

On the basic level, wiki is a Web database technology that allows multiple users to edit and update a work quickly and easily. (Leuf & Cunningham, 2001). The first wiki was developed in 1995 by Ward Cunningham who named it wiki because of a Hawaiian term meaning fast or quick. (Venners, 2003)

Cunningham's technology paved the way for Jimmy Wales and Larry Sanger to found the Nupedia encyclopedia project. The two used the wiki technology to create an online encyclopedia. Wales and Sanger later switched their project to open source technology and in January of 2001 Wikipedia was born. (Leuf & Cunningham, 2001).

Probably the most common wiki on the Internet today, Wikipedia has more than 3,700,000 articles in several different languages, including more than 1,000,000 in the English-language version of the website. (Wikipedia.org) Users can create and edit articles on any subject they feel necessary.

Due to its size and popularity, Wikipedia's articles have proven to be reliable. Internally, there is no peer review process for putting articles on Wikipedia, but editors work around the clock to keep articles in the right categories and make sure that there is no copyright infringement. The real policing with Wikipedia articles comes from its users.

Most of its reliability comes from the fact that many users who update wikipedia articles keep a close watch on changes that have been made to their work. Looking at various

wiki articles, it's surprising how in-depth users go with their topics. Most of the articles have internal citations and those that don't have users questioning where the editor got that information from. (Leuf & Cunningham, 2001).

While Wikipedia is the most popular website that uses wiki technology today, there are many different wikis on the Web. Other large wikis include the WikiWikiWeb, Wikitravel, and World66. (Wikipedia: Wiki)

So where do wikis fit into e-learning? Well, by its nature, the material is already in electronic form. The fact that the information is easily accessible to anyone with an internet connection makes it tempting to rely on the source as gospel. However, taking information from a source such as Wikipedia and citing it as a scholarly source can cause some problems.

Discussion Questions

1. If you were an educator, would you accept research a student had gotten from a wiki as a viable source?
2. As a student, would you rely on a wiki for information for an assignment?
3. Can you see wiki's developing into a more prominent internet tool?

More Research

- http://www.wikipedia.org
- http://wikiindex.com/Wiki_Index
- http://www.world66.com/
- http://c2.com/cgi/wiki
- http://wikitravel.org/en/

Just for Fun

- http://www.encyclopediadramatica.com/
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Chapter 5 – Instructional Strategies for E-Learning

- 5.1 Floretta Ekwensi, Justin Moranski and Misty Townsend-Sweet present an in-depth discussion on various types of instructional strategies for e-learning.
- 5.2 Floretta Ekwensi explains how to be a successful e-learning mentor.
- 5.3 Kim Stoudt discusses ways to make sure instructional strategies work for e-learners with cognitive disabilities.

5.1 Instructional Strategies for Online Learning

Floretta Ekwensi, Justin Moranski and Misty Townsend-Sweet

5.1 Introduction

Effective teaching begins with effective planning. A vital part of that planning includes determining the instructional strategy to be utilized in order to deliver the instruction. By definition, instructional strategies "determine the approach a teacher may take to achieve the learning objectives" and are included in the pre-instructional activities, information presentation, learner activities, testing, and follow-through. The strategies are usually tied to the needs and interests of students to enhance learning and are based on many types of learning styles. Although e-learning is a relatively new field, strategies used in the traditional classroom setting can be used to create effective learning and a dynamic learning environment online. There are many types of instructional strategies that can be used in an online environment. In this chapter, we will discuss ten effective strategies, including: mentorship, forums, small group work, projects, collaborative learning, case studies, learning contracts, discussion, lecture and self-directed learning.

Mentorship: One-on-One

Mentorship is a one-on-one learning relationship between a student and an expert in a specific topic or discipline for the purpose of supporting learning and development (Gifted Resource Center, 2006). The mentor provides ongoing support, advice, and direction to the student. The mentor can also assume multiple roles to enhance the student learning. At different times, the mentor may be a role model, advocate, sponsor, adviser, guide, developer of skills and intellect, listener, coach, challenger, facilitator, and resource provider (Galbraith, 2000).

"In e-learning, mentorship is a reciprocal and collaborative learning relationship between a mentor and a student" (EEOP Mentorship Program, 2006). It combines the impact of learning with the compelling human need for connection (EEOP Mentorship Program, 2006). In this age of technology, mentorship offers many benefits to e-learners. A major

benefit is the convenient communication through a variety of medium including email, instant messenger, conferencing, text messaging, and more. Students and mentors can conveniently and rapidly communicate with each other through words, pictures, and other information regardless of location or schedules. In addition, it offers a variety of benefits to students with limited mobility and offers students a great deal of exposure to various technology tools, software, and a vast array of educational materials.

A Summary of Mentorship

- Requires no time and place commitments
- Variety of communication choices (email, Instant Messenger, etc.)
- One-on-one learning relationship

Forums: Varied Perspectives in an Online Environment

According to the Illinois Online Network, a forum is "an open discussion carried on by one or more resource people and an entire group" ("Instructional Strategies for Online Courses", 2006). This instructional strategy involves the use of a moderator and an audience. While the moderator asks guiding questions and gently probes for answers, the audience "raises and discusses issues, make comments, offers information, or asks questions of the resource person(s) and each other" ("Instructional Strategies for Online Courses", 2006). There are two different types of forums: the panel and the symposium.

A panel forum can be likened to an online *conference* where a set group of generally three to five speakers is convened in front of an audience to have a *purposeful conversation* on a particular topic ("Instructional Strategies for Online Courses", 2006). This type of forum can be delivered via video conferencing, discussion board or even email (Shimabukuro, 2000). In the panel format, the moderator guides the conversation, and the approach is informal with little or no audience participation ("Instructional Strategies for Online Courses", 2006).

The second type of forum, a symposium, consists of a variety of presenters convened in front of an audience to offer varying aspects of a specific topic. The format is formal, and audience questions are encouraged ("Instructional Strategies for Online Courses", 2006). While generally attending a symposium involves some sort of travel and lodging, the beauty of an online symposium lies in the simplicity. Attendees can participate in various sessions from the comfort of their own homes. In fact, organizers can include such things as virtual tours of the city in which the online-symposium is *based*, video clips containing the bios of the presenters, virtual cafes where participants can chat, online postcards to view and send, and much more (Shimabukuro, 2000).

A Summary of Forums

- Requires presenters and an audience
- Can be panels or symposiums
- Offers flexibility and options for both presenters and attendees

Small Group Work: The Root of Online Learning

One instructional strategy that can be very effective when used in the online learning environment is small group work. Small group work can be used in an online platform for both the corporate and educational setting. This instructional strategy is similar to what a classroom setting would create; having small groups of students working together to accomplish a task. It is just as effective when transferred to an online format. As the instructor is never physically present in an online course environment, the idea of working in a group without direct instructor supervision may not seem to be any less effective as ordinary instruction; but it is not the case. Students in a small group situated in an online learning environment have the ability to research on their own time. Through many of the programs used for online courses, Centra, for instance, text chat with private online meeting rooms are available. Groups get their own private rooms based on administrative settings. Aside from specified meeting places online, the use of instant messaging programs make online communication between group members almost instantaneous.

With group members able to express their own opinions and work in a very collaborative environment, group work can take on different scenarios. Group work can also increase the learners' ability to better organize and manage their thoughts and research. Apart from group discussion, there are also other examples of situations that can make small group work effective. One example is having the members of the group role-play. By giving the group a certain scenario to work through, it allows for the members to think on their own and in a group about how to respond to the situation given to them. This example of small group work really focuses on the group members' mental abilities and abilities to comprehend and apply their knowledge. Another example of how to use the strategy of small group work to be an effective way of instructing is through instructional games. Similar to role-playing in that games make group members think creatively and use their problem-solving skills to accomplish a task. This strengthens their decision-making skills and helps them to become more effective communicators. Games can act as simulations, with the players acting out situations that may be found in the real world. As most instructional games deal with a real-life situation, it is important that the game itself possesses a set of rules and procedures as to better explain the situation and make for a more problem-solving atmosphere. With this interaction between player and game as well as the players with each other, instructional games strengthen players' communication and critical-thinking skills. These are just a few examples that are interactive strategies for small group work.

A Summary of Small Group Work

- Collaboration requires good communication throughout the group
- Role-playing in groups to work out real-world problems
- Instructional Games allow for simulated real-world situations

Projects: The Possibilities are Effective and Endless!

Along with small group work, another effective instructional strategy is through the use of projects. They can be individual or in groups, but whichever way they are assigned, they can be very useful tools for learning. The online learning environment is very different from the traditional classroom setting, and a major factor in this is the Internet. Because the Internet is an immensely vast source for information and resources, there are endless possibilities for topics for projects. As an instructor for online learning, assigning projects is a great instructional strategy. When students are assigned an individual research project, they are given the opportunity to research topics of interest that apply to each individual student. This is a very effective way to create an exciting working environment. Students will have an interest in what they are researching and writing and this strategy provides them with the experience of working through the process, beginning to end, of creating a sound document.

Projects in a group atmosphere also are effective to create a dynamic learning environment. When individual projects are completed, the instructor has the option to keep them private, without sharing them with the rest of the class. However, a more effective strategy would be to have the instructor, or even the students themselves, share the results of their research with the other members of the class. This provides feedback not just from the instructor, but also from their peers in the class. This benefits each class member in that they are provided with honest feedback that will aid them in future projects. Also, feedback from the class is from numerous people with different points of view, which gives students a wider range of feedback than what the instructor could provide. This style of feedback is appropriate for group projects as well. Group projects are similar to small group work, though group projects are focused more on tasks. Students learn to collaborate together and share their own distinct views to work out a common solution to create a fluid project. Group projects can include case studies and simulations and are not just held to the traditional research style project.

A Summary of Projects

- Can be done either individually or in a group format
- Feedback for projects could be individual or from the entire class
- Group projects allow for feedback within the group

Collaborative Learning: Guaranteed Interaction

This particular instructional strategy is a very common strategy when creating a dynamic online learning environment. This strategy involves the interaction between two or more students. The most effective way to implement collaborative learning is to create groups of students with different skill set levels. By creating these groups that combine different ability levels, students learn from their peers. Peer-to-peer learning is a more informal style of learning, but that does not mean it is not effective. In fact, collaboration as an informal learning tool is very helpful. Students can assist their peers by putting the new information in perspective for the learner; the information is conveyed in a way that the learner can relate to it and remember it. This instructional strategy is very useful in the online environment as “collaborative learning methods are now used on over a third of higher education courses” (“Instructional Strategies for Online Courses”, 2006). It is through collaborative learning that students learn to work well in a group environment, and where students also enhance their communication and critical-thinking skills. Collaboration involves interaction, but not all online learning interaction is two-way. The relationships formed in a collaborative learning environment are very important to not only group dynamics and morale, but also, they decide the progress and quality of the work. Students with a strong skill set and a strong knowledge background can very much decide how the group works. If they choose to truly collaborate, and share their skills with those members who need assistance, then the true spirit of collaborative learning is revealed and the group is successful. On the other hand, if those students with stronger abilities choose to not help others and force those members to figure out questions on their own, the group is affected and so is the quality of work. The interaction for this online instructional strategy is what decides its effectiveness. Collaboration, however, is not always in a group setting. Online tutorials, for instance, are a method of collaboration that involves a one way information flow, where an instructor explains it, but the learner cannot interact with the instructor.

A Summary of Collaborative Learning

- Involves interaction between two or more individuals
- Involve members with different skill sets
- Levels of collaboration can influence group dynamics

Case Study: A Good Source for Practice

This particular instructional strategy involves the learners' past experiences and what comes from the case study involves the learners' future. The effectiveness of this instructional strategy is accomplished through an appropriate situation in which a problem relates to both the interests and experience levels of the involved students, not to mention the concepts in which the case study is related to. When using case studies as a very effective way to create a dynamic learning environment, it is important for learners to have access to the problem they are studying but not to the solution until the learners have reached their own conclusions. Once this happens, they should then compare their

own results with that of the actual decision used to solve the problem in the study. Just as previous instructional strategies involved with either individual or group work, case studies strengthen practical thinking. With that, case studies allow students to study those specific examples and apply that knowledge to new, though relatable, situations. Discussion sessions can be accomplished in the online learning environment through Centra and other online collaboration applications as a means to share information so students can later apply this new knowledge. This interaction can also be presented by groups to the rest of the class and discussed through email or, again, online conferencing. The Internet is very useful when working with case studies; not just research, but also for information and advice for further case studies and development.

A Summary of Case Studies

- Should relate to the experiences of the learners
- Provide the opportunity for group brainstorming
- They emphasize practical thinking

Learning Contracts: The Art of Negotiation

Learning contracts can be a very effective tool in an e-learning environment. A learning contract is an agreement between the learner and the instructor that details the learning objective, as well as how that objective will be met (“Instructional Strategies for Online Courses”, 2006). While the objective is usually provided by the instructor, the student is responsible for writing and carrying out the actual content of the contract (“What are Learning Contracts?”, 2004). The final document, however, can ultimately be negotiated by both parties in order to provide a meaningful learning experience that meets the expectations of the instructor.

There are many benefits to utilizing learning contracts in the online learning environment. First, a learning contract provides the opportunity for a diverse population with varying instructional needs. While the objective across an entire class of students may be consistent, the paths to achieving that goal can be as unique as the students themselves (“Instructional Strategies for Online Courses”, 2006). The student can decide upon the pace of the instruction, as well as the most interesting way to achieve the instructor's objective (“What are Learning Contracts?”, 2004). For this reason, this instructional strategy is particularly motivating. Additionally, the learning contract demands, by its very nature, increased accountability. Since students are creating self-imposed guidelines, they are then clear from the start about each of the expectations set forth in the contract (“Instructional Strategies for Online Courses”, 2006). Clear expectations are vital to the success of any student, making a learning contract an important tool.

According to the University of Colorado at Denver, there are eight steps necessary to complete an effective learning contract (“The Learning Contract”, 1998). The first step is to establish the learning needs—what the student knows vs. what the student needs to know. This step is usually done in collaboration between the teacher and student. In step

two, the learning objectives are defined. Again, this step is one that is best done under the direct supervision of the instructor. Once on to step three, the resources and strategies for learning are delineated. This can be completed by the student alone. Step four asks that the evidence for accomplishment be detailed—again by the student. The next step, step five, requires a rubric be set up in order to assess the evidence. A rubric can be as simple as a number of statements about how the work will be evaluated. Step six asks the learner to go over the contract with the instructor in order to negotiate any points of contention. Steps seven and eight actually take place after the contract is written: step seven requires the learner to carry out the instructions in the learning contract, while step eight requires an evaluation of the learning that took place.

There are literally hundreds of online resources, including examples of learning contracts, available. While each may take a slightly different approach, all agree that the learning contract strategy is one that is highly successful, allowing for the development of student responsibility in the learning process.

A Summary of Learning Contracts

- Document can be negotiated
- Primarily the responsibility of the learner
- Provides the opportunity for varied instruction

Discussion: Talk is Cheap - And Effective!

Utilizing discussion as an instructional strategy in an online environment is sure to appeal to many adult learners. In fact, discussion is the most favored of all instructional strategies because it is "interactive and encourages active, participatory learning." ("Instructional Strategies for Online Course", 2006). The onus for success in the discussion model can also be formatted to share the responsibility for the instruction and learning equally between teacher and student.

The varied options when using discussion in an e-learning situation are exciting and diverse. Discussion boards are certainly the most popular, though other options include listservs and online text conferencing, depending upon the technical knowledge of the students. Synchronous text chat is also widely used, as is video conferencing. Regardless of the format, however, one thing is certain: student participation will be necessary to make it work.

Since learners are often isolated in an online learning environment, the opportunity for discussion, in any forms, will facilitate a feeling of belonging to a group, which is often a key for success in education (Herring, 2002). Discussions, dependent upon the format, will also appeal to a wide variety of learning styles. The auditory learner will benefit from the synchronous options, while visual learner will take a great deal away from an asynchronous discussion mode. Additionally, students are given the opportunity to learn from one another instead of relying solely upon the instructor.

Dr. Mary Herring, Hawkeye Community College, insists that using discussion in an online learning situation is extremely important. Herring states that the discussion model builds in interactivity. In a traditional classroom, students often interact with only one or two classmates. In an online setting, however, the opportunity to interact with literally dozens of learners is feasible (Herring, 2002).

Authors Brookfield and Preskill, in their book Discussion as a Way of Teaching, suggest that there are further benefits to utilizing the discussion model. The book suggests that discussion provides the participants the chance to see and experience differing perspectives; increases participant ability to recognize and investigate preconceived notions; and strengthens the participant's connection to the topic (Brookfield and Preskill, 1999).

Finally, the Worchester Polytechnic Institute's Teaching With Technology website offers the following reasons to incorporate discussion as an instructional strategy. Not only does it offer greater cognitive learning, it also gives students a great sense of empowerment, as well as a sense of equality in the classroom ("Improving the Use of Discussion", 2005).

A Summary of Discussion

- Most favored of all instructional strategies
- Appropriate for a wide variety of learning styles
- Fosters a sense of belonging

Lecture: Sage on the Stage

The lecture strategy for instruction is the model that, in direct contrast to the discussion model, requires the most of the instructor in an e-learning setting. This strategy assumes the instructor to be the subject matter expert (SME) who lays the foundation for students. Says Carolyn Hardy, "Lectures provide a basis of subject knowledge on which other knowledge, such as declarative, procedural, and conditional knowledge can be built" (2002). That might not be as easy as it sounds, however, as a good lecturer must know how to differentiate the lecture materials to meet the individual needs of the students ("Instructional Strategies for Online Courses", 2006).

Lectures can take many forms in a virtual environment. A complete set of lecture notes can be presented as a web page or offered as a PDF or Microsoft Word file that can be played directly from the source or offered to the learner as a download. Lectures may also be recorded and offered in a Podcast format, as a PowerPoint presentation or even a flash file. By adding graphics, animation, sound, etc., the lecture can be made into a multi-media presentation, or even presented in streaming video, in an effort to stimulate the learner and appeal to varying styles of learning. Pitt and Clark, University of Denver, contend that any lecture, however, should be contained to a twenty minute maximum: just enough time to provide information that will serve as a basis for further student research (2001).

While lecture may be one of the most often employed of the instructional strategies, especially at an adult level, it is important to note that in the online setting, lecture is more effective when combined with other methods of instruction ("Instructional Strategies for Online Courses", 2006). In fact, recent instructional research notes that while lectures are standard fare, *best practices* should be more student-centered and participatory—something not necessarily afforded in a lecture format ("50 Cool Things", 2006).

A Summary of Lectures

- Requires the most work from the instructor
- Can work to provide a foundation upon which students can build
- Is most effective when combined with other instructional strategies

Self-Directed Learning: Guide on the Side

Self-directed learning is defined as "learning initiated and directed by the learner (that) can include self-paced, independent, and individualized learning as well as self-instruction" ("Instructional Strategies for Online Courses", 2006). This strategy can be very effective, as it forces the learner to take the initiative, resulting in a more active learning process, thereby facilitating a deeper understanding of the material (Knowles, as referenced by Clark, 2001).

E-learning, by its very nature, is a great forum in which self-directed learning can occur. Asynchronous classes which offer guidelines for learners can then allow those learners to work at their own pace, in their own environment, utilizing resources often found through self-guided research. Students can work independently, visiting virtual libraries, museums and even access newspapers and the latest research from the comfort of their own homes (Clark, 2001).

An online environment such as BlackBoard offers a number of opportunities for self-directed learning ("Self Directed Learning," 2002). Students can utilize the Personal Calendar as a way to organize tasks; peruse the Course Map to locate courses and activities; engage in instructor-lead assignments which require independent research; or use the External Links to find additional resources. Environments such as WebCT also offer additional options for self-directed learning such as bookmarks which allow the student to review target points in the material for further exploration or develop individual research plans using the Image Database or Reference section of the tool ("Self Directed Learning", 2002).

This instructional strategy may be the way of the future in online learning. McCormack and Jones contend that "the trend in web-based classrooms is away from the student as a passive recipient of knowledge toward the student involved in the learning process as an active, self-directed participant" (as referenced by Matthew, 2000). With that in mind, instructors need to begin to search for ways to motivate learners to engage in self-directed learning.

A Summary of Self-Directed Learning

- Learning is initiated by the learner
- Results in participatory learning
- Results in deeper learning of material

5.1 Conclusion

In conclusion, while there are dozens of instructional strategies that can be utilized in an online classroom, it is the instructor who must decide the most appropriate method of delivery. That decision must be based upon the information to be imparted, the learners themselves, and the availability of technology. It is important for all those involved in the e-learning process, however, to remember the following:

"Without appropriate pedagogy, use of high capacity communication services cannot provide significant improvements in learning outcomes. In general, it is the pedagogy that provides for learning, not the technology of the software alone." James Carr, PhD., the University of Newcastle upon Tyne

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5.2 Mentorship in Self-Directed E-Learning

Floretta Ekwensi

5.2 Overview

I became interested in this topic after I researched it for the e-book project for my E-learning Concepts class. What struck me was that I was already using this style of teaching without fully realizing what it was. I developed a mentorship self-directed e-learning training method to collaborate with my students while giving me the flexibility of working with no time commitments. I found that it worked well for the students because they received targeted and focused mentor-facilitated training at their own pace and convenience. Over the years I have found mentoring to be a successful teaching strategy in self-directed e-learning. Students are perplexed by what they learn and at the same time, they enjoy the satisfaction of knowing that they did it by themselves. This article discusses the role of mentorship in self-directed e-learning environments.

5.2 Introduction

Mentorship is a relationship between a student and a teacher for the purpose of learning and self-development. Self-directed learners are usually learners who are provided with instructional materials and who work at their own pace to learn the materials and achieve the objectives for the course. To become a successful self-directed e-learner, the learner must accept responsibility for majority of their learning. This involves setting their own time schedules, developing the right study habits and discipline necessary for accomplishing the tasks. Mentorship works well in self-directed learning because the teacher assumes the role of a mentor while the student assumes the role of a mentee.

This unique relationship allows the mentor (teacher) to facilitate the student's (mentee's) work without encroaching on their space.

Note: Mentor and Teacher, Mentee and student are used interchangeably in this article.

The Mentorship Relationship

In a mentorship based self-directed e-learning, the teacher is made available to the student for support, work review, and direction. The uniqueness of this relationship is further enhanced through the mentor's ability to take on multiple interchanging roles. For example, the mentor can act as a skills builder. As a skills builder, the mentor can help the student or mentee build on their existing skills by applying what they already know to the course. A good example is a programmer who is trained in C++, trying to learn JavaScript. A mentor can help the programmer apply the same concepts learned in C++ to JavaScript. A mentor can also act as a challenger and resource provider by helping the student or mentee locate useful resources and challenging them to push their knowledge and skill set to a higher level. A mentor can also assume other vital roles such as a facilitator or an evaluator. Regardless of the role the mentor assumes, the vital task is to build the knowledge of the student while the allowing them the freedom and convenience of working at their individual pace.

Roles Must Be Clearly Defined

A vital key to successfully utilizing a mentorship relationship in a self-directed learning atmosphere is understanding the nature of the relationship. A mentor relationship is usually a reciprocal relationship. The term reciprocal implies that it is a *give and take* relationship. For example, I teach HTML lessons online through self-directed mentorship learning. In my role as the mentor, I expect to guide and facilitate my students in their learning experience. I can provide guidance to students when I have seen some evidence of effort on their part otherwise, I assume the role of a resource provider and tell the student where to locate the resources needed to build the skill set. The key here is that mentors and mentee must clearly understand their roles and assume the proper responsibilities so that they do not interfere with each others roles.

Technology-Enhanced Mentorship Relationship

The exciting thing about mentorship in self-directed e-learning is the vast amount of technology tools available to encourage collaboration and communication between the mentor and mentee. These tools make it easy for the mentor and mentee to stay in touch almost instantaneously eliminating the isolation that was previously attributed to this mode of learning. Some of these tools include email, text messaging, instant messaging, course management systems, online grading, course websites and more. To appreciate these technologies it is necessary to recall how they were done before they were enabled by technology.

In the past, there were the correspondence schools were self-directed learners only communicated with their instructors via snail mail. This often led to high drop out rates and loss of interest by the student. Today, students can receive guidance within minutes via email, receive instantaneous responses via instant messaging, access their course materials through course management tools such as blackboard or course website, and even send text messages directly from the mobile phone to their mentors. A big advantage of technology enhanced mentorship that must not be overlooked is the course materials themselves.

In the past, course materials were printed and mailed to the students. Today, course materials are posted on course websites this makes it easy for the materials to be updated. In addition, it ensures that students are also receiving the latest and most up-to-date materials. Another advantage of technology enhanced mentorship in self-directed e-learning is the ability for students to instantaneously view their grades. Grades are posted electronically and students can easily monitor their progress throughout the course.

One cannot overlook the global benefits as well. Students from all over the world with access to the Internet can participant in this learning method. Technology-enhanced mentorship actually offers a cost benefit to both the mentor and mentee because it eliminates postage costs and time spent waiting to receive materials.

Successful Mentorship Strategies in E-Learning

In my eight years of training as a mentor for self-directed e-learning, I have found a number of successful strategies that work for mentors and mentees. These strategies should be clearly defined and stated while developing the course plan. They should also be visible through out the course.

Have a published description of your self-directed learning.

This is especially important because it sets the expectations from the start. Students know what to expect and how the course is run. This published description should be made available to all prospective students on the school website as well as the course website. In some schools, students are made to acknowledge through an electronic signature that

they have clearly read and understood the way the school defines e-learning and the way the mentor engages the student. The description should include the student's responsibilities and the mentor's role in the student's learning. It should also provide the student with the collaboration and communication options with the expectation that the mentor is available for the student.

Set a ball park expectation for students to complete their assignments.

