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Integrating Key Elements In An E-learning Curriculum For An Optimum Educational And Interactive User Experience

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INTEGRATING KEY ELEMENTS IN AN E-LEARNING CURRICULUM FOR AN
OPTIMUM EDUCATIONAL AND INTERACTIVE USER EXPERIENCE

by

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ABSTRACT

This study determines the particular components that are considered the best practices to use when implementing an e-Learning curriculum. Technical communicators and instructional designers have numerous development options to choose from. However, practices that work in academe do not always integrate well in a corporate setting, and what works for one corporation may not work for another. There is no singular methodology for developers to apply that enables e-Learning to fit every organization's needs.

Research shows that to ensure a successful online learning implementation, a sound project management team must be in place at the beginning of the project planning. This team must be prepared to collaborate with managers and users across an organization and carefully incorporate their suggestions into the curriculum design. Additionally, this team must be experienced not only in making sure that the project is launched on time and within the defined budget, but also in asking pertinent questions about the users, content structure, and design. Implementing an e-Learning site involves more than putting a Web page online for users to view. Developers must know about adult learning styles, must know how to incorporate interactive activities (like games and simulations), and must know how to write content so that it is engaging yet understandable.

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CHAPTER 1: INTRODUCTION

E-learning can be defined in many ways depending on how it is used by a company, but it is generally described as an educational medium where information is accessed electronically by users, students, and learners over a network that uses multimedia components (text, graphics, audio, animation, and interactions) to convey educational materials. It benefits all learners who work in corporate environments because the subject matter appeals to visual, auditory, and kinesthetic learners. The environment supports content delivered visually because the user can read what is on the screen and reference it as needed. Auditory learners benefit because e-Learning environments incorporate audio clips into the lessons for reinforced learning because these lessons are potentially accessed multiple times. Learners who are most comfortable with kinesthetic learning are engaged because they can do interactive work in an e-Learning environment. Rather than just reading text or listening to the material, they can become involved through electronic games like matching or fill-in-the-blank exercises.

A sound e-Learning environment appeals to different learners as long as it is visually appealing and incorporates interactive content. If there is a blend of these two elements, along with others, then learning is optimized because the learners respond well to the content. This type of learning also gives employees the opportunity to interact with their peers all over the world and learn from them without leaving their building or city.

E-Learning is cost effective to develop and if designed correctly, some of the content can be reused. Companies can use metrics to estimate the initial costs when they are developing a budget and with the correct project planning techniques in place, an e-Learning system can be functional and under budget.

Online environments also enable learners to feel comfortable because they can take time with their responses and do not have to worry about face-to-face interactions while learning. People who tend to be self-conscious or learn at a slower pace can create their own learning schedule and revisit the content as much as they feel necessary to benefit from it.

Developers can also create different ways of engaging learners through games, simulations, and interactive quizzes. There are many different options for creating experiences that learners will remember long after they have completed the course and their opinions can be incorporated into future module development.

Along with new and innovative ways of presenting content come standards that should be followed to ensure that the environment is optimized for learning. Developers should pay attention to and incorporate design fundamentals like color, theme, and layout. Once a design is decided upon, it should be present throughout the content. The e-Learning trend is rapidly growing and the possibilities are endless. Once a company agrees upon a budget and incorporates the elements that appeal to employees, the opportunities far outweigh the costs.

Purpose

The purpose of this study is to determine and explore the particular elements that optimize users' learning by presenting what organizations and e-Learning experts found to be successful because technical communicators and instructional designers have a multitude of options to choose from when developing. Practices that work in academe do not always have a place in corporations, and what works for one company may not work for another. In sum, there is not a singular methodology that developers can apply to make e-Learning fit an organization's needs. To ensure a successful online learning implementation, a sound project management team

must be in place and these individuals need to be experienced not only in the areas of making sure that the project is launched on time and within the defined budget, but also in asking the right questions about the users, curriculum, and design.