Although a key benefit of self-directed e-learning is the convenience of working at an individual pace, mentors should have a ball park estimate of when to receive assignments. Students should not be encouraged to completely relax with their school work. Part of self-directed learning is the fact that the student becomes responsible for their learning. Part of this learning is maintaining a good study habit. In many schools, students are allowed a generous amount of time to complete their work, however there is a deadline. This deadline can be extended when the student files a course extension request. When ballpark expectations are set for students it helps them maintain an active study status rather than a passive one.

Clearly communication the course objectives and goals.

For each course there should be set objectives that students must master. It is very important to clearly communication these objectives and goals to students. Clarity is a key thing in self-directed e-learning, otherwise, students blindly walk through the course. Some schools actually have students use a check list to ensure that they have met all the required course objectives for each lesson. Homework assignments should tie into course objectives and the overall course goal.

Give a clear and extensive description of the course projects.

A key success factor in e-learning is clear direction on projects. Because students work on their own, it is very important that they are provided with clear description on projects. The description should include the goal of the project and the project expectations. In some cases, I have seen teachers ensure that step-by-step guidelines are provided. By providing step-by-step guidelines, students are able to focus on the task at hand rather than spending most of their time trying to understand the project.

Have mentors commit to a reasonable response time.

Another key success strategy in e-learning is response time. In this regard, response time is the time it takes a mentor to response to a student. Mentors should commit to a quick response time so that students are motivated to move on with the course.

Provide extensive feedback on projects and homework.

Extensive feedback is very vital in mentorship based e-learning. Extensive feedback allows the students to clearly identify where they have gone wrong, locate the areas of

improvement. A good example I have seen at Bloomsburg University is with Dr. Byers classes. Dr. Byers, provides clearly written set guidelines for each project she assigns students, with key areas of focus. She then evaluates each project extensively based on the set guideline and provides extensive feedback within a reasonable time frame. This example is vital for self-directed e-learners since they are not in a traditional classroom environment with face-to-face interaction with the teacher.

5.2 Summary

There is no doubt that these are exciting times for e-learners. Mentorship in self-directed e-learning has come a long way over the years. It has enhanced e-learning and eliminated most of the barriers, problems, and obstacles that previously existed with distance learners.

With technology, it has even become more exciting to be a self-directed e-learner – the isolation process is eliminated with mentors and further enhanced with technology. I have personally seen mentorship in self-directed e-learning work over and over again. When mentoring is utilized in self-directed e-learning with the successes strategies, it both energizes and motivates students and drives them to becoming high performers.

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5.3 E-Learning and Cognitive Disabilities

Kimberly A. Stoudt

“Individuals with cognitive disabilities represent the largest single disability group worldwide. There are 4 times more individuals with cognitive disabilities than there are individuals who are blind” (Rowland, 2004). So why is the web development community struggling to define guidelines that may be applied to content for cognitively disabled students? Could the answer lie in the complexity of the cognitive disability realm and the developers' inability to know exactly what the students need? We know when someone is blind they cannot see the material, or a deaf person cannot hear. However, we do not understand how to present accessible material in a manner to improve perception and processing limitations, short-term memory loss, attention deficit, and poor problem solving skills.

Assistive e-learning technologies may be educationally supportive for cognitively disabled students, but only if the student has adapted to the necessary skills to be successful in an e-learning environment. As educators and instructional designers, how can we plan our curricula to assure that cognitively disabled students are successful in e-learning environments? We need to consider what impact these technologies will have on accessibility of content.

Many assistive technologies are available to afford academic success for cognitively disabled students; however, these technologies offer relief only in asynchronous environments. As students progress through educational systems, there will come a time when they are exposed to synchronous learning environments. This situation raises particular concern to accessibility issues for cognitively disabled students. Accessibility is segued from assistive technologies to the basic inability to keep up with other students. What can be offered to reduce accessibility issues, intellectual obstruction and psychosocial repercussion for these students?

“Collaborative learning, in particular, has been established as a common delivery strategy to encourage social negotiation. However, when dealing with students with dyslexia, the implementation of online collaborative learning raises problems far beyond those of accessibility and web design” (Woodfine, 2005).

“Any collaborative approaches that depend on test based synchronous activities present problems to students who find it hard to express themselves in writing, who have difficulties with reading, and who have problems with short term memory” (Woodfine, 2005).

Where and what are the answers to this ever growing problem?

A continuous and strong message must be put to e-learning educators, designers, developers and students that this is a serious issue, but one that can be overcome.

In synchronous e-learning environments students must be able to follow content presentation and collaboration. Every attempt must be made to present material in a sequential manner and allow cognitively disabled students adequate time to comprehend and respond to concepts, chat and questions. Cognitively disabled students may need more time to grasp information and participation must be assured without fear of embarrassment or leaving the student feeling left out of the class. Whenever possible, classroom activity should be recorded for students to review at their individual pace.

Several, recommendations provided by Bohman (2004) include:

1. Keep content and design simple. Don't presume all students have similar language skills.
2. Design material as multi-modal, illustrating with graphics, charts and animations, etc.
3. Focus attention on students. A) Use softer colors rather than sharp contrasts. B) Limit types of fonts, eliminating ALL CAPS or italics.
4. Avoid background sounds that distract the student from course content.
5. Focus on content, attempting to keep important issues in the first sentence of each paragraph. Organize content into groups or *chunks* using headings, bulleted lists and other visually organized structures (Bohman, 2004).

This is a very limited compilation of the recommendations in Mr. Bohman's article, but it is a beginning of a journey to help cognitively disabled students enjoy the same learning opportunities as non disabled students. As it is succinctly stated, Bohman (2004), “We still know too little, and we do even less” (Bohman, 2004).

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Chapter 6 - Information Ownership

Information ownership is about copyright. The original U.S. Copyright Act was designed to protect the interests of authors of original works of literature, maps and charts against unauthorized copying and against the selling of unauthorized copies. Since then the U.S. Copyright Act has undergone some significant changes. Copyright on the global level is continuing to evolve and change as well. Many of those changes are the result of technological advances in the distribution and digital format(s) of copyrighted materials and the ensuing technological advances in copying that copyrighted material.

- 6.1 Nicole Forst, Michael Bond and John Zelenak explain the original copyright law from its humble beginnings in England to the beginnings and revisions of the U.S. Copyright Act and finally to the worldwide copyright organization called The Berne Convention.
- 6.2 Melanie Hurta relates the different types of Creative Commons copyright for online materials.
- 6.3 Ken Dunlap and John Zelenak present their opinions of the future of e-Copyright and information ownership.
- 6.4 Nicole Forst provides an overview of e-Copyright issues.

6.1 The Origin and History of Copyright

Nicole Forst, Michael Bond and John Zelenak

Hot Buttons in Copyright History

Modern copyright laws have had to be expanded to include such areas as digital art, computer software, and other digital works. The first major revision of copyright laws to encompass these areas was in 1990 when congress amended the law to include the unlawful distribution of computer software. The first major case to involve this form of copyright infringement of digital materials was Playboy Enterprises Inc. and Frena, an online electronic bulletin board operator when a member of the bulletin board posted a digitized photograph from Playboy Magazine on the board and another member downloaded it.

The courts found “it does not matter that Defendant Frena may have been unaware of the copyright infringement. Intent to infringe is not needed to find copyright infringement. Intent or knowledge is not an element of infringement and thus even an innocent infringer is liable for infringement; rather innocence is significant to a trial court when it fixes statutory damages, which is a remedy equitable in nature.” (“TIMELINE: A history of copyright in the United States”, 2002)

Some of the other major issues that have surfaced throughout the modern, digital age of copyright protection include:

- Conference on Fair Use (CONFU) established in 1994
- Database Investment and Intellectual Property Antipiracy Act of 1994
- Sonny Bono Copyright Term Extension Act of 1998
- Digital Millennium Act of 1998
- National Conference of Commissioners on Uniform State Laws (NCCUSL) passes the Uniform Computer Information Transaction Act (UCITA)
- Digital Theft Deterrence's and Copyright Damages Improvement Act
- Congressional ruling on the Digital Millenium Copyright Act (DMCA)
- 2002 Congress approves the TEACH (Technology Education and Copyright Harmonization) Act

The modern revisions to copyright law, nationally and internationally, prompted by the digital age in which we live are probably the ones we can remember most easily. Here is an account of some of the details in the origin and history of copyright law that led to those landmark changes.

The Origin of Copyright

The U.S. Copyright Act of 1790 was only the beginning of copyright law in the United States of America and was built upon the nearly 130 years of copyright law(s) in use in England. The Licensing Act of 1662 in England was instituted in response to the invention and growing proliferation of the printing press. The Licensing Act of 1662 was established to grant printing and publishing rights of licensed books to certain printers and was administered by the Stationers' Company, who had been given censorship authority.

By 1695, the Licensing Act of 1662 had not been renewed or updated and government censorship fell into a state of disrepair. While the Licensing Act of 1662 was less about the ownership of printed works than about governmental control of the content of printed works, the Parliamentary approved Statue of Anne in 1710 addressed the author's copyright of printed works to be a period of fourteen years and could be renewed for a second period of fourteen years provided the author was still alive.

The Beginning of Copyright Law in the U.S.

In 1787, as part of the U.S. Constitution, Article 1, Section 8, Clause 8, “The Congress shall have power to lay and collect taxes, duties, imposts and excises, to pay the debts and provide for the common defense and general welfare of the United States; but all duties, imposts and excises shall be uniform throughout the United States;... To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries;” (“TIMELINE: A history of copyright in the United States”, 2002)

In three short years, the First Congress enacted the U.S. Copyright Act of 1790, an Act for the Encouragement of Learning, by Securing the Copies of Maps, Charts, and Books to the Authors and Proprietors of Such Copies. This act granted American authors and inventors copyright for a period of fourteen years and the option to renew the copyright for an additional fourteen years.

The goal of the act was to encourage authors and inventors to create original works to the benefit of the author or inventor and to the benefit of the general population and to the United States of America. By providing the author or inventor with a limited monopoly over the control of their works, the U.S. government hoped to stimulate works of significant use and scientific merit.

Revisions to the Original U.S. Copyright Act

The major revisions were enacted in 1831, 1870, 1909 and 1976. Each revision was implemented to extend greater control of the copy written work to the author while protecting the public from undue monopoly of the copyrighted works. The early revision dealt primarily with the length of time of the copyright. The 1976 revision also addressed forms of copying to include newer copying technologies.

The 1831 Revision

Previously, copyright protection afforded the author the right to restrict copying of the work for a period of fourteen years, with a renewal of the original copyright for an additional fourteen years. In 1831, the original copyright was extended to a period of twenty-eight years with the option of an additional fourteen-year extension. This revision was claimed by Congress to be enacted to give the same protection enjoyed by British authors to American authors. The new twenty-eight year term applied to current works to which the copyright had not expired as well as to future works.

The 1870 Revision

This was a change in the administration of copyright registration from individual district courts to a centralized registration agency within the Library of Congress Copyright Office. No other changes were made at this time.

The 1909 Revision

This revision included two significant changes. It extended copyright protection to all works of authorship, and extended the length of protection to twenty-eight years with an optional renewal of twenty-eight years. The object in the latter change was to find a balance between protecting the author's profitability and the limiting the public's exposure to undue monopoly of copyrighted material.

“The main object to be desired in expanding copyright protection accorded to music has been to give the composer an adequate return for the value of his composition, and it has

been a serious and difficult task to combine the protection of the composer with the protection of the public, and to so frame an act that it would accomplish the double purpose of securing to the composer an adequate return for all use made of his composition and at the same time prevent the formation of oppressive monopolies, which might be founded upon the very rights granted to the composer for the purpose of protecting his interests (H.R. Rep. No. 2222, 60th Cong., 2nd Session., p. 7 [1909])." ("TIMELINE: A history of copyright in the United States", 2002)

The 1976 Revision

This revision was the first to begin to address new electronic copying technology as it became more available to the public and to begin to bring the U.S. Copyright Act into alignment with international copyright law. In this revision, copyright protection was adjusted to the life of the author plus 50 years. This protection preempted the original copyright act and all previous revisions. Copyright protection was extended to unpublished works. This revision also fully addressed and detailed fair use.

Section 108 which allowed photocopying without permission by libraries for the purpose of scholarship, preservation, or interlibrary loan was added. The section stated, "the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright." ("TIMELINE: A history of copyright in the United States", 2002)

These four factors determined fair use; nature of the copyrighted work, purpose and character of the use, the amount and substantiality of the portion used in relation to the whole, and the effect of the use on the potential market.

Classroom guidelines were included in a House Report accompanying the 1976 revision. Further, Congress appointed The National Commission on New Technological Uses of Copyrighted Works (CONTU) to develop guidelines for the "minimum standards of educational fair use." According to the appointment, "The CONTU guidelines were developed to assist librarians and copyright proprietors in understanding the amount of photocopying for use in interlibrary loan arrangements permitted under the copyright law." ("TIMELINE: A history of copyright in the United States", 2002)

Further Revisions were made, many as a result of changes in technology.

The Berne Convention

The Berne Convention is an international agreement about copyright, which was first adopted in Berne, Switzerland in 1886. In 1988, the United States became a Berne Signatory, which means that it adheres to this International Copyright Law. This also opened up the opportunity to share works and copyrights with 24 other countries. Finally

the US becoming a Berne Signatory eliminated the requirement of copyright notice for copyright protection.

1990 Circulation of Computer Software

The Copyright Act was amended in 1990 to include computer software. It was stated that it is prohibited to lend computer software commercially. Libraries are allowed to lend out software but the software must contain a copyright warning on it.

Early 1990's

During 1992 Congress made an Amendment to Section 304 of Title 17. This allowed for the automatic renewal of copyrights. This was later *overwritten* by the Sonny Bono Copyright Term Extension Act.

In 1993 a group called The Working Group on Intellectual Property was created to see if Copyright Law and the National Information Infrastructure (NII) were effective. The following year (1994) The Working Group on Intellectual Property held hearings and other activities to see the effectiveness of Copyright and thus a report was created called the Green Paper.

After it was released more hearings were held to see the reactions to the report. Also in 1994 Conference on Fair Use (CONFU) was held. This conference was set to discuss the Fair Use Agreement in an electronic medium. Guidelines were created for educational multimedia uses, and proposed guidelines were created in a number of other areas.

1995 Release of the White Paper

In 1995 The Working Group on Intellectual Property released the White Paper, "Intellectual Property and the National Information Infrastructure", which had a list of recommended ways to amend the Copyright Act of 1976, and had a legal analysis of the Copyright Law in its current state (1995).

In the actual White Paper a list of recommendations are as follows:

- The Transmission of Copies and Phonorecords: This needs to be revised because of high speed internet and other ways to transfer; copies of works can be placed at many locations. So in a way it is being distributed even though it is not meant to be distributed. The Working Group also recommends that the definition of transmit be changed as well to reflect the changes in technology. Lastly the Working Group recommends, that "prohibitions on importation be amended to reflect the fact that, just as copies of copyrighted works can be distributed by transmission in the US, they can also be imported into the US by transmission."
- Public Performance Right for Sound Recordings: The Working Group recommends "Section 106 of the Copyright Act be amended to show that copies and phonorecords can be distributed by transmission."

- Library Exemptions: The Working Group is worried that Section 108 of the Copyright Act is no longer important in what will become the Digital Era. So they recommend that "it is important to expand the exemption rule so that digital copying by libraries and archives is permitted under certain circumstances."
- Reproduction for the Visually Impaired: The Working Group based their recommendation on the Australian Law, and eventually would allow non-profit organizations "to reproduce and distribute to the visually impaired."
- Criminal Offenses: The Working Group agrees with the new movement that makes it a criminal offense to "willfully infringe a copyright by reproducing or distributing copies with a retail value of $5,000 or more. Also ensures that carelessness or accidental infringement will not be prosecuted."
- Technological Protection: The Working Group would like to see a new chapter added to the Copyright Act. This chapter would include a provision to "prohibit the importation, manufacture or distribution of any device, product or component incorporate into a device or product, or the provision of any service, the primary purpose or effect of which is to avoid, bypass, remove, deactivate, or otherwise circumvent, without authority of the copyright owner or the law."
- Copyright Management Information: The Working Group would like to see "The Copyright Act amended to prohibit the provision, distribution, or importation for distribution of copyright management information known to be false and the unauthorized removal or alteration of copyright management information."

For more information on the White Paper go to http://www.uspto.gov/web/offices/com/doc/ipnii/ which has the White Paper in its entirety and goes into more details then what is written here.

1996 Database Protection Legislation

1996 saw the creation of the *Database Investment and Intellectual Property and Anti-piracy Act*. This act was to try and protect databases for fifteen years against unauthorized extractions. Variations on this act were introduced in 1999 and discussed until 2002.

Also in 1996 World Intellectual Property Organization (WIPO) met in Geneva, Switzerland; eventually they adopted versions of two treaties that approached copyright in a new way. They also came up with a Fair Use Statement for the Digital Era. The Fair Use provision states "Additional provisions of the law allow uses specifically permitted by Congress to further educational and library activities. The preservation and continuation of these balanced rights in an electronic environment as well as in traditional formats are essential to the free flow of information and to the development of an information infrastructure that serves the public interest." ("Fair Use in the electronic age", 2001)

Sonny Bono Extension Act

This act created the Copyright Term Extension Act (CTEA) and what it did was change copyright from the life of the author plus 50 years to life of the author plus seventy years. This is applied to works that are under copyright on the date that this law was implemented. Libraries, archives and non-profit educational institutions have certain exemptions that are allowed.

1998 Digital Millennium Copyright Act (DMCA)

This law implemented 5 different things. They are the WIPO Internet treaties, safe harbors for online service providers, permitted temporary copies of computer programs during computer maintenance, misc. amendments to the Copyright Act, and created protection for boat hull designs.

The DMCA has rulemakings that occur every three years. For more information see "Federal Relations and Information Policy" (2005) on the Association of Research Libraries web site.

1999 Digital Theft Deterrence and Copyright Damages Improvement Act

This act increased the fines for copyright infringement. Minimum payment for infringement is now $750 and the maximum is now $30,000.

2000 Library of Congress Ruling on DMCA

In October 2000, Library of Congress announced that there are exemptions in two narrow classes of works. They are lists of websites that are blocked or filtered out by software and literary works. It also includes computer programs and databases. Full details can be found in “Anticircumvention Rulemaking”, (2000) at the U.S. Copyright Office web site.

2002 Senate Approves Distance Education Legislation

The *TEACH* Act was approved in late 2002, some benefits of this act are: more materials that can be used for distance education, deliverability of the content to students that are not in the classroom, keep archives of classes on servers, or a digital format, and converting some materials from paper based to digital formats. With the TEACH Act there are a lot of conditions or provisions.

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Section 6.2 Creative Commons License

Melanie Hurta

Creative Commons Licenses

Creative Commons licenses provide a flexible range of protections and freedoms for authors, artists, and educators. We have built upon the *all rights reserved* concept of traditional copyright to offer a voluntary *some rights reserved* approach. We're a nonprofit organization. All of our tools are free. (Creative Commons [CC],2006).

The idea underlying Creative Commons is that some people may not want to exercise all of the intellectual property rights the law affords them. We believe there is an unmet demand for an easy yet reliable way to tell the world *Some rights reserved* or even *No rights reserved.*

Many people have long since concluded that all-out copyright doesn't help them gain the exposure and widespread distribution they want. Many entrepreneurs and artists have come to prefer relying on innovative business models rather than full-fledged copyright to secure a return on their creative investment. Still others get fulfillment from contributing to and participating in an intellectual commons.

For whatever reasons, it is clear that many citizens of the Internet want to share their work -- and the power to reuse, modify, and distribute their work -- with others on generous terms. Creative Commons intends to help people express this preference for sharing by offering the world a set of licenses on our website, at no charge. (CC, 2006)

Creative Commons

Creative Commons consists of Creative Commons Corporation, a Massachusetts (United States based) charitable corporation and Creative Commons International, a UK non-for-profit company limited by guarantee. Volunteer leads living in different jurisdictions help to promote the idea of Creative Commons. The project leads and Creative Commons International are independent and separate from Creative Commons Corporation. They collaborate to promote Creative Commons licenses and tools.

Creative Commons has created Common Content – a subsidiary. Commoncontent.org is "an open catalog of Creative Commons licensed content." (Common Content [ComC], 2006) Currently, it contains millions of works cataloged into one location with its own search engine. It is a storage house for Public Domain and Creative Commons Copyrighted works to be available to others, whether contributors or users.

Globalization and Copyright

Because the Internet has broken the boundaries of states, countries, cultures, and social niches, there is an opportunity for creative people to express themselves like never before. The digital revolution has given these people the tools needed to produce and distribute works in a high, professional quality. The Internet and electronic tools have allowed others to create new, derivative or collective works "on a global level, in a decentralized manner, and at comparatively low cost" (CC, 2006). Together, the Internet and the digital revolution have positioned authors, artists and educators in such a way that many of them desire the types of copy rights offered by Creative Commons.

Globalization has not only affected corporations and the business sector, it has been seen the areas of science and education. "The free encyclopedia Wikipedia and the free and open source software community are examples of these sociological and economic phenomena. The activities of many contributors to projects in these areas are not motivated by the desire to gain (immediate) financial benefit but by the desire to learn, to get recognition, and also to help others." (CC, 2006)

Currently, Creative Commons Metadata can be embedded in a variety of formats:

- HTML
- RSS
- RSS 1.0
- RSS 2.0
- Syndic8
- Audio (MP3 and Ogg)
- XMP (PDF, image formats)
- SMIL (Synchronized Multimedia Integration Language)

Unfortunately, the flipside of these exciting technologies and global information access is that these same technologies and global opportunities are being used for illegal copyright violations. “Many consumers, in particular young people, have come to regard it as normal to disrespect the legal and legitimate claims of creators and producers of content to be paid for the use of their works.” (CC, 2006)

Large right holders have begun a campaign to reduce copyright infringements. Unfortunately, some of their methods have been successful, and unfortunately for those creative peoples, who want to gain exposure and freely distribute their works on their terms, been a detriment.

The large right holders have included the following in their methods:

- Trying to prevent the deployment of technologies that can be put to infringing uses
- Developing tools that enable them to manage their rights with an amount of precision hitherto unknown and unthinkable: digital rights management and technological protection measures against unauthorized copying
- Successfully lobbying for support of these technological measures through legal restrictions
- Starting huge publicity campaigns designed to teach young people that they must keep their hands off copyrighted material - or else
- Creative Commons is trying to keep all technologies from being taken away from the common user. Instead of deploying a *hands off* approach, they “have built upon the *all rights reserved* concept of traditional copyright to offer a voluntary *some rights reserved* approach.”

Categories of Creative Commons Copyrights

Currently, there are three categories of Creative Commons Copyrights:

Attribution
: You let others copy, distribute, display, and perform your copyrighted work — and derivative works based upon it — but only if they give credit the way you request.

Noncommercial
: You let others copy, distribute, display, and perform your work — and derivative works based upon it — but for noncommercial purposes only.

No Derivative Works
: You let others copy, distribute, display, and perform only verbatim copies of your work, not derivative works based upon it.

One must not think that he is giving up all rights to his work. Each of the Creative Commons Copyrights has inherited baseline rights and restrictions.

Baseline Rights and Restrictions in all Licenses

All Creative Commons licenses have many important features in common:

Every license will help you to:

- Retain your copyright
- Announce that other people's fair use, first sale, and free expression rights are not affected by the license.

Every license requires licensees:

- To get your permission to do any of the things you choose to restrict — e.g., make a commercial use, create a derivative work;
- To keep any copyright notice intact on all copies of your work;
- To link to your license from copies of the work;
- Not to alter the terms of the license
- Not to use technology to restrict other licensees' lawful uses of the work

Every license allows licensees (provided they live up to your conditions):

- To copy the work
- To distribute it
- To display or perform it publicly
- To make digital public performances of it (e.g., webcasting)
- To shift the work into another format as a verbatim copy

Every license:

- Applies worldwide
- Lasts for the duration of the work's copyright
- Is not revocable

Creative Commons and Types of Applications

CreativeCommons.org wants everyone's contribution to be custom-copyrighted, that they offer several applications with the Creative Commons Copyrights built into them. The following is a list from their website.

Photography Applications

SnapGallery: [Windows] Drag a folder of photos on your desktop onto this script and it will automatically build you a Gallery of HTML pages. You can select a license during setup that will be embedded in each gallery page.

Weblog Applications

Movable Type: [server software] A robust weblogging system that allows you to select and apply a license to your individual blogs. Displays the button and metadata automatically.

Manila: [server software] Another weblog management system that allows authors to select licenses for their blogs, displaying the button and metadata in your site's template.

Squarespace: [service] A website- and blog-publishing service that allows users to select a CC license for their sites and displays a license button and metadata automatically.

Web Applications

Archive.org: An archive of content, the Open Source Movies section displays Creative Commons licenses and lets anyone add their own movies under a license. The Open Source Audio section does the same, but for audio files.

YMDI: Youth Media Distribution is a teen-themed offshoot of the documentary filmmaking non-profit Media Rights. Teens can upload films they have created, get information on how to distribute films, and license their films for use by others.

Ticketstubs.org: Share stories of past concerts, movies, and events. When you contribute a story, you can license your story for use by others.

Bumperactive.com: Create your own bumper sticker. The CC license engine is integrated to Bumperactive's upload process.

Mobile Applications

WINKsite: A mobile publishing system that allows you to select and apply a license to your mobile site & blog. Displays the button and metadata is automatically included in feeds.

In conclusion, Creative Commons Copyright seems like a perfect fit for those who want to distribute their works freely, yet be given the recognition that they deserve.

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6.3 The Future of Copyright

Ken Dunlap and John Zelenak

Copyright and the Economy

Copyright has always been about the money. Well, it's almost always been about the money. The first copyright law in England, the Licensing Act of 1662, was about censorship and suppression of non-religious or anti-religious texts. Actually, that was about the money as well. The Church of England, like many religious movements of the time, relied on the ignorance of its congregation to religious and secular alternatives in order generate a revenue stream.