There are different programs that rapidly develop online content and create simulations with only the click of a mouse. Even if technical communicators use these types of packages, they need to be aware of which e-Learning principles to incorporate and those to avoid. When developing e-Learning, there is more involved than just developing an online application, writing content, and tracking users' progress because learning methodologies must be applied at every phase of the content development.

If instructional designers do not incorporate the correct information and sound learning principles during their e-Learning implementations, they will not only perform a disservice to their organization, but they will waste valuable company resources because the content will be ineffective. These individuals need to be aware of budgeting principles like costing benchmarks and be prepared to ask questions about the content, resource availability, and learning infrastructure specifications.

A budget is essential to developing e-Learning and so is a project management team to ensure that the e-Learning implementation comes to fruition. An e-Learning project incorporates two initiatives simultaneously because it combines software and training development. A benefit of planning an online learning project is that it gets the correct individuals involved early in the process because cross-organizational communication is critical. Once all of the individuals with vested interests come together they need to decide on a timeline and a prototype of the content and ensure that it accomplishes the established educational goals.

E-Learning: A Background

There is more to e-Learning than online content that it is informative and understandable. Just because information is accessible, there is no guarantee that students will learn from it. Users need to be empowered by having flexible communication mediums like forums and peer review chats; these elements provide students with more time to form their opinions and alleviate some of the pressures that may arise in a traditional classroom setting. Learners also need to be challenged with interactive activities like games and simulations in conjunction with conventional quizzes. Instructional designers need to develop content that appeals to adult learners on a cognitive level and incorporates graphic elements that align with their individual personalities and learning preferences.

Users involved with online learning should be empowered and the online experience can be beneficial to individuals who are uncomfortable in a traditional learning environment because they do not have to communicate face-to-face with their peers. A Web-based learning course offers students the opportunity to take time to reply to the forums and work independently as well as cohesively by doing peer reviews and self assessments to optimize their learning community.

If instructional designers incorporate games into the e-Learning environment, the learning experience is enhanced for the learners. Games can be designed to assess the learners' progress without having some of the negative connotations that are sometimes associated with formal testing implements. Authors who have had success with games discuss the merits of game-based instruction and how to effectively incorporate games into a curriculum to engage all types of learners.

Additionally, in order for organizations to optimize the use of games, they must create a sense of community and foster communication among the users. This aligns with seasoned e-Learning developer's ideas because the users are empowered when learning is optimized and they feel comfortable in their online setting. Structuring games with clear objectives—providing a discernable beginning, middle, and ending; and making sure that the topics could occur in the learners' job activities—are all important because these elements facilitate learning and enrich the time that students spend online.

Another factor that facilitates the learning experience is creating content that matches the students' personalities. E-Learning experts describe how to develop the materials that appeal to multiple types of learners. This research conducted in the United States and the United Kingdom used the Myers-Briggs Type Indicator (MBTI). This indicator determines that students learn best when they belong to either the introvert or the extrovert category. These findings suggest that the instructional designer should create content that incorporates theoretical information along with concepts and relevant examples. Additional studies that coincide with these principles focus on learning styles based on individuals' personalities and if instructional designers are aware of these characteristics, then they can design content that is appealing to each learner to some degree.

Designing for users on a cognitive level coincides with creating content that is visually appealing because it enhances the learning experience. An e-Learning module may confuse users if it does not have a design that is organized and consistent. This uncertainty detracts from the students' learning because they will be more concerned with where to go and how to get there than with the course objective. Some literature focuses on design elements, such as using

graphics sparingly. If there are numerous graphics with tenuous connections to the text, then the potential exists for users to become distracted. This confusion originates from learners trying to make a logical association rather than focusing on the content's message. These experts also recommend preventing any confusion that users may have by including a style that aligns with the corporation's culture, and creating a simplistic layout that provides a logical hierarchy which allows users to immediately identify the most important concepts. Instructional designers also recommend structuring the content in order of importance because it keeps similar information together. Because learners tend to skim online, this technique is useful because it can prevent them from missing key ideas due to poor design.