“Whereas the well-government and regulating of Printers and Printing Presses is matter of Publique care and of great concernment especially considering that by the general licentiousnes of the late times many evil disposed persons have been encouraged to print and sell heretical schismatical blasphemous seditious and treasonable Bookes Pamphlets and Papers and still doe continue such theire unlawfull and exorbitant practice to the high

dishonour of Almighty God the endangering the peace of these Kingdomes and raising a disaffection to His most Excellent Majesty and His Government For prevention whereof no surer meanes can be advised then by reducing and limiting the number of Printing Presses and by ordering and setling the said Art or Mystery of Printing by Act of Parliament in manner as herein after is expressed." – Licensing Act of 1662 ("Volume 5, Amendment I (Speech and Press), Document 1", 2000)

The ruling parties saw this as a way to control the masses, and, most importantly for this discussion, to establish and maintain an institution that would help to provide a basis for a national economy. In the later revision to, or replacement of, this English law with the Statute of Anne in 1710 it was made more clear that encouraging the creation of original works by protecting the owner's right to profit from them was the main goal of copyright. It stands to reason then, if someone is turning a profit, that profit can be taxed and can simultaneously stimulate the economy.

"Whereas Printers, Booksellers, and other Persons, have of late frequently taken the Liberty of Printing, Reprinting, and Publishing, or causing to be Printed, Reprinted, and Published Books, and other Writings, without the Consent of the Authors or Proprietors of such Books and Writings, to their very great Detriment, and too often to the Ruin of them and their Families: For Preventing therefore such Practices for the future, and for the Encouragement of Learned Men to Compose and Write useful Books; May it please Your Majesty, that it may be Enacted, and be it Enacted by the Queens most Excellent Majesty,..." ("Statute of Anne")

Copyright and the U.S. Economy

The First Congress of the United States enacted the U.S. Copyright Act of 1790, an Act for the Encouragement of Learning, by Securing the Copies of Maps, Charts, and Books to the Authors and Proprietors of Such Copies. This act provided copyright protection to the author of an original work. Congress established this act to both protect the financial interests of the author and to encourage the stimulation of the national economy.

The more protected the financial interests of the author are, the more likely it will be that more authors will engage in creating profitable, original works. The more profitable, original works created by authors, the more the national economy is stimulated.

Each of the early revisions of the original act served to strengthen the protection to authors of original works in terms of the length of time of protection. Some of the later revisions dealt with emerging copying technologies and were established to address the protection of recorded and printed works.

As new technology is created for the playback of recorded, copyrighted materials, new copyright protection technology is created. Copy-protection of magnetic recordings is introduced with VHS videos. Self-destructing, one time use, commercially recorded DVDs are available from web-based movie rental operations. You watch it once and it is

no longer available for viewing. This is referred to as a technical protection measure (TPM).

Copy-protection and TPM refer to the technologies that restrict or control the use and access of digital media content via electronic devices using digital viewing and listening technologies. These measures have increasing in technological complexity as distribution of copyrighted works has become available via new technology.

The Berne Convention, named for the first meeting place of the original signatory countries, Berne, Switzerland has been around for quite some time. Originally convened in 1886, it was established to provide common copyright protection for non-native authors of original works in countries outside their own country.

The U.S. joined the Berne Convention in 1988, one hundred and two years after it was founded. Why did it take the U.S. so long to join, was it because until 1988, with the advent of digital media, there was no economic advantage for the U.S. to join? With the proliferation of U.S. made digital media being copied and distributed across the World Wide Web without proper compensation to the U.S. author, the U.S. industries supporting the U.S. authors, and in turn to the U.S. government in the form of taxes, the U.S. was losing money.

Widespread copying of mp3 music files has lead to ongoing discussions within the digital media industries for the need for digital rights/restriction management (DRM). This means that as new sharing technologies become available through which to sell digital media, new anti-copying technologies must be put into place by the industries that stand to profit from the sale of the original digital works.

Copyright and the Future Economy

The new revisions of the U.S. Copyright Act will continue to address the new copying technologies as long as it is in the best interest of sustaining U.S. profits. The U.S. digital media industries will continue to police itself with new copy-protection, TPM, and DRM technologies as long as it is profitable for them to do so. U.S. and International Copyright law will continue to be about the money. Authors of original works will continue to experience financial copyright protection as a by-product of the true reason for copyright protection; local, national and international commerce.

e-Copyrights: Protecting Us from Ourselves

Desiring recognition for accomplishments is a basic human trait. It is a trait that could be negatively related to vanity or pride, but by connecting accomplishments to a particular person or group, similar mindsets are realized and parallel information sources are identified. Immediately knowing who to talk to or where to find specific information, saves time and allows effort to be directed efficiently. The combination of these aspects contributes to eventual advancements for collective human interests.

In the forefront of everyday life worldwide, is the idea of trade – the exchange of something for something else. The idea of trade can also be related to the desire for recognition of accomplishments. However, what is the accomplishment that a person wants to recognize? On the basest level, the accomplishment is the idea that one or more persons require or desire something controlled by another person. By requiring a trade, the person in control of that thing is publicly recognizing and transmitting that he has something that you need.

Humans have unfortunately coupled their need for recognition with their need for greater individual importance by creating the tangible concept of money. Money probably began as a relatively innocent concept as a way to facilitate equal trade that eventually became misinterpreted and abused. Because money is identified worldwide, people are now able to receive increased recognition for accomplishments that have brought them money, or more likely, the idea of greater individual importance that now precedes money.

Copyright is basically the forced recognition of accomplishment.

These laws were created out of necessity (or vanity or pride, depending on your viewpoint). Forced or required recognition of accomplishment isn't entirely negative. People SHOULD be recognized for their accomplishments. Controlling Copyrights, however, attaches the need for recognition with today's omnipresent idea that money dictates greater individual importance, because the sole function of a Copyright is to insure payment of money for use of that idea.

Because people have not yet evolved past the requirement of money for greater individual importance, as well as the tendency to utilize the fastest ways of acquiring any type of advancement, the existence of Copyright Laws is necessary. Naturally, this situation produces a distinct and illogical irony, much like many other aspects of today's society.

Moreover, time and productivity is wasted when plagiarism or violation of Copyright Laws occur because by simply copying another person's accomplishment, only self-gratification or unimportant victories is achieved and nothing is contributed to society. Further, the time and productive effort of those responsible for upholding Laws or moral standards are wasted on trivial and avoidable issues. Both of these situations only impede positive human advancements.

Perhaps even more infuriating, and a true credit to the debasement of humanity are plaintiffs (those initiating the lawsuit) alleging that commercial network service providers are responsible for subscriber infringement rather than the actual subscribers committing the act. Unless the service provider is aware of the violation and does nothing to report or prevent the action, this practice is clearly motivated by self-aggrandizement.

Fortunately, laws are amended over time to help prevent premature reactions or catering to special interests. Positive steps to control the abuse of loopholes or frivolous lawsuits regarding Internet Service Providers (ISP's) began when the Digital Millennium

Copyright Act (DMCA) was signed into law on October 28, 1998. “Specifically, the DMCA exempts a service provider from any legal liability for copyright infringement conducted by customers using its network as long as the service provider ‘does not have actual knowledge that the material or an activity using the material on the system or network is infringing' and, 'upon obtaining such knowledge or awareness, acts expeditiously to remove, or disable access to, the material.’” (Sern, 1999)

Until our world evolves beyond requiring the need for money, Copyrights will continue to exist and Copyright protection will continue to be an issue. And until humanity evolves beyond its trivial need for individual importance, embraces and teaches a respectful, collective, and nurturing society, Laws that govern and protect us from our natural impulses will continue to exist.

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6.4 Copyright: An Overview

Nicole L. Forst

Copyright – What is it?

If you go to the Copyright office's website, you might be a little overwhelmed at everything there is, but this article will ease those fears and confusions of copyright.

So to start things off what is copyright?: Copyright is a form of protection grounded in the U.S. Constitution and granted by law for original works of authorship fixed in a tangible medium of expression. Copyright covers both published and unpublished works (“Frequently Asked Questions about Copyright”, 2006). Now you may be saying once something is created isn't it protected? Yes it is protected once it is created, but if you find that copyright infringement has occurred, having your work registered is the only way you can file a lawsuit against the infringer.

Poor Mans Copyright

While it's not actually a form of Copyright it is the practice of sending your work to yourself. It does not protect you from anything and you do not receive a registration certificate.

Foreign Copyright

If you read Circular 38a (2003), this explains which countries outside the USA accept a U.S. Copyright. Now this PDF has not been updated since 2003, and on the Copyright website there might be updates that are not on the PDF.

Copyright Protection

What exactly is protected by the law of copyright? The answer is: Copyright protects original works of authorship including literary, dramatic, musical, and artistic works, such as poetry, novels, movies, songs, computer software, and architecture. Copyright does not protect facts, ideas, systems, or methods of operation; although it may protect the way these things are expressed ("Frequently Asked Questions about Copyright," 2006) Also you cannot copyright names of bands, recipes or logos or slogans. Logos and Slogans can be protected under the trademark and patent office (United States Patent and Trademark Office).

Copyright Registration

All foreigners may register works in the US if they are unpublished. If they want something published they either have to be in the USA or in anyone of the countries that the US has a Copyright Treaty with. Also people who are under the age of 18 are allowed to register items for copyright, but state laws might have some say in the business aspect of publishing or making a profit. So if you are under 18 and want to publish something consult an attorney for all your legal rights.

Copyright Forms

When first going to the Copyright Office's website to find a form you may be a little intimidated as to all the abbreviations that are listed, and what form you should choose.

- Literary Works (non-dramatic)- Form TX
- Performing Arts- Form PA
- Sound Recordings- Form SR
- Visual Arts- Form VA
- Serials (periodical, newspaper, magazine)- Form SE

The U.S. Copyright Office Forms web site (2006) has all the forms for download and downloading instructions. Each form has to be filled out and printed a certain way to be accepted so plan accordingly.

Questions

1. If I were a composer and just completed a piece of music that is not recorded yet, which form would I use?
    - A. Literary Work
    - B. Serial
    - C. Sound Recording
    - D. Performing Art
2. What is a *Poor Mans Copyright*?
3. Short Answer: What is the definition of Copyright?

Answers

1. D, performing art's form is what you need.
2. The practice of sending your work to yourself
3. Copyright is a form of protection grounded in the U.S. Constitution and granted by law for original works of authorship fixed in a tangible medium of expression. Copyright covers both published and unpublished works

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Chapter 7 – Development

E-learning development entails much more than designing appealing modules for your content with the latest authoring program. Effective development will include less popular elements such as coding, standards, and accessibility (for people with disabilities). This chapter will give you a quick overview of e-learning development:

- 7.1 - Dave Cerreta discusses authoring tools from a developer's perspective. He shares how knowledge of graphics and various file types will help you create sharper and faster Websites.
- 7.2 - Nathan Eckel gives novice developers insight into the issues they will face in learning the software as well as tips on how to anticipate and stay on top of the learning curve.
- 7.3 - Guest author Charles Chen, creator of the Fire Vox screen reader, explains why developers must do more than use Web page error checkers such as "Bobby." Be sure to check his examples to see what not to do.
- 7.4 – Guest authors Pam Berman, Livio Mondini, and Roberto Scano reveal the benefits of assistive technology and give pointers in making Adobe PDF files accessible.
- 7.5 & 7.6 - Judy Ohl discusses some best practices for technical writing especially with teams. She also makes a compelling case for developing Web standards for your organization.
- 7.7 – Jeffrey Border explains the importance for identifying potential language barriers when designing and developing synchronous e-learning.
- 7.8 – Scott Paull relates some concerns about replacing text-based menus using Flash.

Bonus Podcasts

Eric Milks, a professional developer at Bloomsburg University's Institute for Interactive Technologies, gives tips for meeting aggressive deadlines in our 3-part Podcast and can be found at:

- http://iit.bloomu.edu/Spring2006_eBook_files/chapter7/eBookChp7Dev1.mp3
- http://iit.bloomu.edu/Spring2006_eBook_files/chapter7/eBookChp7Dev2.mp3
- http://iit.bloomu.edu/Spring2006_eBook_files/chapter7/eBookChp7Dev3.mp3

7.1 - Leading Authoring Tools

Dave Cerreta

Using an authoring tool to create a training, educational course, Website design or basic animation is not a standalone skill. Effective authoring requires prior knowledge of additional software such as graphics programs and a working knowledge of HTML or Website development.

Knowing Your File Types

Understanding programs such as Photoshop, ImageReady, Corel Draw, Painter or any other image enhancement programs will be extremely helpful because they will familiarize users with image types such as .jpeg, .bmp, .gif and .png. These image extensions have critical ramifications concerning bandwidth issues and overall file sizes.

The function of the photo will determine its extension. Users typically use .jpeg for photos and complex color images, .gif for images containing solid colors and/or shapes and .png for images with transparency. An experienced user will use a program such as Adobe ImageReady to edit the images and keep the file sizes to a minimum. This becomes extremely important in larger projects containing tens or hundreds of images.

Popular Authoring Tools

Several of the programs mentioned above can aid authoring tools; here is a closer look at several authoring tools and reasons to use them.

Choosing the correct authoring tool can be a tricky process. The choice depends upon several other things such as:

- What is the purpose of what I am creating?
- Does it require interaction?
- Does it require animation?
- Does it require feedback for the creator or for the user?
- What type of graphics will need to be implemented?

As of 2006, several authoring choices exist - Macromedia Flash, DreamWeaver, Authorware, and Director; Toolbook; and Microsoft Frontpage. This is not an exhaustive list, as authoring tools have become extremely popular due to the increasing ease of use and the popularity of the effects they can produce in small amounts of time.

How Tools Help

Before authoring tools were created, only programmers could create interactions and animations through the use of coding languages. Although most authoring tools require some coding, a lot of the work is done by the program. Thousands of people, including teens, use tools like these to create their own Web pages. Companies such as Adobe/Macromedia and most additional authoring tool companies offer free 30 day trial versions of their software. The company websites offer thousands of tutorials to help the user accomplish their goals. An excellent example is www.macromedia.com, the macromedia homepage which consists of hundreds of tutorials for Flash, DreamWeaver, Director and Authorware.

Macromedia Flash is the most common authoring tool at this particular moment. Flash is used to create anything from basic animations and website introduction to entire websites. Anything above a basic level in Flash will probably require coding, but the tool can be used easily and the coding can be minimized.

Where do I go from here?

A great way to start is to go to the home page of Macromedia and download a trial version of Flash. Leaf through a few of the tutorials to find something simple such as a basic animation or a shape *tween*. Go through the tutorial step by step and then move on to something a little more challenging. Your confidence will grow with every step you take and start to expel the anxiety associated with the software.

There are more authoring users than ever before on the World Wide Web and the numbers are showing no signs of slowing down. More companies are turning to alternative, cost effective training measures, including Web-based trainings via the Web, learning management systems (LMS) and content management systems (CMS). With the future looking very bright for Web-based multimedia and training, - anyone who enjoys the Web, works in training or education should get familiar with authoring tools because they are here to stay.

7.2 - Understanding Authoring Tools

Nathan Eckel

Any technology is only as good as the person employing it. Understanding what authoring entails and assessing your ability will give you a better idea of the capabilities of the existing technology. Your skill level and temperament determines the speed, ease, and effectiveness of a project. Being able to self-assess your abilities with the potential of the technology will save you time, energy, and aggravation.

Learning Curve

Every authoring tool comes with its own learning curve. For the uninitiated the first programs will be crash courses in complex, unfamiliar, and awkward commands, codes, and symbols. Fortunately the deeper your knowledge grows, the more transferable the process may become with other tools. You will ultimately begin to anticipate the quirks, glitches, and oversights that may have vexed you beforehand. Knowing what the learning process entails saves you much aggravation.

Limits & Abilities

A solid self-concept is helpful when sizing up the tools you will use. Determination, patience, detail-orientation, creativity, and a calm demeanor are great qualities to have when learning how to use authoring tools. Here are a few more:

- Assess your artistic skill.
- Artistic ability will translate into an engaging visually pleasing format. You will be able to design workable visual solutions quickly and effectively.
- Assess your graphic design skill.
- Graphic Design will also assist you in cutting down time and energy by producing effective, readable, and comfortable layouts the first time. Communicating visually is what graphic design is all about and the more naturally you can do this the easier it will be for you.
- Do you work well under pressure and deadlines?
- Whether you are under a work or school-related assignment, deadlines bring out the worst in the program and the designer. There are some dynamics that can be unpleasant during this process. For a perfectionist, the design may not ever look good enough, but the time comes to produce the module. Time tends to run out quickly on the job, and at some point you must quit the design and begin troubleshooting the piece for errors. Any further development results in a disproportionate acceleration of time, leaving much less time for troubleshooting. When glitches are exposed they compound upon one another and can lead to considerable mental strain in proportion to the gravity of the assignment's consequences. Know your preferred work methods, styles, and timeframes and make every effort to stay within your boundaries.
- Are you a fast learner?
- Are you thorough?
- Do you enjoy persisting until codes are fixed?
- Coding and compliance issues demand a methodical, optimistic approach that not everyone will possess. Faulty code spawns cryptic errors that must be deciphered and fixed.

Importance of Instructional Design

One point should always be considered when planning an authoring project, especially with Flash and other tools with interaction potential. Assuming that an interactive, highly engaging tool will also create effective content is a mistake. The instructional design process ensures that your content is conceived, created, and implemented in an instructionally sound manner. Without it, you will have an attractive yet ineffective product.

- Know the project's scope, purpose and audience. Take time to understand the overall needs of the project, beyond your perspective.
- Browsers: Designing HTML is complicated by an abundance of browsers. In the wake of Microsoft Explorer's poor design, many other browsers have gobbled up market share and created great complexity in the various ways they interpret code.
- Bandwidth issues: Many organizations do not have bandwidth to spare. Something must give. How do you create sites with economy and foresight so that you can avoid the speed pinch?
- Accessibility: How does your site look to a blind person? How would this reflect upon your client? Is your site section 508 compatible? Are you possibly putting your client in danger of a lawsuit due to little or no thought to navigation and layout for the disabled?

7.2 Summary

Understanding the learning curve, assessing your ability level, and employing principles of instructional design ensure that your products are worthwhile for your users. When authored properly, interactive e-learning modules can be a rewarding, memorable experience for your users.

7.3 - Hearing Your Web Pages

Charles L. Chen

You can recite the 508 guidelines by heart. You've added alt tags to all of your images. You've added a skip to main content link on every last page. You've run everything through Bobby, twice. So that means you have a perfect website that can't possibly be made any more accessible, right?

WRONG!

While you have certainly been doing all the right things, there is still one more step that you can take to bring the accessibility of your site to a whole new level. That step is to put yourself into the shoes (or perhaps ears) of someone who uses a screen reader. There is simply no substitute for hearing your Web pages being read aloud by a screen reader; closing your eyes and just concentrating on listening to how it sounds can give you

invaluable insights into the way that visually impaired users will experience your site. Until recently, this involved buying expensive screen reading software or putting up with the various restrictions placed on trial copies of such products. However, there is now Fire Vox, a freely available, open source screen reading extension for the Firefox Web browser. This guide will explore some of the best practices for evaluating your website using Fire Vox. Note that although this guide is aimed at using Fire Vox, the general principles and techniques apply to testing your website with any screen reading application.

Just Because It Validates Doesn't Make It Right

This is an example of a page that validates but is completely unusable. The problem here is that although the alt tags on the images are accurate, they do not convey enough information for someone who cannot see the images. Remember, validation tools, as useful as they are, are just tools – they can't do your thinking for you and tell you when your alt text simply doesn't make sense.

Tip: When listening to what your page sounds like, try putting yourself into the frame of mind of a new visitor who has no idea of what is there. Does your page still make sense? If not, why not, and is there any information that you can add to fix it?

Appearances Can Be Deceiving

Sometimes, there are just quirks that are not obvious until you encounter them. Usually, there is nothing in the HTML standards that says you can't do things a certain way; however, in practice, some ways of doing things are more likely to be problematic than other ways. In an ideal situation, these differences would not exist, and one would have a perfectly working Web page as long as it follows the HTML standard. Unfortunately, reality is not so simple and each browser has its own quirks. As a Web developer, you should try to choose approaches that not only obey the HTML standard but also avoid quirky behavior as much as possible.

An example of quirky behavior can be seen in the way link targets are handled in Firefox 1.5.0.2. Firefox will not place the cursor on a link target if that target is completely empty. Instead, it will scroll the window to that position and then take away the navigation caret. For screen readers that rely on the navigation caret to determine the user's position, this will cause a problem. On the surface, the skip link on this page appears to be working just fine. However, upon closer inspection by reading through with Fire Vox, it becomes apparent that there is a problem since the reader will not realize that the skip has occurred.

The moral of this story: Just because something appears to be OK, doesn't guarantee that it is. You should always double-check and go through it once just to be safe. You should not try to bend over backwards and break standards just to get things working (and you

should not need to), but if a minor tweak that is just as correct makes everything smoother, then why not do it?

Tip: Creating an anchor element that has no text content can be risky. It might not always work correctly depending on the combination of browser and screen reader that the user is working with. In this case, trying to jump to a DOM node with no content caused Firefox's cursor navigation to turn itself off. An anchor element with text content is always safe, so you should always place the anchor tags around some text. Again, there is nothing in the HTML standard that says jumping to an empty DOM node is bad. However, jumping to something with content is an equally valid approach and much more likely to work correctly; hence, that should be the method that you use.

Say What???

You may be thinking to yourself, “What could possibly be wrong with the example on this page? It has nothing but text, and the entire example consists of a mere four sentences! Is it even possible to get something this simple wrong?” The answer to that last question is a resounding yes, unfortunately. If you tried listening to this example, the problems become apparent; the heart shape (<3) is interpreted as *less than 3*, one street name is mispronounced, *saint* is confused with *street*, and none of the titles are read correctly. This content would be incomprehensible to visually impaired users who rely on screen readers since it sounds nothing like the way it would sound if a human were reading it.

Tip: If your page sounds terrible and things are not being read the way they should be, then try rewording it if possible to avoid the problematic words. For any part of it that simply cannot be said in any other way, consider using CSS3 speech module properties, especially the *say-instead* property. While the CSS3 speech module is not supported by every screen readers, Fire Vox is one reading tool that does have support for it. Note that different text to speech engines perform differently; some voices may say parts of your page correctly without the need for any hints from say-instead while others choke. To be safe, you should stick with using the barebones, generic voices that come by default as part of the engine. For Windows users, it would be one of the Microsoft voices (Mary, Mike, or Sam).

7.4 - Making PDFs Accessible to Assistive Technology

Pam Berman, Livio Mondini, and Roberto Scano

Tagged PDFs

PDF can be accessible to people with disabilities. Current PDF file formats can include tags (essentially XML), text equivalents, captions and audio descriptions, and other accessibility features. Some software, such as Adobe InDesign, can output tagged PDFs automatically. Leading screen readers, including Jaws, Window-Eyes, and Hal, can read

tagged PDFs; current versions of the Acrobat and Acrobat Reader programs can also read PDFs out loud. Moreover, tagged PDFs can be reflowed and zoomed for low-vision readers.

However, many problems remain, not least of which is the difficulty in adding tags to existing or *legacy* PDFs; for example, if PDFs are generated from scanned documents, accessibility tags and reflowing are unavailable and must be created either by hand or using OCR techniques. Also, these processes themselves are often inaccessible to the people who would benefit from them. Nonetheless, well-made PDFs can be a valid choice as long-term accessible documents. (Work is being done on a PDF variant based on PDF 1.4. The PDF/A or PDF-Archive is specifically scaled down for archival purposes.)

Microsoft Word documents can be converted into accessible PDFs, but only if the Word document is written with accessibility in mind - for example, using styles, correct paragraph mark-up and *alt* (alternative) text for images, and so on.

Tagged PDF are now finally also an ISO standard for archivation.

The International Organization for Standardization (ISO) has approved PDF/Archive (PDF/A-1) (Wikipedia, 2006 and PDF Tools AG, 2006). PDF/A-1 enables organizations to archive documents electronically in a way that will ensure preservation of content over an extended period of time and that those documents can be retrieved and rendered with a consistent and predictable result in the future.

ISO 19005-1, Document management - Electronic document file format for long-term preservation - Part 1: Use of PDF 1.4 (PDF/A-1) defines a file format based on Portable Document Format (PDF) which provides a mechanism for representing electronic documents in a manner that preserves their visual appearance over time, independent of the tools and systems used for creating, storing and rendering the files. PDF/A-1 is a subset of PDF, which is already widely accepted for the delivery of final-format documents. It is estimated that the total size of the surface Web is 167 terabytes, 9.2 percent of which consist of PDF documents.

The new international standard ISO 19005-1:2005 defines an *electronic document file format for long-term preservation* called PDF/A-1. This is basically a subset of PDF 1.4, with lots of nasty and dangerous stuff (JavaScript, external references, missing fonts, encryption, etc.) removed and various historic ambiguities in the PDF spec clarified.

However, Full compliance with the PDF/A-1 format requires that *Tagged PDF* is used, such that the underlying plaintext remains accessible for further processing.

Preparing the Document in Word

If Word styles are used correctly, certain parts of the document will already be tagged when converting to PDF using the Adobe Acrobat application. The list of styles for

Styles and Formatting can be found under the Format menu. To show all styles choose the All styles choice in the Show: drop-down list in the Styles and Formatting task pane. (Figure 1)

Figure 1: List of styles in Word

Typical styles are:

- Title
- Heading 1
- Heading 2
- Heading 3
- List Bullet
- List Bullet2
- List Number
- List Number 2

An added benefit of using Title and Heading styles is the default creation of Bookmarks when converting to PDF. Bookmarks can be used as an outline as well as for navigation in an Acrobat file. (Figure 2)

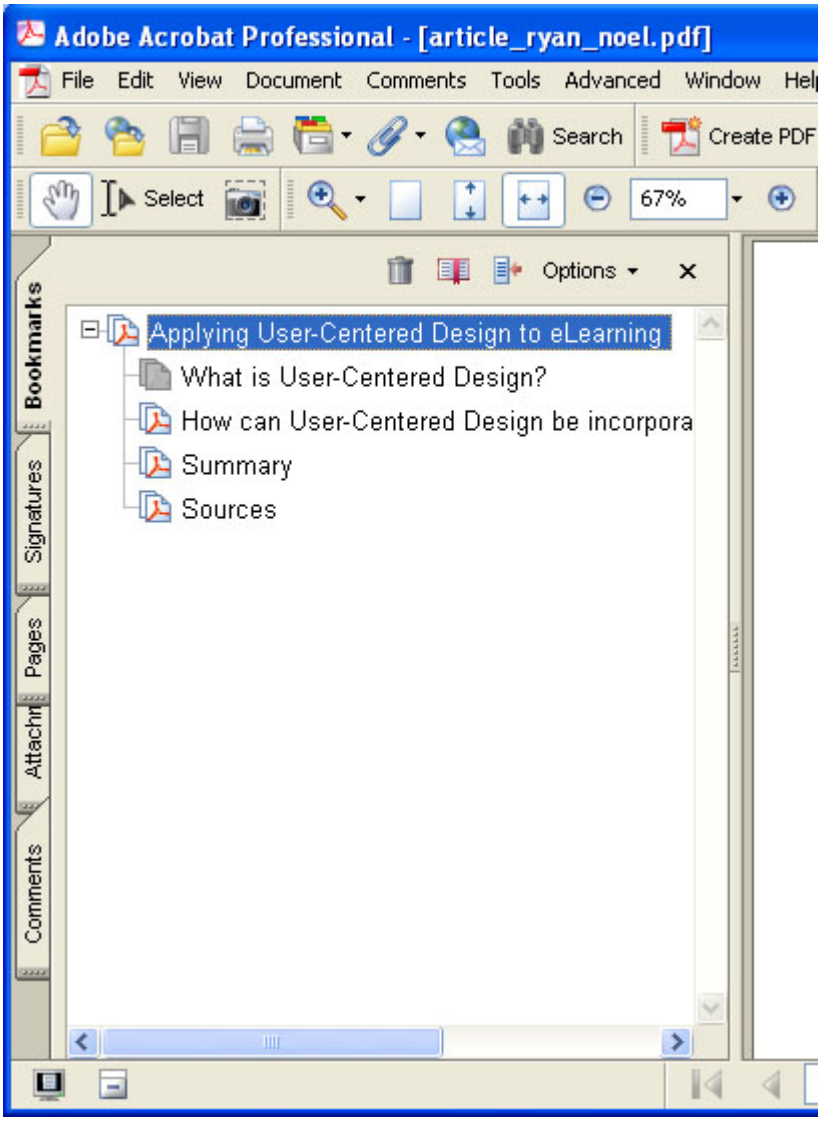

Figure 2: Bookmarks list in Acrobat

Alternative text for graphics automatically converts from Word to PDF during the conversion process. This reduces the amount of work required to finish the document using Adobe Acrobat Professional. Alternative text for graphics can be added in Word by using Format Picture... and adding the text to the Alternative text: field under the Web tab. (Figure 3)

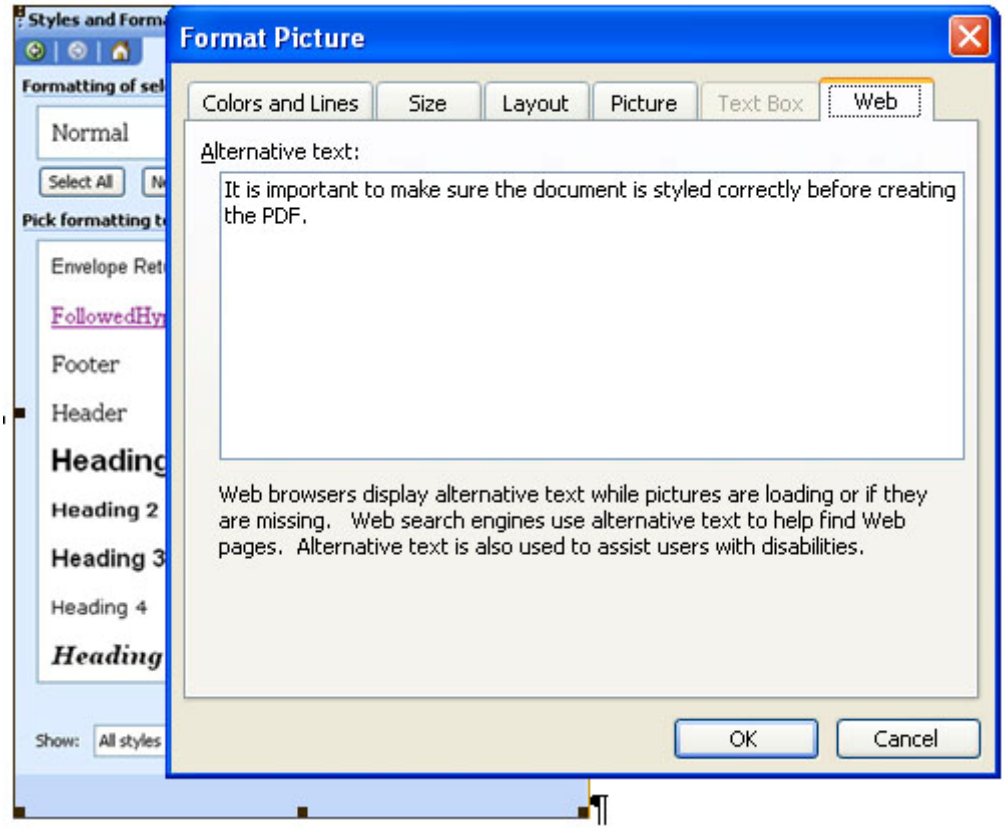

Figure 3: Format Picture: Alternative text field in Word

When writing alternative text, it is important to convey the *message* of the graphic in the event the graphic cannot be viewed. Using the title or name of the graphic may not be enough to convey its purpose. It is important to consider why the graphic is being used in order to construct good alternative text.

If a graphic has no message, its alternative text should remain empty. However, for Acrobat Validator this is an error. If a graphic is decorative only, it needs to be marked as an artifact (in tag tree, right click on tag and select artifact).

Finishing the Job in Adobe Acrobat

Once a Word document has been converted to PDF with Adobe Acrobat, it may be necessary to make changes to the reading flow and add text equivalents to graphics. (Figure 4)

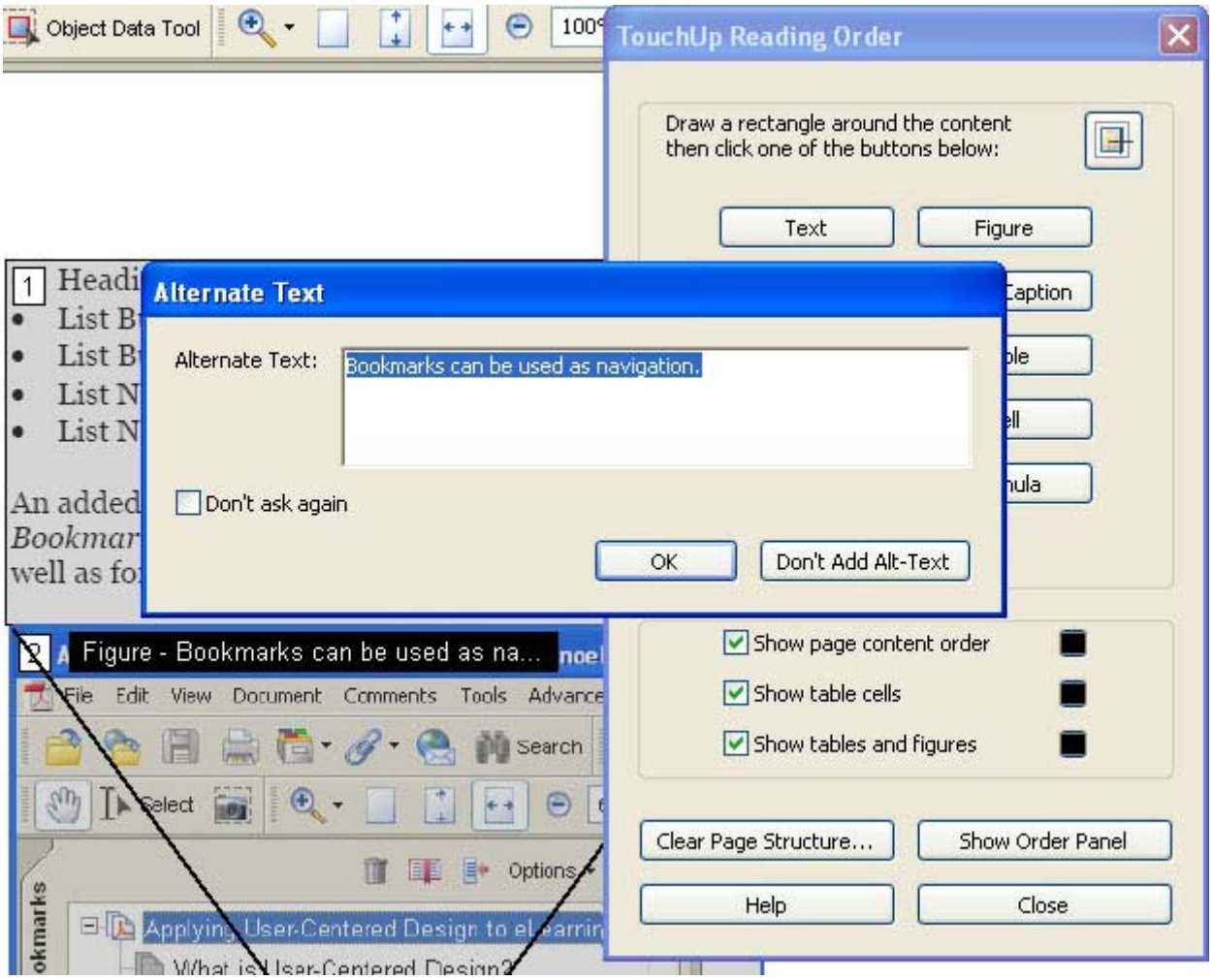

Figure 4: TouchUp Reading Order panel and Alternate Text window in Adobe Acrobat Professional

All decorative graphics must be marked as *artifacts*. There are a couple of ways to get to the Tags panel. The easiest way to get to the Tags tab is through the View menu: View > Navigation Tabs > Tags. Another way is to bring up the TouchUp Reading Order window through the Tools menu: Tools > Advanced Editing > TouchUp Reading Order. The TouchUp Reading Order window can also be found under the Advanced menu: Advanced > Accessibility > TouchUp Reading Order..., then click on Show Order Panel and click on the Tags tab.

Once the Tags tab is open, click on the plus signs or hold the Ctrl key and click on the plus sign next to the root tag to expand all tags. Find the tag with the object to be tagged as an artifact. Right-click on the object and Change Tag to Artifact..., then choose Layout for Artifact Type: and choose a side: Left, Top, Right, or Bottom. (Figures 5 and 6) This removes the object from the structure tree and assistive technology set up to read PDF should ignore it.

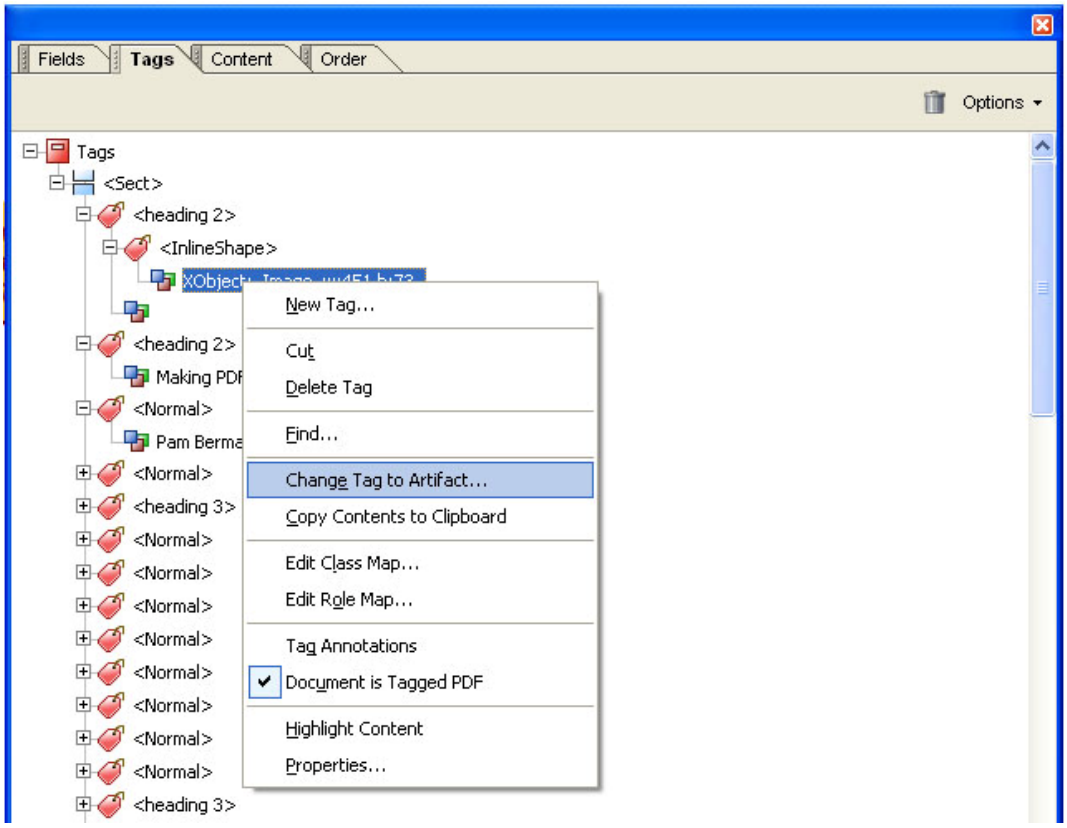

Figure 5: Changing a tag to an artifact in the Tags tab

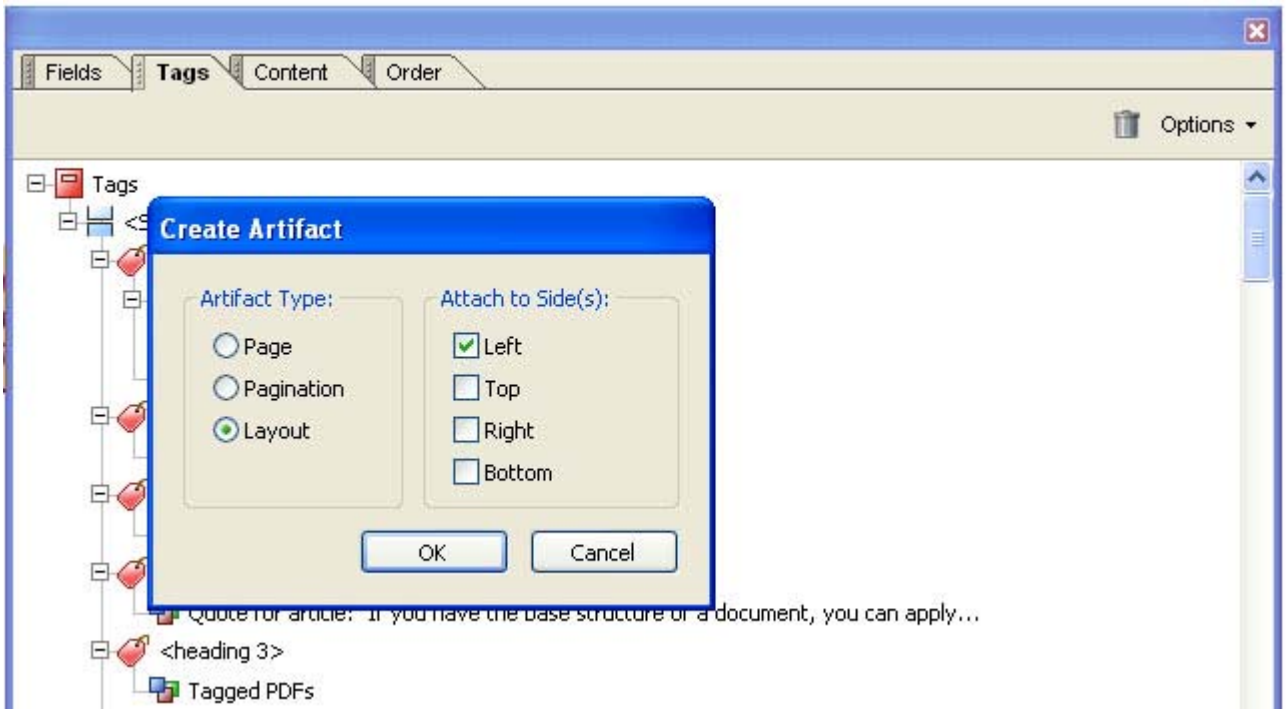

Figure 6: Create Artifact window

It is also helpful to run a Full Accessibility Check. The Full Check can be found under the Advanced menu; Accessibility > Full check... An Accessibility Report is generated. This report contains structure errors along with a summary of the problems and how they might be fixed.

7.4 Summary

Organizing all your electronic-based content using styles like Title, Subtitle, Headings, List Bullet, List Number, etc. and including alternative text for graphics are critical first steps toward making documents accessible to people using assistive technology.

"If you have the base structure of a document, you can apply it easily to the Web." – Roberto Scano ("Interview with Roberto Scano" – part 2, 2006)

7.4 References

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7.5 - Importance of Web Development Standards within an Organization

Judy Ohl

Internet ads entice consumers to try their Web development products, stating "Anyone can create a Web page! No experience required!"

While this may certainly be true in theory, when do we go overboard? Visit the website, Web Pages that Suck http://www.webpagesthatsuck.com to see examples of enough bad Web pages to keep one internet company in business just reviewing them!

Standards for website design and development, especially within an organization, are very important ... for visual consistency and simple navigation/information gathering. It is very easy for site development within an organization to go awry when the organization is very large and there are many different areas involved in development.

People have varying degrees of development knowledge and there are many different authoring tools available.

A relevant example is Web development on the campus of Bloomsburg University.

One of the many hats I wear in my profession is to assist faculty, staff and students in the development and publishing of Web pages. Anyone affiliated with Bloomsburg University is allotted space to build a Web page upon request. I come into contact with all sorts of Web developers. Some are quite good while others have absolutely no experience or knowledge in creating a Web page.

Tools Used

Web designers on campus employ a variety of Web authoring tools with very little standardization. Most faculty, staff and students utilize Microsoft FrontPage. This is largely due to the fact that FrontPage is freely available on campus computers and this software has a fairly easy learning curve. It would not be necessary for people to learn HTML markup in order to publish a website using FrontPage. This is a "What You See Is What You Get" (WYSIWYG) editing tool.

A few offices, including the Office of Technology and the Department of Instructional Technology, utilize the more sophisticated WYSIWYG editing software, Macromedia Dreamweaver. This software offers more in-depth development features. Accordingly, there is a steeper learning curve that comes along with it. Both of these offices have a solid understanding of HTML markup which is of great assistance when using Dreamweaver.

The Office of Communications, the office on campus responsible for creating most of the main BU Web pages, to include www.bloomu.edu, does not use either of the above-mentioned tools. They use a freeware product called HTML-kit which can be found at http://www.chami.com/html-kit. The Office of Communications understands and implements page development using HTML markup within HTML-kit.

Most types of WYSIWYG software make development easier; however, there is a definite advantage if developers understand HTML markup. WYSIWYG software sometimes throws unexpected code into pages which may cause problems with how your pages display in browsers.

When offering support on campus I find most people do not have an understanding of HTML.

Consistent Look and Feel ... A Necessary Thing!

Experts agree that successful sites must possess a consistent look and ease of navigation. In "Top Ten Mistakes in Web Design", Jakob Nielson, who is often referred to as the

king of Web usability, states “Consistency is one of the most powerful usability principles: when things always behave the same, users don't have to worry about what will happen. Instead, they know what will happen based on earlier experience. The more users' expectations prove right, the more they will feel in control of the system and the more they will like it. And the more the system breaks users' expectations, the more they will feel insecure.”

Jakob's Law of the Web User Experience states that “users spend most of their time on other websites.” This means that they form their expectations for your site based on what's commonly done on most other sites. “If you deviate, your site will be harder to use and users will leave.” (Flanders, 2005)

There is inconsistency in the layout of Web pages on the Bloomsburg University website. Some pages linking off the main website have no identification of even being a Bloomsburg University page! Visit the site directory at http://www.bloomu.edu/facstaff/site_index.php to see examples of links to departmental, individual faculty, staff, or student pages.

On a positive note, an effort has been made to promote guidelines. The Office of Communications offers a publications guide called “A Consistent Image.” This can be found at http://www.bloomu.edu/media/PubsGuide.pdf.

7.5 Conclusion

It is important for guidelines to be in place across an organization before allowing just anyone to create a Web page within it.

I found the following Web standards project translation by François Nonnenmacher very interesting.

“Web standards are the cornerstone and the future of the Web; considering the advantages they bring and the current trend in the evolution of browsers, all companies will come to them eventually. The adoption of Web standards in a company may require varying degrees of change depending on how well-prepared it is, its technological flexibility, the number of sites it has, the quality and quantity of existing content and software applications; this process must be studied and adapted to each case. As there is no urgency for most companies to employ Web standards, it is up to each company to consider the opportunity to do so each time it re-vamps its sites. This can be a good, gradual way to surmount the learning curve whilst getting the most from these new methods — by reducing the risk of errors and negotiating the natural resistance to change, with a sound knowledge of what benefits one can glean from Web standards.” (Nonnenmacher, 2003)

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7.6 - The Role of Technical Writing in E-Learning

Judy Ohl

Many companies today are looking for the most cost-effective way to train their employees. By utilizing e-learning, companies save money by lessening employee travel expenses and limiting employee time away from work.

Computer-Based Training (CBT) and Web-Based Training (WBT) are two solutions. CBT training traditionally involves use of a CD-ROM; in many cases online help is directly available with this approach. WBT is training delivered via the Internet.

With the development of e-learning, technical writers have become more in demand. They have an increasing role in the design, development and implementation of training. It is vital for a technical writer to have good writing skills, but equally important, they must have the ability to produce, test, and implement their materials using sophisticated software.

First Steps

A very important first step for a successful technical writer is to work in collaboration with management and any involved individuals or departments to gather information. This needs to occur before writing one sentence! The technical writer must be provided the mission/goals for the project, receive input for a course outline, and understand who the target audience will be.

Once this has occurred, the writer will lay out a course outline, storyboards, and scripting, select learning activities, and produce media when indicated. The last step involves testing, evaluating, and finalizing the material.

Development Tools

The writer will use special tools for development, including:

- Instructional design software which lays out instruction design principles. An example of this software is Designer's Edge, a popular training design and planning tool.
- Course management and testing tools which manages a course and provides controlled tests. An example of this software is ASPTESTS.
- Web page tools to design web pages and websites. Examples include Dreamweaver, along with a course build-in for Dreamweaver, FrontPage, and Flash, which allows the creation of quickly downloaded animation.
- Multimedia applications to enhance your Web pages. Examples include, but are not limited to, Adobe Illustrator, Corel Draw, Adobe Photoshop, and Paint Shop Pro (by JASC), one of the original graphics editing software.

Writing Skills

Good writing skills cannot be minimized! It is important to use sound guidelines and common sense:

- For excellent organization, plan sections and subsections well.
- Use good layout for easy reading such as color fonts for main headings.
- Avoid background and history information.
- Use the first page to present the most important information.
- Word headings and subheadings with strong verbs and nouns. These command attention and tell the reader exactly what you're covering in any given section.
- Aim for a simple approach. Use plain English and simple words. Make your document concise and easy to read.
- Use active verbs versus passive verbs. Active verbs make a document shorter, simpler to read, and easier to comprehend.
- Avoid jargon and technical terms.
- Acronyms and abbreviations become annoying when readers aren't aware what they mean.
- Use only well known abbreviations such as IBM or Washington, DC.
- Keep sentence length short; 10 to 20 words.
- Break down longer sentences in list form for readability.
- Avoid wordy phrases; make every word count.
- Use plenty of examples and illustrations; a picture is worth a thousand words.

Evaluate and Test

Evaluate and test your material when it is complete! Ask individuals from your target audience to test your material by following the steps outlined. Many times this results in rethinking, redesigning, and possibly rewriting sections of your material.

7.6 Summary

The role of technical writing is an expanding and vital role within e-learning development. Many resources can be found on the Internet if you have an interest in receiving training or certification.

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7.7 Globalization and Learning Barriers in Synchronous E-Learning Tools

Jeffrey Border

Learning barriers and globalization issues are always something to think about when designing e-learning classes and developing new tools for learning. Most issues can be easily overlooked, especially when the designer does not understand exactly who they are designing for. Learning barriers may occur when there is a discrepancy in languages between the designer and learner, how the languages are used, and how they are emphasized. As the world moves toward more collaboration between cultures and countries, and remote learning and training becomes more typical, it is the job as instructional designers and developers to meet learner's needs by minimizing and trying to eliminate the barriers that can hinder this wide array of e-learners.

Language

Language has always been a barrier for communication, and there are many things to look out for when developing or designing e-learning courses. Courses need to be designed using multiple languages, or the ability to switch from one language to another

if your application will be taking place in multiple countries. Because of this cultural issue, in a synchronous learning environment where the learning is taking place in real time the learner may not understand the teacher speaking in a different language. There are also problems that arise from the typed language as well. The way the learner reads the screen is even very different. In the English language, the learner reads from left to right, and top to bottom. In other languages, the learner may be reading from top to bottom, and left to right. This creates difficulties in organizing and arranging content within your presentation. The differences in languages within cultures may even hinder a learner's ability to comprehend the content being presented. Here is an example of the language barrier mentioned:

“In Sweden, large multinational companies have changed their Swedish names by taking away the accent markings in the letters å/Å, ä/Ä, and ö/Ö. The original letters gave meaning to specific words in Swedish. After alteration, formerly understandable Swedish words become meaningless. In some cases, the change made a name internationally useful, a brand to market globally. For example, the construction company Skånska cementgjuteriet, founded 1887, became SKANSKA in 1984. This word has no meaning in Swedish.” (Hanson, 2004).