Once the design is in place and the content is finalized, the development team has to ensure that the final output is effective by understanding how adults learn. Some research shows that instructional designers should concentrate on streamlining the content, identifying the audience, and describing the learning context while considering the general characteristics of adult learners. These characteristics are described as "Bytes" and they define the learning styles, motivation, prior experiences, knowledge, and time constraints that affect how mature users learn. Once these "Bytes" are identified, the designer can incorporate pieces of these characteristics to ensure that each style is addressed somewhere in the curriculum.

Instructional designers should immerse themselves in the development process by taking the occasion to be students. This practice enables them to relate to the users' experiences that impact style, motivation, and delivery. Multiple authorities' work coincides with this concept by recognizing what matters to learners and then including it into the structure of the e-Learning environment.

When using graphics in e-Learning, designers must not only make the graphics coincide with the content's message, they must also ensure that the images have a range of color that users can easily see. It is also important to define the depth of the image to reduce the presence of extraneous information that may confuse the learners. Using this tactic increases the possibility that some graphics can be reused in other modules or online learning products that the corporation develops.

Another critical element of design is the content. E-Learning practitioners believe that when e-Learning is created, technical communicators must be particular with their writing and ensure that it is engaging and clear. A suggested practice to adopt is combining sound technical writing (for clarity) with marketing writing (to interest the learner in the material and impart information). It is also important for developers to consider that sometimes e-Learning's purpose is to teach without the aid of an instructor or additional published documentation; therefore, the content must enable learners to experience situations presented in the program and provide them with opportunities to interact with ideas.

E-Learning's benefits far outweigh the costs if developers make a concerted effort to incorporate the sound principles of project management, instructional design, interactivity, and learner motivation. The subsequent chapters discuss each of these topics in detail.

Chapter 2: E-Learning When and Why? discusses the costs of e-Learning, empowering users, and project management. It supplies the foundation for developing an e-Learning curriculum and provides information that will help corporations make a seamless transition into an online platform, while keeping a focus on the learners.

Chapter 3: Teach Me and Entertain Me is centered on creating an engaging and enriching experience through the use of games. Interactive components like games and simulations cannot only stimulate creative thinking and encourage users to interact with each other, but if they are designed correctly, they can also be reused in other online learning modules. This chapter also provides information about how developers can design components that motivate learners based on their personality types and how instructors can foster online communication.

Chapter 4: If You Design It, They will Come provides information about how technical communicators can do more than just create Web-based content and discusses specifics about color, graphics, layouts, and fonts. It also covers how design impacts adult users' experiences and how to optimize the content to ensure that learners benefit from it. Another facet that is found here is writing for e-Learning environments and this is important because the style is different and the majority of online learning content that users encounter is formatted as text.

Finally, Chapter 5: Conclusion focuses on the field of e-Learning becoming more mainstream and the increased demand for individuals who are knowledgeable about technology and effective teaching practices. The combination of the two will prove to be an invaluable skill set and increase personal career longevity as well as instilling life-long learning in employees within organizations.

Because e-Learning's primary outcome is what users obtain from taking the courses, it is important for corporations to offset some of the risks of shifting to an online platform by defining a budget, knowing which guidelines to follow, establishing a sound project management team, and empowering users through curriculum development. When corporations are preparing to implement an instructional platform that is so flexible, it is important for the development

team to stay organized and put forth the necessary time and effort to plan accordingly to ensure a

successful online learning environment.

CHAPTER 2: E-LEARNING WHEN AND WHY?

E-Learning is rapidly growing because of its flexibility, cost, and innovation. This new way of learning does not have to cost much and if designed properly, some of the content can be reused. There is something for everyone involved with this educational medium. It incorporates a wide variety of desirable elements like giving learners the opportunity to set their own learning schedules, not having to travel to improve their skill sets, and giving them the chance to work with peers who may not be located in the same city or continent.