Symbols and Graphics

The symbols and graphics used within the content for your e-learning presentation may also need to differ because of culture and language differences. As seen from the recently controversial Muhammad picture in a Danish cartoon, certain graphics or symbols from one culture which may seem appropriate, may be considered insensitive to people from another culture.

From the Muslim point of view, actually there are two problems rolled into one:

1. Drawing God or His Prophets is a taboo in Muslim culture, regardless of the nature of the drawing.
2. Mocking or tarnishing a Muslim holy symbol is absolutely unacceptable for Muslims: the cartoons portrayed Muhammad as an icon of violence, and Islam as a violent religion when in fact it is not.

Islam is conservative culture with defined limits. Muslims live their religion day-to-day, whereas modern western culture has loosened its grip on religious values as a way of life and substituted them for secularism instead, seeing prophets as odd historical figures, unfit for modern life. Therefore, it expects Muslims to be good secularists when it comes to free speech, while even secular Muslims object to insulting images of the Prophet; they in turn expect westerners to join them in their reverence for religious values. (El-Nadi, 2006)

The color differences used within cultures may also represent a certain meaning. One color may represent something to one culture, while in another culture, the use of a

particular color may mean something completely, and invoke an emotion that may, or may not be wanted.

“Color is considered one of the most useful and powerful design tools you have. People respond to different colors in different ways, and these responses take place on a subconscious, emotional level. In our American culture, black has long been associated with death, while white is believed to signify life and purity. In the Orient, however, white is the traditional color of mourning. In the United States, black has also come to suggest sophistication and formality. Americans generally associate trust an stability with the color blue, while Koreans have this reaction to pink and other pastel colors.” (Princeton Online, 2006)

7.7 Summary

When designing and developing e-learning content and presentations it is crucial to take every aspect of the presentation into account and do the research that is needed to break down the barriers associated with cross cultural e-learning. One of the best ways to make sure the content and presentation are correct is to keep in contact with your Subject Matter Expert (SME), and getting the sign-offs needed before finalizing the content.

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7.8 Where have the text-based menus gone?

Scott Paull

I'm guilty, you’re probably guilty too; creating elegant websites with your alt attributes but forgetting to include somewhere on a page, a link to a sitemap with a text-based menu, or in fact a text-based menu.

I love Flash, I'm a Flash junkie. As I learn more and more about Flash and all of its little secrets, I fall away from the training I have received. I have caught myself in the past doing a whole website for clients with no alt attributes. In my younger years, I wouldn’t care. I was looking to make a quick buck, and a little fame.

I then started to mature with the finishing of my undergrad, and then starting my master's courses. I ran into an article while researching some of the Flash detection processes. I had an epiphany! In the article the most important concept stuck in my head; assuming that everyone has their PC up to date with the latest players and plug-ins is a BIG mistake. I knew this already, but it really stuck this time.

After this happened, I began using alt attributes and I began detecting plug-ins but I was still leaving out text-based menus. My job is based on e-commerce. I had a woman call me shortly before I read the Flash article, and she said that all she saw was our website name, a gif image, and the phone number at the bottom. After getting down to the bottom of things, I found out that she did not have the newest version of Flash player. I did some more research, and found out that if other visitors have Flash disabled, they also could not see my site.

Our site rocked; there were animations, colors, and plenty of photos of work that we had done. I could not figure out how a competitor was still in business, because their site sucked. It was plain and blah. Here, the customers didn't like plain and blah but they could see their site almost all of the time.

So after learning my lesson, I implemented the detection, provided alternate content, and provided alt text for everything. What good is an alt attribute if it's not descriptive? What I went back and did was make my attributes as descriptive as possible, without writing a novel.

But back to the text links; who cares, right? Use the fancy menu I spent an hour creating. I could care less that someone might think, “I want to get there as fast as possible.” Sometimes menus, especially nested ones are nice. But what happens if a detection fails? Or they have Flash turned off. How can they get from point a to point b? The easiest way to get from point a to b is a straight line. To use the straight line, you can use the text based menu items at the bottom of any page.

An example of this is a website that I created last year for a local medical imaging building. I created a beautiful menu that had animation and also used alt text attributes for the Flash. I also used Flash detection, then later found out after talking to a few customers, they felt it was easier to just use text-based links to navigate the website. It's not that they did not like using the menu, it was just their preference. In two circumstances, the customers had older computers and, if they did not support the Flash menu items, the customer chose not to install the new Flash player and, as a result, did not use the website. They said that if they used the text-based links had they been available, they would have been able to find their information.

Another reason to use text-based links is that they are readable by screen readers for either a blind person or someone who has severe disabilities and does not have the use of a keyboard or mouse. They may be using voice command, which is similar to *dictation method* such as the one I am using right now to type my paper. But as I speak, the words are typed onto the page by the computer as it recognizes what I am saying. It is not

perfect but it can be trained to be nearly perfect. As far as voice command combined with a well trained voice recognition program, a person with disability can not only hear what is on the website that they can also interact with it by using the text-based links. At this time there is no ability to access to flush the menu items that were flashed links with some form of voice command. Maybe in the near future there will be.

With all kidding aside, in my early years I did have many faults but as I am growing, both in age and wisdom, I see that laziness on my part may have caused problems for others. I am truly sorry for this and have gone back and made many updates to the previously created websites to help conform to accessibility. As I think back to the Flash article I referenced in earlier comments, a poorly created website that does not take into consideration the large majority with the minority of users, is just that, a poorly created website. The idea of “it's not my problem is their's” is in fact that their problems are my problems, and I need to be able to solve them or prevent them.

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Chapter 8 - Delivering E-Learning

- 8.1 Lauren Ferrett, Ben Riley and Luis Vidal present information on the tools used to deliver e-learning, formatting your instruction, and choosing a delivery method.
- 8.2 Justin Bennett and Mary Warnock examine several game characteristics for effective instructional gaming.
- 8.3 Kathy Kollar explores the magnitude of podcasting use in education.
- 8.4 Mousa Afaneh explains how gaming can be used to make training more effective.
- 8.5 Chontel Delaney discusses some ways to deliver synchronous e-learning.

8.1 Delivering E-Learning

Lauren Ferrett, Ben Riley and Luis Vidal

8.1 Introduction

One of the most daunting tasks for any instructional design team is to decide on a format to deliver an e-product. While most teams will rely on data and feedback from assessments, analysis, reports, and studies of the audience, there is no guarantee that one method will fit all the demands. In today's electronic world each software company promises to deliver development tools with specific functions and features that are comparable with each other but is this something we can rely upon? It is also prudent to mention that many times it is the combination of diverse delivery methods that will ultimately allow developers to achieve their goal in content delivery.

Delivery Tools

To simplify matters, we can divide our presentations into three types:

Simple:
: those that produce one-way communication from computer to the audience.

Interactive:
: those that produce two-way communication between computer and audience.

Interactive with Assessment:
: those presentations that assess the effectiveness of the presentation themselves while delivering two-way communication between the computer and the audience.

Designing accessible content requires designers and developers to pay close attention to the user experience so they can determine the correct method of delivery. Issues of

compatibility and performance are critical when selecting the proper tools. Many of the tools available on the market today have become trendy based not only in their actual performance, but also based upon marketing efforts by their owner companies.

Three such robust and very popular applications are those developed by Adobe (formerly Macromedia): Flash, Director and Authorware.

Flash

Let's examine the first noted application, Macromedia Flash Player. "It is one of the world's most pervasive software platforms, used by over 1 million professionals and reaching more than 97% of internet-enabled desktops worldwide as well as a wide range of devices." (Adobe Products, 2006) Therefore one could assume that content being delivered with this technology would be highly successful in reaching the target audience. Adobe also claims that the newest version of the Flash development application includes a number of features that allows a designer to implement many accessibility issues. It was not until about the year 2000 that the program became compliant with accessibility standards. However, even today preparing accessible Flash content isn't complicated from a technical perspective. More often than not, it's the designer's lack of knowledge about the variety of abilities and disabilities of browser's handling the Web.

The Royal National Institute of the Blind (2006), based in the United Kingdom, presents in its website case studies on accessible electronic content. One awarded site is of the famed children's author, J.K. Rowling. Her Flash-based website has been recognized for its success in implementing a multimedia-rich site while maintaining a high degree of accessibility. Features addressed in the developed product include components such as menus, site help, resizable text, alternate labels, handling of audio (with labeled audio), keyboard navigation, and handlers so the application interacts with assistive technology devices.

Director and Authorware

The second and third noted application, Director is geared *at this point in time* to interact with Learning Management System (LMS) packages among other features, and Authorware which is geared to the development of entire electronic courseware, complete with a sophisticated level assessment tools. The key word being *at this point in time*, since Flash is closing in the gap between, Director, Authorware, and many of the other tools available to developers.

Adobe Acrobat Portable Delivery Format (PDF)

One last tool to deliver content electronically should be mentioned. Originally designed to succeed with issues related to file-size and printing is Adobe's Acrobat Portable Delivery Format (PDF) technology. Before Acrobat, electronic distribution of content was nothing short of problematic and inconsistent. Authors and recipients were required to have mirror outfits of the technology used to produce the content. File-size of

deliverables was prohibitive for any electronic transfer among the parties without costly equipment setups.

Adobe Acrobat simultaneously solved many other problems in several fronts. In the printing industry for example, Acrobat was received as a blessing because it was able to funnel all content through it, consistently and efficiently delivering a product to a printer. It was the technology that allowed the printing world to resourcefully address the distributed-printing requirements of their operation. Acrobat quickly became a sought after solution for various electronic deliveries.

Acrobat files now incorporate handlers to communicate with assistive technology devices by making use of features native to the computer operating system as well as third party programs. However because Adobe Acrobat is an application that essentially generates PDF files as a delivery, end-of-the-process product, it has been furnished with powerful features that deal with handling of the tagging of documents to accomplish a high level of user-accessibility. (Adobe Accessibility, 2006)

Formatting

Formatting your e-learning lesson can be a difficult task. "The fundamental reason for HTML standards compliance is to ensure that you use only those elements and structures that are likely to be understood by the widest range of user agents." (Richmond) When you consider current SCORM and section 508 standards, the task of formatting e-learning can seem impossible. SCORM assumes the existence of a suite of services called by some a *Learning Management System* and by others a *Learning Content Management System*, and formerly called a *Computer Managed Instruction* system.

HTML can easily be manipulated to the designer's liking when formatting a course. The format of the html must follow certain standards to be seen by all. A popular source to check for accessibility is the Bobby system. Its technical name is *Watchfire WebXACT*. "WebXACT is a free online service that lets you test single pages of web content for quality, accessibility, and privacy issues." (Watchfire) New standards are affecting CSS as well as HTML. These standards include making sure all basic things are covered such as using relative (scalable) units and always specifying a fallback generic font. (Texas School for the Blind and Visually Impaired, 2006)

There are some sources that aren't able to be copied digitally. One method to making sure your material is secure is using Adobe Acrobat to make a PDF file. These files maintain their digital qualities such as a vector image. They are typically used for text files, such as a Microsoft Word file. There is a certain level of encryption involved with the PDF file. This poses a problem for some e-learning courses sometimes.

Your plan to implement your e-learning course might depend on how technologically up to date your client is. There could be limitations where the client might not have access to a Flash plug-in because of government regulations. There are several reasons why a client could be restricted from accessing your e-learning material. It's imperative that you

format your e-learning courses with the appropriate multimedia software. Some of the most popular tools are Macromedia Flash, Director and Authorware.

Delivery Methods

No matter what delivery tool you use to create your instruction, you must decide on a method to deliver it to the audience. The most common methods are: CD-ROM, DVD-ROM, and the Internet.

CD-ROM's can hold up to 800 megabytes of data and are one of the most common methods of delivering e-learning today. (Resource Bridge, 2005) One advantage to using this delivery method is that CD drives are standard on nearly all of the personal computers in use today. Another advantage is that duplicating CD-ROMs is a simple and inexpensive process that can be handled by even a novice user.

However, recent trends have made multimedia more prominent in e-learning. Digital pictures, audio and even video have become commonplace in e-learning. Because of this shift, traditional CD-ROMs may limit the amount of multimedia elements that you can use in your instruction because of their storage capacity. Due to the high demand for this multimedia to be included, DVD-ROMs have become a popular choice for delivering e-learning. (Resource Bridge, 2005)

DVDs can hold up to 4.7 gigabytes of data which makes them ideal for holding multimedia. More and more computers are coming standard with DVD drives today and many are coming equipped with DVD burners. With the right hardware, duplicating DVD's can be as simple as duplicating DVDs.

With both DVDs and CDs the issue of getting the finished product to the people is an issue. Mailing costs need to be considered when choosing a delivery method. To avoid these costs, a third popular method of delivery needs to be discussed: internet hosting.

Hosting

Any kind of e-learning can be easily stored locally, but if you want to reach a worldwide audience, you will need to find a server to host your materials. A server is a computer designated on the Internet to hold data and be available to the entire world. Typically in a corporate setting the company who owns the training will host the materials on their own server. In an educational setting, materials will be hosted on a server at the institution that they are typically used at. The associated costs for the hosting is minimal if the materials are hosted on your own company's server, but the cost can increase once you have another company provide hosting services. It can range from a few dollars a month for a barebones package up to thousands of dollars per month for high traffic sites with many interactive features and large databases.

Bandwidth considerations become an issue when you have high volume of learners accessing your material online. Only a certain amount of people can download at a time. When e-learning is delivered to a massive audience, a large amount of bandwidth is needed. If the bandwidth isn't available, users will have their browsers time out or just grow impatient waiting.

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8.2 Instructional Game Characteristics

Justin Bennett and Mary Warnock

Video games play an important role in today's media world. They have become so important that many video games are now costing as much as a full-length feature film to develop, while the anticipation of the release of certain games is greater than that of most movies. Though many of the video games on the market feature mindless violence, not every game uses this concept. Video games can be used in an instructional setting to motivate learners, as well as provide positive learning results.

Researchers have suggested that a systematic examination of game factors or game characteristics should help in refining theoretical formulations of effective instruction. Though researchers have debated for several years what exactly the successful characteristics of an instructional game are, several essential game characteristics can be determined. These game characteristics are fantasy, rules and goals, sensory stimuli,

challenge, mystery, and control. These characteristics provide a common vocabulary for describing the core elements of instructional games.

Fantasy

Entertainment often includes escape from everyday normal life. Jumping into an imaginary world full of different wonders distinct from normal life without facing the consequences of one's actions is an engaging experience. This is where fantasy becomes an important characteristic of instructional gaming. Instructional games need to utilize the concept of entering a fantasy world to provide entertainment, while basing the experience on learning. Throwing players into a fantasy world can be an excellent learning experience, mainly because the player is isolated from real consequences while still working on real life problems. If the player makes a mistake in the fantasy world, it has no direct impact on him or her in the real world. The player has entered a world with no consequences. Also, the lessons needing to be learned become much more extensive when the player is in a fantasy universe of much more interest. Learning core, real life fundamentals while acting as an exciting fictional character in a fictional environment can lead to more successful results because learning has now become entertaining.

Rules and Goals

When playing a game, one is usually working towards completing an overall goal. How the goal is reached is dictated by a set of rules, giving the player more focus on the goal knowing what he or she is allowed and not allowed to do. Goals and rules are another important characteristic of games.

When in a game, normal rules and constraints of real life are suspended, and new rules are put into effect. Also, if the player breaks the rules in a game, play is stopped and brought back into the boundaries of the game, keeping the player on track towards completing the goal.

The goal in a game is always given to the player in a clear and specific way. Clear, specific goals allow the player to perceive goal-feedback discrepancies, which can trigger greater attention and motivations. For example, when feedback in a game indicates that the player's current performance is not meeting the requirements to complete a goal, he or she is compelled to work harder.

While the rules and goals in a game are clear and fixed, they must be flexible enough not limit the player to a linear game experience. Different players have different styles of game play, and to provide maximum immersion in a game, the player must be allowed to play the way he or she wants.

Incorporating goals that result in the desired information to be learned is an essential in instructional gaming, and rules that allow the player to play the game to his or her

preference while still keeping him or her on track to complete the goal is a core fundamental.

Sensory Stimuli

One of the essentials in creating an engaging and entertaining experience is the stimulation of the senses. Books accomplish this through the descriptive language used, while movies use special effects and lighting. Video games accomplish this through the visuals and sound. These effects are called sensory stimuli, another key characteristic of games.

One of the entertaining aspects of video games is the fact that players are given an altered perception of reality, or vertigo. Utilizing visuals and sound to create vertigo, giving the player the sense that he or she is falling through space or speeding through a crowded city, can create a sense of euphoria. Dynamic graphics, sound effects, and other sensory stimuli create an environment that is attention grabbing, as well as creating activities that are larger than life because they cannot be achieved normally in reality. With a game holding the player's attention better, the player becomes more immersed within the game, therefore motivating the player to succeed in completing the game.

Challenge

When being motivated to complete a goal, an individual must be challenged by the goal at hand, but not challenged to point where the goal seemingly becomes impossible. This concept applies heavily to instructional video games.

There are several ways in which an optimal level of challenge can be obtained. The goals within the game should be clearly specified, but the path to achieve the goal should be left up to the player.

Keeping the player challenged throughout the game can be done by increasing the complexity of the goals. The game should also involve progressive difficulty levels, so that a first time player can pick the game up and not be overly challenged, or a master of the game can still be challenged to find new ways to complete a goal. Statistics and score keeping allow the player to keep track of him or her performance in the game, often challenging him or her to work harder.

Finally, the goals in the game must be meaningful to player to enhance the game experience. If a player sees purpose in the goal he or she is trying to achieve, he or she becomes motivated to complete it, increasing the challenge in the game.

Mystery

One of the most popular genres of movies and books is mystery. Mystery keeps the viewer or reader fully engaged because of the curiosity to find out what is going to

happen next. Mystery is also an important characteristic of video games. Video games need to keep the player curious enough to keep playing until he or she achieves his or her goal.

Curiosity can been broken down into two kinds: sensory curiosity and cognitive curiosity. Sensory curiosity is the interest evoked by novel sensations, while cognitive curiosity is a desire for more knowledge. Video games must achieve both of these.

Sensory curiosity is achieved by sensory stimuli, making the player want to see what amazing visuals or sounds will be thrown at him or her throughout the game. Different thrills keep the player immersed with the game because he or she wants to see how many new and exciting situations he or she can get into.

Cognitive curiosity is achieved by story, characters, and environments in the game, as well as creating the desire to see the rewards by completing the goals in the game. If a game can create a successful premise that makes the player want to know more about his or her character and why he or she is in his or her this particular environment, the player will be motivated to progress through the game.

Completing goals will lead to new rewards, as well as new goals to achieve. Mystery evokes curiosity in the player, making mystery a crucial part of creating a successful game. A drive to find out what to expect next will motivate a player to continue the game, encouraging him or her learn the educational concepts that are projected through the game.

Control

Having the feeling of being in control is comforting. In a game, the player likes to have the same feeling of control. Control is the final important characteristic of a game. Games allow the player to have a sense of control in choosing strategies, directing activities, and decision making that directly affects the outcome of situations. While the game needs to dictate certain aspects of what the player can and cannot do, the player must feel like he or she is in control of the overall action and pace of the game.

When it comes to instructional gaming, research that has compared effects of program control versus player control on user reactions and motivation has yielded consistently positive results, favoring learner control. If a goal in an instructional game is gaining knowledge on a certain subject, allowing the player control of the steps to reach this knowledge can be very beneficial. Not only will he or she become more immersed in the learning process, but he or she will enjoy the process better than if it were forced upon him or her with linear directions. The ability to choose the way to accomplish a learning goal will allow for the player to be more motivated to complete the goal, as well as enjoy the process better.

Video Games for Instructional Purposes

The use of video games for instructional purposes can have great advantages. They immerse the player in the learning process while allowing him or her to have control of the steps in completing an educational goal, breaking away from the usual linear way of learning. Instructional games allow the learner to enjoy gaining knowledge because games throw the player into a fantasy world void of real life rules and boundaries. Making a mistake in a fantasy world only results in trying again without facing the consequences. Rules in a game keep the player focused and on track toward completing learner goals, while not over challenging him or her nor making learning too easy. Video games are also highly entertaining, making use of sensory stimuli to shock the player's senses and creating situations in a game that are not possible in real life. Games also evoke curiosity in the player by using mystery. Wanting to progress through the story in a game or to find out what bizarre situations will pop up next will motivate the player to complete the learning goals in an attempt to find out what happens next. Though video games may involve sitting in front a television or computer screen for hours on end, adding in goals that will lead to the acquisition of knowledge can be a very refreshing thing in today's technological world.

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8.3 Educational Podcasting

Kathy Kollar

According to Wikipedia, a podcast is "a method of distributing multimedia files, such as audio programs or music videos, over the Internet for playback on mobile devices and personal computers... Podcasting's essence is about creating content (audio or video) for an audience that wants to listen or watch when they want, where they want, and how they want." The May 1-7, 2006 TV Guide 'Gadgets' section shares a mini-guide on "Podcasting 101: Audio a la Carte" and briefly describes how easy it is to download audio and video files. From official network podcasts discussing episodes that just aired and give teasers on upcoming ones, to fan-created podcasts with speculation and personal insight into storylines, major TV networks have jumped onboard technology's newest wave. Illinois Senator Barak Obama (2006) dedicates part of his official website to podcasting and includes a definition of what a podcast is, how to listen, and how to subscribe to podcasting services; even providing links for multiple (PC, Mac and Linux) platforms. NASA's website (2006) provides podcasts such as Science@NASA –that gives subscribers an in-depth look at educational content by subject matter. Podcasting has gone mainstream.

A web quest or search on podcasts reveals numerous websites dedicated to podcasts and podcasting; and the category of Education is among most listings. Podcast.com's website (2006) lists six major categories of educational podcasts covering news, literature, history, philosophy, languages and music education. A wide variety of other topics are also available, including *College Experiences* in the Lifestyles category and *Technology* as a category in and of itself. The historic reference tome, the Peterson's Guide (Thomson Peterson's 2006), now encourages prospective college students to "use your MP3 player to help get into college! Now you can listen to the latest information on test prep, college admissions, and financial aid on your own computer or MP3 player." Colleges and universities have also joined the bandwagon. Mansfield University (2006) of Pennsylvania's radio ads and official website both encourage listeners to tune into their podcasts to hear from current students about the realities of dorm life and college. National Public Radio (NPR) (2006) currently hosts two podcasts related to Education. Podcast.net's 2006 'The Podcast Directory' lists 1473 titles under "Learning & Instruction" with a further 136 podcasts listed under "Kids & Teens>School".

Continuing Education courses are also available for anyone interested in learning how to create podcasts. Joe Pezzillo, founder of Metafy, provides a workshop for $50-$75 per person in Colorado (Boulder Digital Arts, 2006). Corey Deitz (2006) provides both an online tutorial and a free online course entitled, "Learn To Edit Audio Like A Radio Pro" accessible from the About.com website. Andy Wibbels of podcastingbootcamp.com offers an online course delivered via a private ecampus along with teleseminar calls by phone for $60-$120 (multiple-student discounts may apply with multiple registrations).

The Center for Computer-Assisted Legal Instruction (CALI), a non-profit consortium of law schools, has introduced "Classcaster", a course blogging and podcasting service (Podcasting News, 2005). This system has built-in podcasting support. "Faculty just dials in to Classcaster, enters a phone number and pin and records a call of any length." According to their website, uses include classroom lectures, sick day lectures, guest interviews, student audio presentations, repurposed content for distance learning, transcription for the deaf, read synthesized speech for the blind and recorded exam review lectures. The University of Arizona (2006) provides podcasting support for its faculty on their website and encourages faculty to use podcasts as a complement to their course content: "Podcasting can be an effective complement to class lectures, a way for students to deliver speeches and presentations, a tool to use with distance learning courses, and a resource for remediation of students with learning disabilities."

Podcasts, however, are not limited by age. Fourth-grade students in Irving, Texas, have put their homework essays into podcasts, according to the Dallas Morning News (Unmuth, 2006). The Education Podcast Network highlights submissions from elementary students across the nation. Goochland County Public Schools in Virginia posts their K-12 students' podcasts as well (Hendron, 2005). RadioWillowWeb in Nebraska boasts *podcasts by kids for kids* and highlights works from students in Kindergarten through fifth grade. Leanne Smith reported in the March 24th Ann Arbor (MI) newspaper that "elementary podcasting [is] a hit with students and teachers: they're now 'pod pals' with an elementary school in Kansas."

Podcasting is growing in popularity at all educational levels, from kindergarten through graduate school. Whether for fun or while learning facts and sharing knowledge, podcasting is the wave of our educational future.

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8.4 Gaming at Work: Taking the Boredom Out of Training

Mousa Afaneh

Despite a $60 billion per year price tag, training created for U.S. business employees just isn't working, and the culprit is boredom. Much of the training created these days has very little appeal, thereby losing its value. According to training experts, training

designed to be more engaging and entertaining, like computer games, is the solution. (Totty, 2006)

While there exists a handful of startup companies creating training games, some industries have branched out to develop their own, such as Cisco Systems' Creative Learning Studio. Capitalizing on the inherit effectiveness of competition as a motivator, Borland Software Corp. offered admittance to a drawing for free iPods to any employee who completed training games with perfect scores. The games were simple and inexpensive, yet they greatly helped salespersons memorize product information in time for a major sales meeting.

As proof of training/gaming's effectiveness, multifamily development firm ERC Properties Inc.'s Candace Armstrong compared test results from separate groups of employees. One group played a game; the other had a standard review. Against a passing score of 80%, the "game group" had an 88% passing rate, while the standard review group's passing rate was 54%. Ms. Armstrong states the importance of instructional gaming best, "People learn more when they laugh."

Training through gaming plays a large role in the realms of multimedia, e-learning, and high-tech industry; it's the quintessential embodiment of all three. Instructional gaming relies on multimedia for its basic structure, whether as a Macromedia Flash game, Director movie or otherwise, it can contain digital images, sound effects, movie clips, and more. Gaming excites the senses (two of them) and demands interaction from the user. The terms *instructional gaming* and *e-learning* could be perceived to a degree as synonymous due to their strong relationship. As easily as an employee can log into Centra and join in on a roundtable discussion of 3Q figures in relation to their competitor's newest product, they may get online to play a game focused on conveying identical information. Both are efficient, effective ways of reaching your target at any time, in any place.

Many industry analysts feel instructional gaming is the next big thing in business, and this goes double for the high-tech industry world. A networking company or online consulting firm wouldn't issue employee training via pen-and-paper evaluations. Staying on the *cutting edge* is important to the ethos and survival of these companies, and relying on yesterday's training methods could mean the difference between profit and obsolescence.

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8.5 Delivering E-Learning Synchronously

Chontel Delaney

What are the different means of delivering e-learning?

The common term e-learning refers to online training that can be delivered through various strategies. web-based training (WBT), computer based training (CBT), synchronous and asynchronous are the most common types of e-learning.

Web-based training allows for a large population of people who are in various places in the world to experience e-learning through the use of text, streaming media and graphics. Computer based training is an alternate means of delivering web-based e-learning via LAN, the Internet, or most commonly a CD-ROM. Synchronous (live) meetings allow learners and the instructor to meet and conduct teaching and learning at the same time even though they are physically in different locations. The method of asynchronous e-learning is an independent self paced training that does not require an instructor. It can occur at anytime and for irregular intervals of time. This article will focus on the synchronous delivery methods.

Synchronous E-Learning

The method of Synchronous e-learning delivery offers the benefit of a live classroom via the Internet. According to a survey done in 2001 and 2002 WebEx and Centra were the leading technology platforms for delivering synchronous e-learning. (Pulichino, 2004)

Centra

Centra Symposium allows for presenters and attendees to meet in a real time setting incorporating voice and video. The system requirements for Centra are Windows 95, 98, Me, NT, 2000, and XP, Internet Explorer 4.01+, Netscape 4.08+, 28.8 Kbps or faster network connection, and Pentium 166, 64 MB memory.

In Centra, the presenters are the creators of the meetings and have full control over the presentation; they also invite the attendees to the real time sessions. The attendees attend the meeting using an ID provided by the presenter(s). Centra features break out rooms and audio conferencing.

WebEx

WebEx allows users to collaborate in real time meetings using a standard browser over the Internet that incorporates data, voice and video. WebEx synchronous meetings are hosted applications and therefore do not require the users to purchase or install any special kinds of hardware or software. It is supported by various browsers such as

Windows, Macintosh, Linux, and Solaris systems as well as Internet Explorer, Mozilla, Firefox, Netscape and Safari.

Synchronous E-Learning Features

Features that can be incorporated when delivering E-Learning: (Resource Bridge, 2005)

- Audio and video conferencing
- Whiteboard - a virtual blackboard
- PowerPoint slides
- Voice-Over-Internet Protocol (VOIP)
- Net surfing
- Video - streaming and prerecorded
- Chat application – text messaging
- Virtual break-out rooms
- Polls & quizzes
- Assessment tests (results fed back)
- Session record and playback

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Chapter 9 – E-Learning Evaluation

- 9.1 - Amy Roche provides an overview of evaluating e-learning.
- 9.2 - Amanda Ireland and Andrea Mummert with Mike Moran discuss Kirkpatrick's Levels of Evaluation.
- 9.3 - Kristin Longenecker with Vincent Basile and Pete Mitchell address Learning Analytics.
- 9.4 - Amy Roche explores a framework for using the organization's strategic business objectives and applying them as a set of performance indicators that measure the success of the organization.
- 9.5 - Mike Bond and Dave Cerreta compare and contrast three evaluation models.

Bonus Podcast

An interview with professor, Dr. Mary Nicholson, of the Evaluating E-Learning course at Bloomsburg University can be found at:

- http://iit.bloomu.edu/Spring2006_eBook_files/chapter9/Chapter9Podcast.mp3

9.1 - Introduction to Evaluating E-Learning

Amy Roche

An essential aspect of an e-learning course or curriculum is the evaluation of e-learning. Of course you are probably asking why? Well, there are numerous reasons and benefits for doing so. First and foremost is that evaluation is part of any instructional design model. For example, the highly popular ADDIE model stands for analysis, design, development, implementation, and EVALUATION. Without completing this portion of the instructional design model the e-learning course is incomplete. Evaluation is a key aspect of any instructional design model due to the fact that the course cannot be tailored, redesigned, and improved upon unless this is done. Evaluation consists of numerous attributes; however it basically means assessing the effectiveness and possible improvement of a course/curriculum.

Now you might be thinking... Now I know that evaluation is part of an instructional design model, but why is it included in these models? Well the reasons are numerous and most reasons directly relate to the improvement of course/curriculums. This can include making sure the training is liked by the learners, ensuring that the learners gained information in the process, assure that learners are accountable for the information they obtained in the training, assess learning outcomes, and find and fix quality issues in the training as well as learn how to make training courses and curriculums better in upcoming projects. Each of these reasons can improve the training if fixed. For example, if after the evaluation the training is altered to make sure the training is liked by the

learners it can lead to an increase participation in the training, an increase in learner retention, ensuring that it accommodates different learning styles, etc.

In addition to increasing the quality of training another critical reason for evaluation is to assess the value of the training. This is essential because training is a part of business. If it is not deemed valuable within the organization, then the amount spent on training is often reduced. Reasons for evaluation in this particular area include adding value to the organization, justifying the investment in training, assessing the effect the training has on profitability, the impact the training has on employee's work habits, effectiveness and efficiency of the training, assessing the effect of customer satisfaction from the training, etc.

Now that you know the answer to why evaluate e-learning you might be asking who, what, when, and where to evaluate. Well, this depends upon how you evaluate e-learning. There are numerous ways to do this and in this chapter we will discuss some ways including Kirkpatrick's Levels of Evaluation, ROI, Metrics and Learning Analytics, Balanced Scorecards, and Evaluation Plans. When going through these ways to evaluate e-learning remember the reasoning and justification for evaluating e-learning and how it can pertain in real world situations.

9.2 – Kirkpatrick's Four Levels of Evaluating Learning

Amanda Ireland and Andrea Mummert with Mike Moran

9.2 Overview

In education and learning new methods of thinking are constantly generated by people who *think outside the box*. This is why it may seem unusual that a model for assessing training effectiveness that was introduced nearly fifty years ago is still highly regarded and considered to be one of the best.

In 1954, a doctoral candidate at the University of Wisconsin in Madison, Donald L. Kirkpatrick completed his Ph.D. dissertation entitled “Evaluating a Human Relations Training Program for Supervisors.” Based on that dissertation, he wrote a series of articles for the American Society of Training Directors (now ASTD) beginning in 1959. The articles were entitled: “Evaluating Reaction”, “Evaluating Learning”, “Evaluating Behavior”, and “Evaluating Results”. According to Kirkpatrick, “At that time training professionals were struggling with the word 'evaluation.' There was no common language and no easy way to communicate what 'evaluation' meant and how to accomplish it.” Trainers began to use his four levels and passed them along to other professionals. The four levels together afford the trainer a meaningful evaluation of the training by looking at it from various angles.

Level One: REACTION

What is reaction in training evaluation? Simply put, it reports if participants liked or disliked the training. This would resemble a customer satisfaction questionnaire in a retail outlet. At the First Level of evaluation, the goal is to find out the reaction of the trainees to the instructor, course and learning environment. This can be useful for demonstrating that the opinions of those taking part in the training matter. A Level One evaluation is also a vehicle to provide feedback and allows for the quantification of the information received about the trainee's reactions.

The intent of gathering this information is not to measure what the trainee has learned, but whether the delivery method was effective and appreciated. Non-training items may have a deep impact on the training session and need to be considered. These items include, but are not limited to environmental and other conditions surrounding the learner at the time of training. Level One questions might include the following:

- Did the learner feel comfortable in the surroundings?
- Was it too cold or too warm in the room?
- Were there distractions?
- Was the time the training was conducted good for you?
- Was this an easy experience?

In gathering the data for this first step, it is important to do so soon after the training is completed. It is most presented as a form to be filled out by the learner. The following are some methods used to collect the data for Level One:

- Feedback forms – have the trainee relate their personal feelings about the training
- Conduct an *Exit Interview* – get the learner to express their opinions immediately
- Surveys and Questionnaires – gather the information some time after the training is conducted
- Online Evaluations – this might allow for more anonymous submissions and quicker evaluation of data
- On-the-job verbal or written reports – given by managers when trainees are back at work

Benefits of gathering Level One information are far-reaching. For example, the trainer or instructional designer may be misled into believing there is a shortcoming in the material presented, when it may have simply been an environmental issue. The data can be gathered immediately and most trainees participate readily because the information gathered is non-threatening and shows concern for their feelings. The information, in addition to ease of gathering, is not difficult to analyze. Finally, when a current group is relating a positive experience, other potential trainees are more at ease with a decision to learn.

Level Two: LEARNING

As stated in the above section, Kirkpatrick's Level One Evaluation assesses the reaction of the trainees. Kirkpatrick's Second Level stretches beyond reaction and assesses the learning, also known as knowledge, skills and attitude (KSA) of the learner. More specifically, Level Two data can describe the extent to which participant attitudes changed and if relevant knowledge and skills were increased by the training. Level Two data is valuable for answering the basic question “Did the participants learn anything?”

The measurement methods of Level Two tend to require more time, effort, and care than Level One. Some methods used to evaluate Level Two are mentioned in the following list:

- Formal and informal testing
- Self assessments at the beginning (pretest) and end (posttest) of the training
- Interviews can assess participant expectations for learning and confidence in learning
- Observation and feedback from participants, managers, and supervisors

The pretests are often used to determine the knowledge of the content before the training. The post tests are used to measure the amount of knowledge/understanding of the content after the training. The pretest and posttest are developed before the content is complete. This will ensure that the content meets the learning objectives. The score of the pretest and post test are summarized so that the trainers can monitor if the training has made an impact on learning. Interviews and observations can be useful, but it should be considered that this data could be subjective and may reflect other factors that do not apply to this level of evaluation.

Level Three: PERFORMANCE

Level Three of Kirkpatrick's Evaluation Model incorporates Level One and Two and extends it one step further. Level Three measures the direct correlation between KSA and the behaviors of the learner in their daily job. Level Three Behavior can also be the most validating assessment for the training program's effectiveness.

Level Three evaluations normally take place three to six months after the training has occurred. By waiting three to six months the learners are given an opportunity to implement the new skills/knowledge learned in the training. It is nearly impossible to pinpoint when the transfer of knowledge/behaviors takes place, therefore the trainers/mangers have important decisions to make when considering evaluation. When making this decision the trainers/managers must keep in mind the following factors:

- When to conduct the evaluation
- How often should you evaluate
- How to conduct the evaluation

The evaluation methods for Level Three Behavior are as follows:

- Observations by the supervisor or manager
- Interviews
- Survey
- Coaching

The observations are performed by the supervisors/managers to observe that the knowledge, behavior, and skills are being applied to their daily work. The interviews are a useful resource but can be a time consuming way to gather the information especially if it is a large organization/company. A survey can acquire sufficient information, as long as the questions are asked appropriately. The most recent addition to methods of gathering Level Three information is coaching. Coaching or *Performance Coaching* employs a change agent who has the responsibility of demanding and driving behavior and performance changes. The demand and drive of behavior is done in a supportive yet challenging way.

Level Four: RESULTS

Kirkpatrick's fourth and final level of evaluation involves results – the impact that can be derived from training. Level Four Evaluations can produce data that can, in addition to the other three levels, give concrete evidence as to overall value of the training program. Results of a Level Four Evaluation can be specifically useful when reporting and achieving the buy-in of higher level management. The data can also be used to suggest or justify further training efforts and investments.

Level Four Evaluations can produce hard data on such factors that relate to cost, quality, and morale. Data from Level Four is often collected from management and reporting systems that are already in place within an organization. Examples of specific tangible measures that can result from Level Four Evaluations are listed below along with measures that would be considered intangible.

Tangible results

- Increased sales
- Increased productivity
- Reduced cost
- Lowered employee turnover rate
- Improved product and service quality
- Lower overhead

Intangible results

- Improvements in behavior and attitude
- Positive changes in management style
- Favorable feedback from all parties involved (customers, staff, management)

Although the data may be seemingly easy to gather, Level Four Evaluations are the least likely to be conducted within an organization. There are several factors that attribute to this finding:

- It is often difficult to relate Level Four data directly to training.
- Collecting, organizing, and analyzing Level Four data can be difficult, time-consuming, and costly.
- Data collect at Level Four is often collected across the entire organization.

Kirkpatrick, however, clearly designated that by completing each of the Four Levels of Evaluation would give evaluators a well-rounded indicator as to the value of a training program.

9.2 Summary

Kirkpatrick's Four Levels of Evaluation have consistently proven since their creation, that each level has particular benefits and unique challenges. As the Level of Evaluation increases, the complexity and difficulty of data and data collection also increases. Keep in mind however, that while the higher levels may require more cost, time, and complexity, they also result in the most valuable measurements that a training program could benefit from. Despite time and new evaluation innovations, Kirkpatrick's idea still remains one of the most widely used models of evaluation today.

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9.3 – Learning Analytics

Kristin Longenecker with Vincent Basile and Pete Mitchell

9.3 Introduction

We function in a results-oriented business environment. Organizations are under constant pressure to demonstrate that their investments of time and money in projects and processes produce measurable benefits. Training expenditures are still seen by many companies as a cost, not an investment. In many cases, these costs are considered to be money lost. Many feel that organizations are only able to appreciate the value of their training expenditures when they can calculate the money saved, or perhaps even earned, by investing in training solutions. Learning analytics supports this by using business analysis practices to study the impact of learning on learners and the organization.

Why Learning Analytics?

Training expenditures can be a huge investment for any organization. When properly utilized, learning analytics can help management demonstrate fiscal responsibility while providing justification for training budgets. It gives an organization the information needed to make more effective training decisions. The information derived from learning analytics can also help guide decisions regarding the type, format and content of training programs. Learners can also be held accountable for their attendance and level of participation.

What to measure?

The critical areas of learning analytics measurement are efficiency, effectiveness, and compliance. Training decisions most likely fall into one of these three areas, efficiency, effectiveness and compliance.

Efficiency measures are concerned with the dollar amount spent on learning in the organization. These measurements include return on learning investment, learning dollars spent per employee, hour, or per course.

Effectiveness measures are concerned with the outcomes of the learning. These measures include course completion rates, certification rates, and measurable improvements due to specific training programs such as increased sales or reduced number of accidents.

Compliance issues are becoming increasingly important for all types of organizations. Compliance measurements include certification rates, compliance percentages either across the organization or in individual areas, and can even track the organizations risk of falling out of compliance and indicate the areas that need to be improved.

Planning for Learning Analytics

An old proverb states, “failing to plan is planning to fail.” In any endeavor, planning allows us to determine where we wish to go and how we're going to get there. When implementing a learning analytics program, planning is of critical importance.

Start by referring to your organization's goals and strategic vision. These overall goals are used to determine an organization's operational strategies. Training efforts should, in turn, be linked to these goals and strategies. Your learning analytics program should be designed to provide key measures that show the connection between training efforts and meeting those goals.

It is essential to obtain executive support for the learning analytics program. One way to achieve this is to educate your organization's executives on Kirkpatrick's levels of evaluation. Despite much well-publicized information to the contrary, many executives still believe that training evaluation is limited to *smiley-face* forms (Kirkpatrick Level 1) filled out at the end of a lecture. They have very little understanding of the usefulness of information that is provided at the Learning (Level 2), Performance (Level 3), Business Impact (Level 4) and ROI levels. Present learning analytics as one more tool that shows a management commitment to fiscal responsibility. Showing a direct link between learning analysis measures and operational strategies and goals will further underscore the value of the program.

Many new programs receive administrative approval, however, only to *die on the vine* due to a lack of ongoing budget support. Once executive support has been obtained, funding for learning analytics should be included in the budget process. This should include start-up costs and ongoing evaluation costs. The percentage of a training budget that should be directed to the learning analytics program relates directly to the scope of the program. Are you interested in evaluating the benefits from a single course, a multi-course training program, or all training efforts for your organization? Generally, the wider the scope of the analytics program, the lower the level of evaluation performed. Partly due to their higher cost and increased difficulty of application, higher level evaluations tend to be focused on smaller training areas.

In many cases, flowcharts and other types of graphic aides can provide a visual guide to the process as you work to determine your information goals and the best way to achieve them. Treat your learning analytics as any other business project. Consider all aspects and develop a project timeline before committing resources.

Implementing Your System

Managing change is a challenge that organizations face every day. Once you have made the decision to implement a learning analytics program, it's important that management interest and support remains positive and visible. Take steps to identify the stakeholders in the program. Their input is essential in both the planning and implementation phases. Your stakeholders may include managers, supervisors and staff members. They may come from operations departments, your training department, clients and contractors. All will have a different point of view that should be considered as you develop and implement your program.

Recognize that some stakeholders may view the gathering and analysis of this data as a threat. Some individuals may become quite vocal about their concerns. Others may hold their concerns back, while maintaining a passive resistance to the change. Take steps to minimize these concerns by bringing stakeholders into the implementation process as soon as possible. Maintain a continued emphasis on the projected benefits of the program. As always, frequent and open communication is an essential and effective tool to use when winning support.

In order to determine the type of analysis that will be performed, it's necessary to identify the questions that you wish to ask and the type and sources of the data you will need. In most cases, data from the lower Kirkpatrick levels is easier and less costly to collect and analyze. If you do use *smiley-face* forms, the information that you obtain from them is still useful. In addition, you may also wish to gather data from other existing sources. If your organization uses a learning management system (LMS), for example, you may already have a considerable amount of data available on course completion, test scores, etc. By starting with the information that you have, you support familiarity with the program and make the transition much easier. As your organization's comfort with the learning analysis process grows, you can begin to address information that relates to higher levels of learning evaluation.

Custom-Built or Off-the-Rack? Making the Decision

If you are implementing a vendor-supplied system, key members of your technical staff will need to work closely together with their representatives. If you are implementing an in-house developed system, you'll need to assemble a team consisting of individuals from management, plus staff from your training and IT departments. In either case, close work by team members is needed to determine your most effective implementation plan.

Most organizations spend a significant part of their time emphasizing the factors that make them unique. It's only natural, therefore, to assume that you will need a unique solution to meet your learning analytics needs. In some cases, this may be the best approach. Before making this decision, however, several factors should be considered.

Does your company have sufficient internal expertise in both the development of the required technology and the learning analytics process? Do you have the ability and resources necessary to keep up to date with new developments in the learning analytics field? Companies that meet these criteria generally have a core business focus that involves software system development and application.

How do the costs associated with initial development and implementation of the program compare with the cost of a solution provided by an outside vendor? Further, how do ongoing costs of system maintenance and upgrades compare?

Does development of an internal solution give your company a competitive advantage? This may be related to improved managerial and operational efficiencies, or to an ability to market your proprietary system as another factor that differentiates you from your competition.

Do you have a need to share information with organizations with which you have a direct link or with other organizations with whom you have partnered? In some cases, this is facilitated by the agreement to use a common learning analytics platform.

Data Storage

The manner that learning analytics data is stored within an organization is crucial. There are several factors to consider. First, the structure of the training program should be examined. If the courses in your training program are organized hierarchically, data from those courses should be similarly organized. By accurately reflecting the course and program structure in your data storage plan, you can measure the effectiveness of a small piece of the program (such as one course), a series of related courses, or of the entire program.

The information that is gathered should be directed into one centralized location. This pulls all of the pieces together and helps make evaluation of the information easier for the organization or outside vendors. When storing large volumes of data, it can also be helpful to come up with a plan of maintenance. Even the best designed analytics engines can slow down over time if a plan to maintain this data is not established early in the process. Hourly or daily backups of the database should be conducted to prevent any loss of information.

Data Processing

A key factor when processing stored data is how it will be formatted. Standardizing files to a specific format can be advantageous in terms of exporting and analyzing information. The intervention of an Analytics Tool can expedite this process greatly. There are numerous on-line analytic processing (OLAP) tools designed to do this very task. When selecting one of these tools be sure to consider price, functionality, and the ability to filter criteria such as instructor, course, and program. For example, XML is a very powerful tool that can help structure and organize information. A standard system of XML tags can be developed to help export data to a given analytics tool for processing. This system can then easily be modified as the needs of the organization evolve.

Data Reporting

When reporting the findings of a given request, the presentation of the information is vital. In most cases, the use of appropriate charts and graphs can represent the data more effectively than text-only reports. They give us the ability to quickly interpret figures, so that what is being represented is more easily understand. This, in turn, makes evaluating performance much more effective.

Reporting software may also require maintenance. When this is the case, it is very important that the need for this is accurately communicated to its users. Downtime due to maintenance should take place during the most convenient times for the report users. This way the reporting process can be carried out most efficiently in terms of time and available resources.

The Learning Dashboard

A *dashboard* is the name given to web-based tools that are used for reporting information in a concise and easily accessed manner. In this case, your dashboard is the part of your data reporting system that provides a quick summary of the information gained through your learning analytics process.

When selecting software, the presence of a dashboard is a very important feature. The purpose of this interface is to display measurements of key factors that help you quickly evaluate your training program. The more clearly this information is displayed, the more quickly and easily your training can be evaluated.

Most software comes with a beginning template to help design your dashboard. Be sure to use graphs with time axis and gauges. This allows the measurements of key factors to be shown over time. Keep in mind that the goal of your learning dashboard is to allow you to assess your training program at a glance and you'll be right on track.

9.3 Conclusion

In an article on the Knowledge Advisors website, Jeffrey Berk referred to learning analytics as, "the process by which learning professionals analyze critical indicators within their business to not only continuously improve but to demonstrate value to stakeholders and make better decisions to optimize learning investments."

In other business areas such as finance, inventory control, manufacturing and sales, analytics are tools that have long been used for information gathering and decision-making. The increasing interest in learning analytics brings the power of these tools to the training field.

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9.4 – Balanced Scorecards

Amy Roche

9.4 Introduction

A Balanced Scorecard is a framework for using the organization's strategic business objectives and applying them as a set of performance indicators that measure the success of the organization. The success is indicated from four perspectives including Financial, Customer, Internal Business Processes, and Learning and Growth. The Balanced Scorecard relates these four different areas with each other and creates a dynamic relationship.

History of the Balanced Scorecard

The Balanced Scorecard was created by Robert S. Kaplan and David P. Norton in 1992. It originally was created to measure private industry financial and non-financial performance and was created because Kaplan and Norton wanted a solution to the weaknesses of previous management systems. Kaplan and Norton wanted a clear way to measure finances in a balanced format. This was done by having the four perspectives be in balance with one another in terms of finance. In order to create the Balanced Scorecard, Kaplan and Norton used the Hoshin Planning as a basis. The Hoshin Planning is an organization-wide strategic planning system that is used throughout Japan. The Balanced Scorecard eventually adapted to become a Performance Management system for both private and public organizations. In addition the emphasis switched from financial and non-financial performance to business strategies.

Reasons to use the Balanced Scorecard

Balanced Scorecards are used for numerous reasons. First and foremost it defines the organization's business strategy, facilitates organizational chance, and measures performance. In addition, the Balanced Scorecard assesses the organization on all levels and across the entire organization. By doing so the Balanced Scorecard strengthens the unity between the different perspectives. The Balanced Scorecard helps drive performance on all the levels that, in turn, improve bottom line results. This is done by

reducing cost and improving productivity. In addition, the Balanced Scorecard aligns the strategic activities to the strategic plan. This allows the real deployment and implementation of the business strategy and the organization can get feedback on their strategy and alter it accordingly.

In addition, the Balanced Scorecard collects data that can be used in numerous ways. One way is to assess performance of different geographical locations that can lead to the identification of gaps and allows them to be fixed. Data collected allows the identification of best practices within an organization and expanding these best practices throughout the entire organization. The data collected is concrete and provides a rational basis for making decisions on budgets and control of processes. Along the same lines, there is accountability and incentives based upon real data and not subjective numbers. The data also allows for a basis for deciding which improvements of the organization need to be made first and how to implement resource allocation processes.

The Balanced Scorecard allows for the measurement of the organization in other ways. This includes ensuring that the correct measures are included in the business strategy, identifies key measures that are missing, tracks the key measures of the business strategy, and allows for benchmarking performance against outside competitors. Other uses of the Balanced Scorecard include the encouragement of good management and an increased understanding of the organization's business strategy and the organization itself.

The Four Perspectives

As previously stated the four perspectives include Financial, Customer, Internal Business Processes, and Learning and Growth. The key behind the Business Scorecard is to keep these four perspectives in balance with one another. To fully understand the Balanced Scorecard it is essential to learn more about these areas.

The Financial perspective focuses upon financial objectives and their representation of long-range profit goals. In government or educational settings, finances are measured in goals of efficiency and maximizing the return on investment. In other organizational settings, finances are measured on bottom dollar results. Within any business funding and profits will always be a priority; however if this is too much of a priority it can be off balance with the other perspectives and actually hinder the organization instead of helping it. Therefore it is essential to balance the financials with the rest of the perspectives. To go along with this risk assessment and cost-benefits should be used and included within this perspective.

The Customer perspective focuses upon the ability of the organization to provide quality goods and services to the customer and to have customer satisfaction. It is essential in any organization to keep customers, internal and external, satisfied. If the customers are not satisfied they will find another organization to fulfill their needs. Poor performance from this perspective is a good indicator of the future decline of the business in the financial perspective. When creating metrics for this perspective, customers should be analyzed by

type of customer and types of processes should be analyzed by the process type that provides the goods or services to specific customer types.

The Internal Business Processes perspective focuses upon improving upon business processes. Metrics are used to identify and assess how well the organization is running and whether or not the end result of these processes are adequate. The end results of these processes include the products, services, and customer satisfaction within the Customer perspective. The processes that are identified are within three different categories including strategic management processes, mission-oriented processes, and support processes. Strategic management processes focus upon the bottom line results, while mission-oriented processes are special government office functions which encounter unique problems and are not easy to measure. Support processes are more repetitive and are easy to break down, measure, and benchmark using metrics. The Internal Business Processes perspective includes the numerous processes that are used to achieve the other Balanced Scorecard perspectives.

The Learning and Growth perspective focuses upon the ability of employees, resources, and organizational alignment to manage the business and adapt to change. This perspective includes employee training and the corporate culture of the organization as it relates to individual and organizational improvement. The success of any organization is based upon their ability to keep up with rapid changes of technology. This depends highly upon the employees learning about new technology and applying it on their job. In this day and age there is a problem of not being able to find new technical employees and there is a decline in keeping older employees up to date with training. It is essential to reverse this trend by changing corporate culture to incorporate training and self-improvement within their organization. By doing so, there will be a balance upon the perspectives and the success of the organization will be increased.

Kaplan and Norton also focus upon that learning is more than training. According to them, learning includes the availability of mentor and tutors, collaboration of employees, communication of employees, and the use of technological tools. In addition, metrics within this perspective can guide the organization to focus training where it is needed the most. For more information about the four perspectives , how they pertain to one another, and an excellent graphical representation of the balanced scorecard go to http://www.balancedscorecard.org/basics/bsc1.html.

How to Implement a Balanced Scorecard

The hardest part about the Balanced Scorecard is how to implement it within an organization. There is no standard step by step approach; however, the phases of implementing a Balanced Scorecard fall within three broad categories. These categories include mobilization, design and rollout, and sustainable execution (Kaplan & Norton, 2006). The time span for these phases are best estimated as three to six months for mobilization, six months for design and rollout, and twelve to twenty-four months for sustainable execution (Kaplan & Norton, 2006). While this might seem time consuming, it is essential to take the time within each step to ensure the step is completed effectively.

This is done because everyone within the organization must be on board and it is essential to make sure that the Balanced Scorecard is balanced.

The mobilization process is the first step to implementing a Balanced Scorecard. The main purpose of this step is to prepare everyone in the organization about the major changes that will happen in the near future. There is always a reluctance to change, so it is essential easing everyone into the change and to get everyone on board as soon as possible so that the process will go smoothly. The first change that should that be done is to get commitment to the Balanced Scorecard across all levels of the organization, especially those in leadership positions. Another step within the mobilization process is to identify ideas and key points that should be focused upon in the vision and strategy of the organization. This includes doing research and assessing the needs of each of the four perspectives. Suggestions to conduct this include choosing an audience within each of the four perspectives, identifying their requirements, determining potential gaps in performance for the audience, and set audience priorities. After this is completed, it is critical to narrow down the priorities and the end result in the vision and strategy of the organization. The reasoning for this is the organization can only focus upon a certain number of priorities at a time due to resource limitations.

Now that the priorities of the organization are narrowed down the next step is to create a clear, identifiable vision and strategy. The vision should be completed in a timely matter due to the completion of previous steps which inherently created the focus of the vision. In order to produce the strategy, the organization must determine how the organization's vision pertains to the internal processes of the organization and how to change the internal processes in order to fulfill the organization's vision. By accomplishing this step, the organization is translating their vision and strategy in order to start the Balanced Scorecard. Once this is done the mobilization phase of the Balanced Scorecard is complete and the focus can now be on the design and implementation of the Balanced Scorecard.

Design and implementation is the second step to implementing the Balanced Scorecard. This step focuses upon how the vision and strategy affects the four perspectives and how to align the objectives and results of the perspectives to the vision and strategy. The first step to accomplish this is to identify that the areas that link the vision and strategy to the results. This includes areas within the four perspectives and can include specific areas such as financial performance, operations, innovation, and employee performance. Once this is done it is essential to create strategic objectives that support the business vision and strategy along with keeping in mind the areas that link the vision and strategy to results.

Once the strategic objectives are determined, the organization must come up with a way to measure the success of the objectives. In order to do this, the organization must select and design metrics. This includes determining what should be measured, defining what success is, and ensuring that there are enough resources to implement to do everything which has been determined thus far. In addition, it is important to create short-term and long-term goals. By having goals within each of these categories, the success of the

Balanced Scorecard can be found easily. Before the metrics are finalized, it is essential to make sure that the metrics are accepted throughout the entire organization. If everyone is not on board with the metrics, then most likely the Balanced Scorecard will not be a success. Once the metrics are determined and accepted, the implementation plan for the Balanced Scorecard must be determined.

In order to have a successful implementation of the Balanced Scorecard, there must be a plan of action. Although this varies from organization to organization, there are some good guidelines/suggestions to follow. One suggestion is to use organization Intranets and technology capabilities to ensure communication throughout the rollout of the Balanced Scorecard. In addition, it is important to aid in aligning the entire organization to the vision and strategy. This can be done in numerous ways including offering training in improvement areas, creating a reward system for improvements, and ensuring that the strategy and vision of the company is everyone's job by doing such things as having a tie-in to employee performance. Once the plan of action is complete, the rollout of the Balanced Scorecard can be done. After the rollout is completed, the improvement of the processes of the organization will start due to aligning the organization to a clear vision and strategy. These improvements will continue to improve during the next phase of the Balanced Scorecard and will hopefully continue in the future of the organization.

The final phase of implementing a Balanced Scorecard is sustainable execution. This phase focuses upon making the Balanced Scorecard part of the everyday procedures of the organization. There is no "set" way to do this; however it just takes time. In addition, sustainable execution is ensuring the value of the Balanced Scorecard and assessing the success of the goals objectives. This success is determined by the metrics that were made in the design and rollout phase. It is essential to check the results of the plan that was made before in order to continually improve upon the Balanced Scorecard. To assess the success of the Balanced Scorecard the organization must collect and analyze performance data and compare the results to the metrics. Once this is done, weaknesses can be found and can be fixed accordingly.

9.4 Conclusion

By having the Balanced Scorecard being used on all levels of an organization as well as providing the results of the Balanced Scorecard to employees there will be a continual process of aligning performance with the organization vision and strategy. This will ensure that the company will continually improve upon goals. In addition, the Balanced Scorecard will allow the organization to learn what works best both externally and internally in the organization. By learning what works best, the organization will become highly adaptable and will become more competitive than without using the Balanced Scorecard.

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9.5 Evaluation Models

Michael Bond and David Cerreta

Evaluation of e-learning, learning and training programs has become a widely researched area. This is due to the fact that the performance of learners and education itself is vital to enabling learners to reach their full potential. In understanding how our learners "learn" will enable us to make better decisions when trying to educate them or implement trainings in general.

In evaluating learning or instruction we are searching for many things:

- Did the trainees like the training?
- Was the training relevant?
- Was the time spent by the trainee well spent?
- Did they experience what was intended or something completely different?
- Did they advance, if so at what level?
- Was their a change in behavior due to the training and is the trainee aware of the change?

Keep in mind that these are only a few of the thousands of questions one could ask about the effectiveness and efficiency of a training module or educational course. One could ask a vast array of questions depending on what it is that you are trying to evaluate. For now, we'll keep it simple and just try and get a basic idea of what evaluation and evaluation models are.

Next, we're going to compare, contrast and critique 3 different evaluation models. In order to effectively examine an evaluation model we must first explain what an evaluation program is and find the purpose that it serves. Are all evaluation models the same? Are they all evaluating the same things? Can different models be used in different circumstances or contexts?

These are some of the questions we should ask ourselves when examining the following evaluation models.

For now we can safely say that an evaluation model is systematic approach that will guide us in measuring the efficiency and effectiveness of a training, a course or an educational program.

The three models we'll be reviewing in this particular article are the following:

- Kirkpatrick's four levels of training evaluation (A fifth element *ROI* has since been added)
- The Stufflebeam CIPP Evaluation Model (Context, Input, Process and Product Evaluation)
- Flashlight Triad Model

Comparisons/Contrasts of Each Model

Kirkpatrick's 4 Levels of Evaluation

Kirkpatrick has defined four levels of evaluation (Winfrey, 1999).

Kirkpatrick Level 1

Reactions/Learner Satisfaction - Ask questions like, “Did they like it?” or “Was the material relevant to their work?” - This type of evaluation is often called a *smile sheet*.

Kirkpatrick Level 2

Learning - Goes beyond satisfaction, attempts to assess the extent that learners have advanced in skills, knowledge and attitude

Kirkpatrick Level 3

Transfer – At this level trainers attempt to determine if the skills, knowledge, or attitude has been effectively transferred into everyday life activities as required, measuring at this level is difficult because it is almost impossible to predict when the behavior change has taken place so the time to evaluate must be carefully calculated and chosen.

Kirkpatrick Level 4

Results - this level measures the success of the program in terms that managers and executives can understand, such as, increased production, improved quality, decreased costs, reduced frequency of accidents, increased sales, and even higher profits or Return On Investment (ROI).

Stufflebeam's CIPP Evaluation Model

Context, Input, Process, and Product Evaluation

Daniel Stufflebeam's CIPP Model (2002) is based on the premise that evaluations should assess and report an entity's merit, worth, and significance as well as, the lesson learned.

The CIPP model's main theme is that evaluation's most important purpose is not to prove, but to improve.

Flashlight Triad Model

According to Educational Technologies at Virginia Tech, The Flashlight Triad Model covers 5 distinctive steps ("Evaluation Models").

1. Overview and Confronting the Blob
   Brainstorming brings to light all the elements that feed into whatever it is you are evaluating.
2. From Blob to Issue
   To narrow down the *Blob* this step focuses on choosing which elements you think are crucial to evaluate (usually only 1 or 2).
3. From Issue to Triad
   Take the elements you chose and create *Triads* which consist of the type of technology that is employed (T), the activity the technology enables (A), and outcomes expected from the activity (O).
4. From Triad to Data
   From the Triads, now questions are created to gather data about the Triads; these questions usually fall into one of 5 categories:

   - Technology
   - Interaction of Technology and Activity
   - Activity
   - Interaction of Activity and Outcomes
   - Outcomes

   Note: there is a pre existing Flashlight Network Question Database of over 500 question types that can be used other than these (“Evaluation Models”).
5. From Data to Next Steps
   After analyzing the data collecting and answering the questions created modifications are made.

9.5 Conclusion

In our conclusion we propose the best approach to evaluation would be taken using the Kirkpatrick model. This is due to the fact of the longevity of the system and the many times it has been effectively used when approaching evaluations.

Kirkpatrick's four-level evaluation model has been acknowledged as the standard in the training field because of its simplicity and its ability to help people think about evaluating criteria. It has provided a highly successful framework that has clearly met an organizational need, and it has become well known in HRD departments around the country. Through this model, you not only get to know the real meaning and the purpose of the evaluation, but it guides you in the exact ways to effectively conduct evaluations.

Kirkpatrick's evaluation model is has been in existence since the 1950's and is continued to be accepted today. In addition, technology and creativity have only added to maximizing its benefits for the modern corporation.

Kirkpatrick's goal was to clarify what evaluation meant. The model clearly defined evaluation as meaning "measuring changes in behavior that occur as a result of training programs." Originally, the model itself is composed of four Levels of training evaluation. A fifth level, ROI has been added since then. The fifth level, "What is the return of learning investment?" was the brainchild of Dr. Jack J. Phillips, Ph.D., author, consultant and Knowledge Advisors advisory board member and strategic partner (Winfrey, 1999).

Return on investment has been a critical issue for trainers and top executives in recent years and is a topic frequently listed on meeting agendas. This technique probably should receive more emphasis from educators than it has in the past.

For more information on Kirkpatrick's theory on learning evaluation theory , please visit Businessballs.com at http://www.businessballs.com/kirkpatricklearningevaluationmodel.htm (“Kirkpatrick's learning and training evaluation theory”).

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Chapter 10 – Managing the Data

- 10.1 Vince Basile discusses some ways in which virtual teams can be successful.
- 10.2 Steve Brink shares some ways to better manage email data.
- 10.3 and 10.4 Susan Oliver defines virtual teams and presents some popular tools in a virtual team environment.

10.1 Project Management for Virtual Teams

Vince Basile

As organizations become larger, team project managers often find themselves trying to work with a team that is geographically dispersed. While virtual teams have been shown to be an effective and efficient approach to business projects, there are some added conditions that must be met if a virtual team is to be successful.

Why virtual teams?

Virtual teams are formed for many reasons. A company may, for example, have many different corporate locations. Each location, in turn, may have a particular corporate focus, with personnel who can uniquely contribute to a particular project. Alternately, a team may be addressing an organization-wide business initiative. Personnel may be located in many different places within a country, or in many different countries.

In other cases, certain employees may be *telecommuters.* When these individuals are selected for project teams, their availability and contribution is limited by the same factors that made telecommuting a necessity.

Increasingly, organizations are partnering, or joining forces, in order to better handle the demands of complex projects. This may take the form of a corporate merger. It may also be a temporary alliance that brings together different areas of corporate expertise. In either case, the individuals who are assigned to a combined project team will generally be selected for their ability to bring needed skills to the team.

Finally, individual consultants may be brought in from outside the company. These individuals will generally be selected to serve as temporary members of an ad hoc project team. They bring to the team a particular area of expertise that may not be available within the corporation.

The Benefits of Virtual Teams

Regardless of the specific factors that lead to the formation of a virtual team, the decision to do so is almost always influenced by a need to limit costs and improve team performance. Virtual teams have the ability, for example, to reduce project costs in several different areas. Among these are travel-related costs. These include the cost of travel itself, plus associated costs such as lodging, meals, parking, on-site commuting and others.

Another cost factor is a decrease in the loss of productivity associated with increased time away from other work assignments. Although the modern business person has a variety of productivity-enhancing tools at his or her disposal, there is still an inevitable decrease in efficiency and productivity that goes with time away from home base.

In many cases, virtual teams eliminate the need to assign dedicated project space. Most companies do not have the luxury of having unused, yet well-equipped work areas available for assignment to short-term projects. Spaces that are available may require considerable renovation or relocation of existing services. In some cases, a decision may be made to lease space for the project team, adding considerable additional cost to a project.

On the productivity side, effective virtual teams have the ability to respond quickly to business opportunities. Companies that master the use of the virtual team approach may have a significant edge over their competition in the ability to meet the demands of rapidly changing business situations.

Special Considerations for Virtual Teams

While there are many solid reasons to consider utilizing a virtual team, there are also aspects of this approach that must be taken into consideration as well. Standard project teams, with close proximity of team members, provide many opportunities for team interaction. This, in turn, promotes the development of close working relationships and enhances effective communication.

In the virtual team approach, many of these opportunities are missing. Informal interactions occur much less frequently, with the result that members may feel more isolated. We are denied the subtle clues that we, often unknowingly, receive from facial expressions, tone of voice, body language and other related factors. Virtual team members may feel isolated and fail to develop the close working relationships that we take for granted with close-proximity teams.

This sense of isolation may be even more apparent when there are cross-cultural considerations. As globalization becomes a more significant factor in business, teams are frequently made up of individuals from different countries and cultures. Differences in language, working habits, communication styles and overall cultural context can

significantly impair the ability of team members to work effectively together. In close-proximity teams, these differences tend to be noted and taken into consideration as a team learns to interact with one another. The virtual team approach does not offer as many opportunities to work past the differences and increases the possibility for misunderstandings.

Tips for Virtual Team Project Managers

The benefits of virtual teams can far outweigh the drawbacks. The task of making the situation work falls (naturally) on the project manager.

First, recognize that there are very few completely virtual teams. Take advantage of any possible opportunities for interaction and try to schedule them as early in the team-building process as possible. Some project managers believe that building a foundation of trust and communication requires at least an initial face-to-face meeting of team members.

Communication protocols become a very large issue with virtual teams. When possible, establish communication guidelines, such as acknowledging receipt of requests or a maximum amount of time (24 or 48 hours) for a response. Try to send frequent updates to all team members so they continue to feel part of the process. Consider using visual aides, such as project schedule charts, to show progress that has been made in various phases.

Remember that there are forms of communication beyond e-mails. Conference calls, for example, give the opportunity to hear each others' voices, offering a better set of clues about the way that team members are actually reacting to a discussion than can be obtained through e-mails alone. Possible benefits of still other forms of communication, such as video conferencing for example, should also be explored.

As possible, personalize communications. Remember that close-proximity teams give multiple opportunities to get to know each other. Many project managers advocate small talk as a way of getting to know each other. Others make a point to learn a bit about their team members' interests and inquire about them with each communication. Having a photograph of a person with whom you are communicating can make the interchange much more personal.

In essence, it's all about building and keeping trust. One author encourages project managers to establish and maintain an atmosphere of DWYSYWD (Do What You Say You Will Do). Encourage all team members to follow through on commitments. This fosters an atmosphere that encourages respect for each other's time, and therefore, for each other.

10.1 Summary

Virtual project teams can be effective business tools. In order to make them work, however, project managers need to recognize those factors that make them different from close-proximity teams, and take steps to maximize communication and trust.

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10.2 The *Key* to Managing all the Data

Steve L Brink

With the ever-growing popularity of online communication and the development of virtual teams, communication methods and channels are evolving and changing everyday. Not long ago, before computers were a staple in most homes and offices, meetings were held so that information could be transferred from team member to team member, with the main communication channel being verbal. Someone would usually take minutes, but that was for archival and references purposes; not a major form of communication. Nowadays, with teams being constructed with members from around the world, and people's schedules becoming less and less flexible, much communication is being conducted via email and other online text-based methods.

With this new form of communication come some great advantages and some great disadvantages. For clarity and focus, email will be the main form of text based communication discussed. Email has many advantages (Industry News & Trends, 2006):

- Email is easy to understand.
- Email is universal.
- Email is accessible from anywhere.
- Email can be personalized.
- Email is manageable and configurable.
- Email is searchable.
- Email is in your face.

Even with all the advantages of email, there are some characteristics of email that hinder instead of help ("Using email effectively"):

- Email can be time consuming.
- Email could compromise data security.
- Email can be misunderstood.
- Email can cause cultural confusion.

The debate on whether email is good or evil will continue. The debate on which program is best for online communication will continue. What many overlook in these debates are two of the most basic skills people have been learning since the beginning: reading and writing. Much research has been done concerning the misunderstandings of text based communication, focusing on the writing aspect and the lack of clarity. Let's assume a piece is clearly written; written communication still takes a considerable amount of time to get through.

The ability to read quickly with a high level of retention is a skill that is going to have to be further developed as societies continue to move towards written communication. As was mentioned, email is time consuming, easy to misunderstand, and confusing, which is most likely due to inadequate writing skills. However, even if a piece is very well written, reading is time consuming and most people spend a majority of their day reading one thing or another. Tomorrow, take note on how much of your day is spent reading. You wake up and probably read the newspaper. You may turn on ESPN and read the scores scrolling across the screen. Then you get to work and read your emails. Then you may hit a few of your favorite websites and read some more. Afterwards, you read random documents throughout the day. You check your email again, and again, and again. You come home and read a cookbook for dinner. Then you check your email before going to bed. Finally, you settle down with a book before getting some rest. The point is made: you read, A LOT.

Most people read between 240-300 words per-minute in a textbook type reading (“Increasing your reading rate”), but are capable of nearly doubling that speed with a little training and practice (Clarke, 1989). And contrary to most beliefs, studies show that along with increasing the rate of reading, the retention of the material also increases. So what effect does that have? Imagine being able to get through twice the amount of material in any given day, and effectively remembering more than if you only got through half! You would be much more productive, much more valuable and would have much more time to complete other tasks. As opposed to doubling the amount of work you could get completed in a given amount of time, imagine completing the same amount of work in half the time. For some, that means instead of 13 hours a day responding to email, they could cut that down to 6-7 hours, freeing up another 6-7 for other uses.

The sheer volume of communication that is being done non-verbally in the 21st century is going to force people to become more effective readers. There are numerous courses that will help to increase reading speed and retention. Just go to the Web and do a search for *speed reading* and you will receive numerous packages. I believe that everyone should

take some time and work on increasing the reading ability in order to keep with today's new communication channels.

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10.3 Virtual Leadership in the 21st Century

Susan Oliver

What is Virtual Leadership?

According to Webster's, the following definitions apply:

vir•tu•al adj.

- Existing or resulting in essence or effect though not in actual fact, form, or name: the virtual extinction of the buffalo.
- Existing in the mind, especially as a product of the imagination. Used in literary criticism of a text.
- Computer Science. Created, simulated, or carried on by means of a computer or computer network: virtual conversations in a chat room.

Virtual <jargon, architecture> (Via the technical term virtual memory, probably from the term "virtual image" in optics)

1. Common alternative to logical; often used to refer to the artificial objects (like addressable virtual memory larger than physical memory) created by a computer system to help the system control access to shared resources.
2. Simulated; performing the functions of something that isn't really there. An imaginative child's doll may be a virtual playmate. Opposite of real or physical.

lead•er•ship n.

- The position or office of a leader: ascended to the leadership of the party.
- Capacity or ability to lead: showed strong leadership during her first term in office.
- A group of leaders: met with the leadership of the nation's top unions.
- Guidance; direction: The business prospered under the leadership of the new president.

Virtual Team

Wikipedia, the free encyclopedia does not define Virtual Leadership but does define a Virtual Team as:

"A Virtual Team — also known as a Geographically Dispersed Team (GDT) — is a group of individuals who work across time, space, and organizational boundaries with links strengthened by webs of communication technology. They have complementary skills and are committed to a common purpose, have interdependent performance goals, and share an approach to work for which they hold themselves mutually accountable. Geographically dispersed teams allow organizations to hire and retain the best people regardless of location. A virtual team does not always mean teleworker. Teleworkers are defined as individuals who work from home. Many virtual teams in today's organizations consist of employees both working at home and small groups in the office but in different geographic locations."

Another definition of a virtual team is: "is a group of individuals who work across time, space and organizational boundaries with links strengthened by webs of communication technology." (McNamara, 1999)

Virtual Leadership

In reading all these definitions, how do we define virtual leadership?

We can say that it is the act of leading others in an environment that is other than physical.

It could be leadership of individual whom you may have never met, in environments that you may never be physically in. It is considered virtual because the leadership and the team are simulated, meaning they are performing functions of a team that does not physically exist as a fact. Each team member is located somewhere else and what ties the team together is the use of technology as a means of communicating. The team leader may be in California, the other team members dispersed in different cities or countries. They meet and make decisions with the use of technology, either asynchronously or synchronously. Some tools that may be used are teleconferencing, virtual meeting rooms on the Web, email, etc.

Why have Virtual Teams?

Virtual teams are necessary in the 21st century. Businesses and individuals are dispersed all over the world. Many times, organizations that are globally based cannot rely on the skills and resources that are only local to the organization. Organizations are also managing around functions rather than by geographic location. This management allows for better integration of virtual teams.

Because of technology, time, space and organizational boundaries are not defined as they were before. Here are a number of reasons for Virtual Teams (Kostner, 1994):

- Workers demand increasing technological sophistication.
- A flexible organization is more competitive.
- Less time is spent on travel and commuting.
- Skilled workers are available even if at a different geographical location.
- The global workday is 24 hours instead of 8 hours.
- There are changes in workers' expectation of the organization's participation.
- There is an increased horizontal organizational structured characterized by structurally and geographically distributed human resources.
- There is an increasing globalization of trade and corporate activity.

What factors make a Virtual Team successful?

Most critical to the success of virtual teams are the trust, strong leadership, motivation and collaborative nature or the building of relationships of the virtual team.

Trust is a word that is used a lot, but is very difficult to define and measure. One way to measure trust is to develop and build relationships. Although difficult in a virtual environment, relationships can be built over time. It is easier to trust someone you have built a relationship with. In a virtual setting, individuals have to be very deliberate about building relationships as they cannot meet people at lunch or down the hallway by the water cooler. Leadership in a virtual environment has changed and requires that leaders have exceptional skills. The following quote explains the role of leadership in virtual environments: “It will require a certain kind of human being to be able to manage in the future,” predicts Kelly-Radford. While the idea of *coaching* has taken hold in team-based work environments, she says, the new crop of leaders will need to be *master coaches*. But, Kelly-Radford warns, being inspirational alone will not cut it. “We are beyond charismatic leadership,” she says. “A leader has to have grounding and authenticity, but also a good business understanding and very strong interpersonal skills. Flash with nothing behind it will not work anymore.” (McGuire, 1998)

- Trust that is built through relationships
- Strong leadership
- Strong individual motivation
- Immediate conflict resolution

- Collaboration
- Building of relationships
- Reliable state-of-the-art collaborative tools and technology
- Clear goals, objectives, and project specifications
- Training

The next question you may ask is how are virtual teams managed, what are the best practices for virtual leadership?

- Have clear and concise performance expectations.
- Have a clear understanding on communication style and format.
- Provide continuous feedback.
- Build trust with all team members.
- Empower team members.
- Use appropriate technology.
- Develop a collaborative environment.

Challenges of Virtual leadership

- Building relationships with team members
- Fair performance criteria
- Communication with all team members
- Delegation
- Conflict resolution
- Setting objectives
- Giving feedback
- Technology problems

10.3 Summary

In conclusion, virtual leadership is becoming the norm in the 21st century. To visualize the future, I give you a quote:

“Charles Handy comments on the 'virtual organization' by citing a man using a laptop, a fax and a phone to transform his car to a mobile office and argues that the organization of the future may outsource all processes and its employees will be communicating like that man (Handy, 1989).” (Dafermos, 2001)

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10.4 Virtual Workplaces and Tools

Susan Oliver

To begin with, let's consider the 21st century and the new workplace. Let's take the example from the previous chapter of the individual working from his car. He can work anytime and anywhere. He has a GPS system, a laptop with broadband access with collaborative software and a cell phone. All he is missing is a desk and an office. He could move from his car to his hotel room and still work in a virtual environment. He can move from the hotel room to an airplane and still work in a virtual environment. He can move from the plane and arrive home and still work in a virtual environment. What you see here is an example of a virtual workspace. Ever changing but allowing for the same flow of work and productivity.

For many employers the virtual workplace, in which employees operate remotely from each other and from managers, is a reality in the 21st century. As technology advances, it will become even more commonplace. What a dramatic change to ho we work and what dramatic challenges it presents to managers and employers! How do employers manage workers in a virtual environment if they don't see them? The answer is, you manage them with the collaborative tools that are available. Let's look at some examples of these tools.

There are three basic tool categories: email, instant messaging, and collaboration software tools.

1. Email - is asynchronous – one person sends a message to another person.
    - Microsoft Outlook Express or Outlook 2003
    - Novell GroupWise
2. Instant messaging - It is a synchronous form of communication, often referred to as *chat.*
    - AOL Instant Messenger
    - Microsoft MSN
    - Yahoo Messager
    - ICQ
3. Collaborative Software tools - There are a wide variety of tools available on the Web, some with different strengths than others.
    - Microsoft Project 2003 (project management software)
    - Ace Project (web-based project collaboration)
    - Place Ware (on line presentation-ware)

- WebEx (allows teams to share documents and presentations on real time Synchronous environment.
- Eroom (collaborative software)
- Groove (collaborative software)

These are just a few examples of the most popular tools in the 3 main categories. In addition there are:

1. Conferencing – there is 3 types of conferencing:
    - Audio Conferencing – use of a polycom
    - Data Conferencing - Blackboard or chat
    - Video Conferencing – Microsoft's Netmeeting is one example.
2. Projectors – connect to PCs become very useful in meetings. Hard copies can be easily made.
3. PCs – Personal computers and laptops are necessary tools.
4. Calendar systems - used to coordinate schedules. Built into email systems such as Outlook and Groupwise.
5. Other – PDAs and Cell Phones. Again, necessary tools.

In conclusion, it is simple to see the ever-changing workplace of the 21st century and the tools needed to work in a virtual environment. The benefit of all these tools is easy to see; they allow you to collaborate with your employee, your business associate, or your customer from the security of your home office, your car and an airplane. Working in a virtual workspace with a virtual team is not easy, but there are many tools out there to help you be successful in the 21st century. The only steps necessary are for you to plug in and get connected!

Chapter 11 – Web Standards

- 11.1 Chontel Delaney provides a short introduction to web standards.
- 11.2 Ryan Noel introduces some of the organizations involved in web standards.
- 11.3 "Resources for Guidance on Web Standards" lists some links to tutorials on web standards.
- 11.4 Chontel Delaney relates how web standards are used in education.
- 11.5 Brian Heisman discusses the benefits of web standards for web designers and developers.
- 11.6 "Validators" provides information on the value and use of validators.
- 11.7 Misty Townsend-Sweet relates the history of the World Wide Web Consortium (W3C) and explains its mission.

11.1 What are web standards?

Chontel Delaney

What are web standards?

Web standards are principles, established by the World Wide Web Consortium (W3C) and other standards organizations. These principles are used to create and interpret web-based content and are designed to future-proof documents published on the Web and to make those documents accessible to as many users as possible. The World Wide Web Consortium (W3C) was founded in 1994 and is an international conglomerate where member organizations, a full-time staff, and the public work together to develop web standards. W3C's mission is “To lead the World Wide Web to its full potential by developing protocols and guidelines that ensure long-term growth for the Web”.W3C's primary means of accomplishing its mission is by creating web standards and guidelines.

Mr. Tim Berners-Lee was the founder of W3C in 1994 after he invented the World Wide Web in 1989 (“Internet pioneers: Tim Berners-Lee”).

Why use web standards?

The benefits of constructing websites to web standards are that the site will tend to be (Johansson, 2006):

- Less bandwidth intense
- Future-proof
- Extensible
- Easier to maintain
- Compatible with newer browsers

- Better accessible - Sites built with web standards find it easier to conform to disability legislation.
- Better print facilities
- Increased speed – using web standards should produce cleaner code and smaller files, which download quicker increasing the speed of the site.
- More flexibility - Since design is controlled by a small set of files, it is possible to quickly and easily change the look of the site without completely rebuilding.

What is WaSP?

The Web Standards Project (WaSP) was founded in 1998 with the mission of fighting for standards that reduce the cost and complexity of development while increasing the accessibility and long-term viability of any site published on the Web. To accomplish such tasks, WaSP works with browser companies and authoring tool makers.

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- World Wide Web Consortium. Retrieved April 8, 2006 from http://www.w3.org/Consortium/

11.2 Who is involved in web standards?

Ryan Noel

"...guidelines that ensure long-term growth for the Web." W3C

There is a tremendous interest in web standards worldwide that nearly anyone interested in web development or design is in some form involved in web standards either actively by following standards or discursively by using web development software that incorporates web standards. Web standards have become the all encompassing guide to proper web development. Due to this need to standardize web development there are many special interest groups have formed like the University of Notre Dame Web Group to the 405 organizations that belong to the World Wide Web Consortium (W3C) and many more, that research, provide tutorials, and define web standards. This section will attempt to introduce a few of the major organizations involved in web standards; however this is by no means an exhaustive list.

World Wide Web Consortium (W3C)

Founded in 1994 and led by Tim Berners-Lee, who invented the World Wide Web; W3C is an international conglomerate where 405 member organizations, a full-time staff, and the public work together to develop web standards.

W3C's mission is:

“To lead the World Wide Web to its full potential by developing protocols and guidelines that ensure long-term growth for the Web (Jacobs, 2006).”

The philosophy of the W3C is that for the Web to reach its full potential web technologies must be compatible with one another in order for hardware and software that access the Web to work together, they refer to this as “web interoperability”. To achieve this goal, standards are developed and serve as a guide to creating interoperable websites. W3C also offers free tutorials on their website on web development and design, develops software, and serves as an open forum for discussion about the Web (Jacobs, 2006).

For more information about W3C visit their website at http://www.w3.org/ .

The Web Standards Project (WaSP)

“Founded in 1998, The Web Standards Project (WaSP) fights for standards that reduce the cost and complexity of development while increasing the accessibility and long-term viability of any site published on the Web. We work with browser companies, authoring tool makers, and our peers to deliver the true power of standards to this medium (http://www.webstandards.org/about/).”

According the WaSP website they are a grassroots coalition fighting for standards which ensure simple, affordable access to web technologies for all. The mission of WaSP is to educate web designers and developers on the importance and the need to follow web standards. Since their inception in 1998 they have formed various task forces designed to meet this goal.

For more information about WaSP and the various task forces visit their website at http://www.webstandards.org/ .

European Computer Manufactures Association (ECMA)

Founded in 1961, the European Computer Manufactures Association (ECMA) was created with the goal of standardizing computer operational formats, programming languages, and input/output codes. Although ECMA is not directly in the field of writing web standards, they do create standards for Information Communication Technology and Consumer Electronics which are often enacted into standards by the International

Organization of Standardization (ISO). Why is this important? Industries create products that conform to ISO standards, in turn this means manufactures of Information Communication Technology and Consumer Electronics are producing products that conform to ISO and ECMA standards. Therefore a change in ECMA standards can create a change in web standards since the Web is delivered via the technology that ECMA standardizes. This means that web standards interest groups have to keep up on what ECMA and ISO are saying.

For more information about ECMA visit their website at http://www.ecma-international.org/ .

For more information about ISO visit their website at http://www.iso.org/iso/en/ISOOnline.frontpage .

11.2 References

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11.3 Resources for Guidance on Web Standards

W3C Tutorials

A great resource and guide to creating web standard compliant web pages from the organization that creates the standards. (http://www.w3.org/2002/03/tutorials)

WaSP Learn/Tutorials

WaSP is your one stop, easy digestible, informational site for web standards. From what are web standards and why you should use them, tutorials, articles and reviews, reference materials, and external sources, WaSP has everything to quickly get the gist of web standards. (http://www.webstandards.org/learn/)

Holy CSS Zeldman! Links that will save you from an aneurism...

Andrew Fernandez started collecting these links in 2003 on various topics. The resources are organized by category and there are links to nearly every topic that has to do with web development and design. (http://www.dezwozhere.com/links.html)

11. 4 How are web standards used in education?

Chontel Delaney

In 2005 the WaSP Education Task Force was created with the goal of working directly with institutions of higher education. Their goal is to help raise awareness about web standards and accessibility amongst students, instructors, administrators and web development teams. The objectives of the task force are as follows:

1. Encourage instruction of web standards and accessibility best practices in all web design, interactive media, informational and computer science programs in order to prepare students for web-related careers.
2. Promote the creation of standards-compliant, accessible public web sites and instructional tools. Understanding that legacy sites and tools exist, our goal is to help institutions aim for policies which, at a minimum, require that all new sites and instructional tools use valid, semantic markup and follow Web Accessibility Initiative (WAI) accessibility guidelines.
3. Liaise with institutions of higher education and related communities to promote and address the implementation of web standards and accessibility best practices through discussion, web standards users groups, and presentations as well as attendance and participation in industry events.

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11.5 Web Standards for Designers

Brian Heisman

11.5 Introduction

I like to open up with a quote from Andrew Tannenbaum, “The nice thing about standards is that there are so many of them to choose from.” (www.sysprog.net) This is very true on many areas and concepts, but on the World Wide Web there are groups pushing to limit the choices.

To understand web standards for designers we first must review what a standard is. According to dictionary.com a standard is something, such as a practice or a product that is widely recognized or employed especially because of its excellence. Another version more in depth would be from Merriam-Webster Online, a standard is something established by authority, custom, or general consent as a model or example; regularly and widely used, available; substantially uniform and well established by usage in the speech and writing of the educated and widely recognized as acceptable. (“Merriam-Webster: Standard”, 2006)

The rationale for having web standards would be to have a widely used and uniform view on website development.

The Web Standards Movement

An article in wikipedia.com describes web standards as “a general term for the formal standards and other technical specifications that define and describe aspects of the World Wide Web (WWW).” (“Wikipedia: Web standards”, 2006) What does this mean? The web standards for dummies answer would be - the need for consistent design on the web. According to wikipedia, “it has only been recently that the term standard has been applied to the WWW.” (“Wikipedia: Web standards”, 2006) The *old* way of building websites is out and the new dawn or movement of standards begins. We as designers must ensure that our site is being used and viewed properly, no matter what modality of computer system is being used.

There are groups or organizations that are preaching for better web practices. The Web Standards Project and the World Wide Web Consortium (W3C) are two particular organizations that are leading the way to make the Web a better place to be. The Web Standards Project focuses on “encouraging browser and web page editor makers to follow the standards in their applications.” Whereas the World Wide Web Consortium (W3C) “is an international consortium where member organizations, a full-time staff, and the public work together to develop web standards.” Both organizations work with companies, developers and who ever else develops products or sites on the Internet. Their

goal is to “develop protocols and guidelines that ensure the long-term growth for the Web.”

“At its core, the web standards are made up of three main components. The first is the Uniform Resource Identifier (URI), which is a universal system for referencing resources on the Web, such as web pages. The second component is HyperText Transfer Protocol (HTTP), which specifies how the browser and server communicate with each other. The final component is the HyperText Markup Language (HTML), used to define the structure and content of hypertext documents.” (The Web Standards Project [WaSP], 2006) Without these components there would be no need for web designers. Without consistency there would be chaos and the Internet's capabilities would diminish.

Determination for the movement revolves around two particular concepts usability and accessibility. These areas affect everything about web design, browser support, companies that have developer software, and yes the average Joe who wants to view the Internet, also known as the *end-user*.

Usability is a huge concern for web designers. The site must be designed so all who view it will be able to navigate and understand what the site has to offer. “Usability a term is used to denote the ease with which people can employ a particular tool or other human made object in order to achieve a particular goal.” (“Wikipedia: Usability”, 2006) Usability can also relate to the efficiency of a tool which relates itself to web pages and sites.

Accessibility is another driving force for standards on the Web. We, the designers are creating sites that want to be viewed by the world, no matter who or what disabilities that individual has. Accessibility allows users with other types of browsers to access and allow voice or Braille to translate the material. This terminology is also directed through Section 508. “In 1998, Congress amended the Rehabilitation Act to require Federal agencies to make their electronic and information technology accessible to people with disabilities. Inaccessible technology interferes with an individual's ability to obtain and use information quickly and easily. Section 508 was enacted to eliminate barriers in information technology, to make available new opportunities for people with disabilities, and to encourage development of technologies that will help achieve these goals.” (Section 508)

Advantages of Web Standards

- Usability
- Accessibility
- Uniform design for coding
- Visibility - Greater audience
- Search engine presence
- Promotes better web design
- What you see is what you want
- Conversion to other formats

Search engines use specific coding to rank and display sites, which gives you the designer a higher visibility on the net. “The structural information present in compliant documents makes it easy for search engines to access and evaluate the information in those documents, and they get indexed more accurately.” With a better search result you would increase your chances of the number of viewers, increasing your numbers and business at the same time.

“Compliant documents can easily be converted to other formats, such as databases or Word documents. This allows for more versatile use of the information within documents on the World Wide Web, and simplified migration to new systems - hardware as well as software - including devices such as TVs and PDAs.” (WaSP, 2006)

Why? I am Just a Designer

As a designer, your main drive of creating, designing, developing a website is for people to have access and use it to its fullest potential. "Some people fear that standards are limiting. In reality, they remove much of the tedious labor involved in web development, and give developers more time and more flexibility to be truly creative. They are both open to future improvement and mindful of past technology." (WaSP, 2006)

Say you created a website for a customer, while spending hours of time testing and applying the site to a particular browser. Did you know that you just created a site that was creative and perfect, but only on that browser! Your choice, do spend hours redoing the site for each browser type or do you push for the needs of standards across browser windows. There is nothing more aggravating then spending time on a web design and having it distorted through resolution settings or browser windows or coding issues.

“Writing web pages in accordance with the standards shortens site development time and makes pages easier to maintain. Debugging and troubleshooting become easier, because the code follows a standard. No longer do you have to worry about the coding and maintenance for several versions of code that are supposed to accomplish the same presentation.” (WaSP, 2006)

“Maintaining universal standards will allow the Web to survive while encouraging innovation to continue at its current pace.” (WaSP, 2006)

How can I follow the Standards?

Some of the newer products available for web development do follow most of the universal standards; still companies tend to do what is best for sales. The WaSP and W3C organizations work closely with companies who are interested in promoting standards for website development. One company that appears to adhere to most of the standards is Macromedia and their Dreamweaver software for the development of websites. Dreamweaver automatically writes the public DOCTYPE code on each newly created HTML document. As you can see below this line is recommended by the W3C.

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-
1">
<title>Untitled Document</title>
</head>
</html>
```

However, if you want stricter, more logical code, with presentation moved to stylesheets instead of old-fashioned presentational tags, use the strict doctype:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN"
"http://www.w3.org/TR/html40/strict.dtd">
```

The "stricter" the type, the more difficult it could be to ensure that you conform to the standards. The most commonly used DTD is the loose format, which gives designers a little more freedom when trying to be compliant.

Other standards are also applied in Dreamweaver when it comes to coding. However, your job then as a designer is to design the page, the concern or issue is that Dreamweaver at this point in time does not tell you when something is not conforming with the standards and the recommendations of the W3C. So how are you to conform to the web standards? Well the answer is to use a validator. You will read further about validators in this chapter.

You do have an option; you can choose to create sites without standards, but that might be an unwise choice. “The most basic consequence is that you will restrict access to your site. How much business sense does it make to limit your audience to only a fraction of those who wish to be a part of it? For a business site, denying access to even small portions of a target audience can make a big difference to your profit margin. For an educational site, it makes sense to allow access not only to affluent, able-bodied school-children with graphical browsers, but also to children in regions with poorly-developed infrastructure who are best served by text-only browsing, or disabled students using specialized browsers.” (WaSP, 2006)

11.5 Conclusion

“As web developers, we are constantly trying to address the problem of inconsistencies between the renderings of web pages by different browsers and browser versions. This necessitates either time-consuming double/multiple coding, or coding for a single browser which makes it harder, if not impossible, for some of the public to use the site. This situation will be made even worse with the advent of additional hardware and software which will be able to browse the Web, such as telephones, pagers, and PDAs.” (WaSP, 2006)

Web standards are not picked randomly and they are created by established and well known individuals in this field. “The standards are for the most part decided by representatives of the same people who use them - browser makers, web developers, content providers, and other organizations.”

“Writing web pages in accordance with the standards shortens site development time and makes pages easier to maintain. Debugging and troubleshooting become easier, because the code follows a standard. No longer do you have to worry about the coding and maintenance for several versions of code that are supposed to accomplish the same presentation.”(WaSP, 2006)

Again you do have a choice, but it is as simple as looking both ways when you cross the street. Eventually, you will get run over by not following the most simplest of standards.

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11.6 Validators

A Valuable Tool

As discussed in the previous sections, web standards are the driving force for the designer to produce accessible and usable websites. A Validator in general can be a very useful tool that will help the designer be more effective and compliant to the most current and common standards.

"A validator is a computer program used to check the validity or syntactical correctness of a fragment of code or document. The term is most often used in the context of validating HTML and XML documents." (Wikipedia, 2006)

Luckily for the designer, W3C (World Wide Web Consortium) whose a driving force in web standards offers free online and offline validator tools for checking HTML, XML, and CSS. With the growing movement of standards and designing the Internet with better quality websites most browsers are offering developer tools that include such validators. Firefox, an internet browser, has a terrific extension developer tool that allows the designer to check their site online or offline. This validator coincides with the W3C recommendations.

Why use a Validator

"Compliant code gives you the opportunity of validating your page with a validation service. Validators process your documents and present you with a list of errors. This makes finding and correcting errors a lot easier, and can save you a lot of time." (Dan's web tips, 2006) The issues of accessibility, visibility and usability are still the major reasons for standards compliance. The use of a validator will help in those efforts.

There are many reasons to write valid code and below are some examples:

- If you want your site correctly listed on search engines
- Properly written HTML will render better and faster
- Broken links can drive visitors away
- Misrepresentation of your site
- Browsers are becoming more standards compliant

Validator Resources

- HTML Validator – http://validator.w3.org/
- CSS Validator – http://jigsaw.w3.org/css-validator/
- RSS Validator – http://validator.w3.org/feed/

- HTML Validator by Web Design Group – http://validator.czweb.org/html-validator.php
- Watchfire Webxact – http://webxact.com/
- Download Validators – Recommend CSE Lite (free) http://download.com

Developer tools are offered in Firefox, Internet Explorer, and Netscape.

The Issues with Validators

The problems with validators are the standards itself. I realize we are promoting standards and that it would be great if they are followed 100% of the time, but we wouldn't be realistic. There are some good reasons not to follow specific standards.

Some of the validators are stricter than the others creating inconsistent results from tool to tool, as you can see from the tables below. Our recommendation would be to stick closely with W3C's recommendations for this will be the norm for most sites and browser services.

Another issue is that "a validator determines which HTML standard to validate your document against by the DOCTYPE declaration at the beginning of your document. If the DOCTYPE is missing or incorrect, this will cause the validator to report errors, maybe weird ones like saying that `<HTML>` is an unknown tag. So you need to have the right DOCTYPE if you want your pages to validate." (Dan's web tips, 2006) What you see is what you get editors often forget to include this tag or integrates its own version.

Something you need to be aware of when you use a validator is the mistakes that you created intentionally. You do not have to change your creativity, but be aware how you might see it in other browsers. Coding can also be done correctly, just not according to the most recent standard, i.e. `<strong>` vs. `<b>`. In the older editor programs they tend to use `<b>` for creating the bold effect. Does this mean you have to constantly upgrade your programs every time they change a standard? NO, that would be too costly in the long run! The W3C doesn't change the standards on a whim; for the most part they remain consistent according to the technology that is available.

HTML Validation Results by WDG (Web Design Group)

```
Line 27, character 9: <script>
                            ^
Error: required attribute TYPE not specified

Line 54, character 8: <dsftop>
                            ^
Error: element DSFTOP not defined in this HTML version

Line 58, character 7: </head>
                           ^
Error: end tag for DSFTOP omitted; possible causes include a missing
end tag, improper nesting of elements, or use of an element where it is
not allowed
```

Results from W3C Online Validator

This page is **not** Valid HTML 4.0 Transitional!

Below are the results of attempting to parse this document with an SGML parser.

1. Error Line 27 column 8: required attribute "TYPE" not specified.

   ```
   <script>
   ```

   The attribute given above is required for an element that you've used, but you have omitted it. For instance, in most HTML and XHTML document types the *type* attribute is required on the *script* element and the *alt* attribute is required for the *img* element.

HTML Validation online URL check by CSE Validator

CSE HTML Validator Lite generated 21 error messages and 0 warning messages when checking this web page. In fact, this web page generated so many errors that HTML Validator terminated the check before it went through the whole document. These problems could damage this web page's search engine rankings as well as cause viewing problems for visitors. It is highly recommended that any problems be corrected. Why validate?

URL: <http://www.sulcosd.k12.pa.us>, Local Time: 10:21:25 AM, Date: Tuesday, April 25, 2006

A Selection of Messages

- Error 20 - The "content" attribute has an invalid attribute value "". Try using one of the following values: an alphanumeric string or a string.

  ```
  <meta name="copyright" content="">
  ```

- Error 22 - The "content" attribute has an invalid attribute value "". Try using one of the following values: an alphanumeric string or a string.

  ```
  <meta name="author" content="">
  ```

- Error 54 - The "dsftop" element is not a recognized element. Did you misspell it?

  ```
  <dsftop>
  ```

- Error 59 - The hexadecimal color value for the "BGCOLOR" attribute is missing the '#' character. Use BGCOLOR="#". `<BODY BGCOLOR='' BACKGROUND='/sullivancsd/lib/sullivancsd/_template4/_assets/' text='' link='' vlink='' alink='' leftMargin='0' topMargin='0' marginheight='0' margin...`

- Comment - The lite edition missed 3 additional errors and 6 warnings that the standard or professional edition would have found.

11.6 Conclusion

Validators are a great tool and resource that can improve your presence with search engines and your HTML will render better and faster. Validators help you comply with the standards to make your sites more accessible and usable. When using a validator, try and be consistent and follow the recommendations of one particular, because from time to time they will pick up different coding errors. Be cautious of the DTD type that you use, loose is the most common and least restrictive. As a general practice you don't have to change all of your errors especially if the error was cause intentionally. One last note is that all of the validators that W3C has available online are free. So try a site and see how many errors the validator finds!

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11.7 W3C: Keeping it Simple – Making it Accessible

Misty Townsend-Sweet

Today, all over the world, millions of people will use millions of computers to access millions of internet sites. While that in and of itself is somewhat mind boggling, consider this: nearly all of those net-users, regardless of time zone, language barriers, or type of computer being used, will, when visiting any one particular website, see exactly the same thing on their screens. To what do we owe this uniformity? The answer lies in web standards—an attempt by any number of organizations around the world to bring about a consistent experience for internet users. While it isn't feasible to expect every internet programmer or webmaster to use exactly the same formatting in exactly the same way, one hundred percent of the time, web standards attempt to lessen frustration, increase productivity and just make things simpler.

There is no shortage of groups and organizations attempting to standardize the formatting of web content. The World Wide Web Consortium, sometimes referred to as W3C, leads the charge by “developing interoperable technologies (specifications, guidelines, software, and tools) to lead the Web to its full potential” (“Technologies”, 2006). It is the W3C that standardized the use of Hypertext Markup Language (HTML), Cascading Style Sheets (CSS) and Extensible Markup Language (XML) just to name a few (“World Wide Web Consortium”, 2006).

W3C was founded in 1994 by Tim Berners-Lee (“Web's inventor gets a knighthood”, 2003). If that name sounds familiar, it should. Berners-Lee is the inventor of the World Wide Web and is primarily responsible for writing the specifications for Uniform Resource Locator (URL) and HyperText Transfer Protocol (HTTP) (“Uniform Resource Locator”, 2006). Berners-Lee noted the need for consistency as more and more software companies were beginning to market any number of versions of HTML. The end result, of course, was inconsistency between web pages, causing a great deal of user frustration and a sharp decline in productivity as workers attempted to navigate uncharted waters. Berners-Lee's initial observations have led to the development of an international consortium.

The goals of W3C are lofty. Through the royalty-free standardization of formats, the organization strives to make the Web readily available to people around the world from diverse walks of life; increase the number of devices through which the Web is accessible; allow people to solve problems otherwise too complex; and to make web interaction more secure (“The mission”, 2006).

W3C's membership list is as impressive as it is lengthy and reads like a Who's Who from the pages of Fortune Magazine. Apple Computers, AT&T, The British Broadcasting Corporation, and Microsoft are all counted among the organization's 400 corporate members, as are Lockheed Martin, Macromedia and Sony Corporation (“Members”, 2006). It isn't, though, just big business that supports the consortium, as individuals from across the globe are also encouraged to join. Members are simply asked to “take a leadership role in the future of the Web” (“About W3C membership”, 2006). Pricing for membership, however, isn't set up to accommodate individual membership and can be prohibitive for the average computer user. Costs ranges from the lowest fee of $6,500 for non-profit organizations to the highest membership fee of over $65,000 for businesses with annual gross income of over $2,000,000.

In closing, support for W3C continues to grow, due in no small part to the increasing reliance on the Internet to conduct business. W3C's mission statement is one which should ring true for each person in any way involved with the use of computer technology:

“To lead the World Wide Web to its full potential by developing protocols and guidelines that ensure long-term growth for the Web” (“The mission”, 2006).

11.7 References

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