D.R. Garrison and Terry Anderson maintain that there is no denying that computer-based communication is the most fundamental change in communications technology in the last 150 years in E-learning in the 21st Century: A Framework for Research and Practice. The popularity of the personal computer (PC) coupled with the Internet has significantly impacted society. Electronic communications and digital networks are transforming the way individuals work and are changing personal communication. This change has had a substantial effect on the need and the opportunity to learn (1). Even with the substantial rise of technology, the transmission model that still dominates education has only changed slightly.

Given the influx of technology, individuals are exposed to e-Learning in its early stages and there is a vast realm to explore such as: what are e-Learning's "advantages and are they compelling enough to force a reconceptualization of the teaching and learning transaction?" (1) E-learning is not just another technological buzzword or passing trend, but rather a viable way of teaching that incorporates a new way of communicating educational information. E-Learning does not have to be expensive and there are metrics and standards that can be followed to ensure a project adheres to a budget. The purpose of this chapter is to define the benefits of e-Learning

and how corporations can use it to empower users to become more engaged in their on-the-job learning. It also discusses some of the benchmarks to follow when defining an e-Learning budget and some project management concepts to use that mitigate risks associated with implementing a Web-based instructional platform.

How much does E-Learning Cost?

Companies are using e-Learning to facilitate training by saving money over the course of their employees' education and reducing the amount of time that employees are away from their offices traveling. While some of the software and hardware tools may be expensive to purchase initially, the amount spent on human capital over the course of training greatly outweighs the expense. In most corporate environments, when an employee attends traditional face-to-face training, she is not performing her normal duties because she is out of the office and the company is paying for her travel expenses. E-learning can reduce the need for offsite classes by being available online any time to an employee through a few clicks of the mouse.

There is also the dreaded question that strikes fear in the hearts of managers and sales associates alike: What does it cost? While there are no hard-and-fast rules for pricing e-Learning materials, it is safe to say that it depends. When estimating a budget for custom e-Learning programs, Kevin Kruse provides the following list of questions to use as a guide in "How Much Will It Cost? Estimating e-Learning Budgets":

- How will the training be delivered: CD-ROM or Web?

- If Web-based, is it high-bandwidth or low-bandwidth?

- What is the content or subject matter?

- How long would it take the average student to complete the course, or how many screens will it contain? While not an exact measurement, these questions get at the basic issues of size and scope.

- Will the program use audio, video, animations, or complicated illustrations?

- Where will the source content come from? Are there existing training modules? Is there a subject matter expert readily available?

- Will the program have student-tracking capabilities? Will it be complex?

- When will the project begin? When does it need to be delivered?

- What specific services will your organization provide, for example, script development, audio/video clips, quality control, or packaging and duplication?

An experienced vendor should be able to review these questions and provide a rough estimate of the program development costs. With a little more detailed information, a firm price can be expected (Kruse, "How Much Will It Cost?").

Pricing Guidelines

Since all projects and organizational needs are different, it is impossible to define rules that will apply to every project's development situation. One of the most common methods that Kruse recommends for estimating costs "is that it takes approximately 600 person hours to complete one hour of high-quality multimedia training, which is usually delivered on CD-ROM. This includes all services: instructional design, audio and video, programming, quality control, and project management" (Kruse, "How Much Will It Cost?"). When developing simpler Web-based or computer-based training without audio or video, the rule to follow is that it takes 300

person hours, or half as much work, to complete one student hour of training (Kruse, "How Much Will It Cost?").

As far as price scales go, the majority of training vendors charge $100 to $125 per hour for their services, which makes the cost for multimedia CD-ROM training range from $60,000 to $75,000 per finished hour. An hour of Web-based training or computer-based training without audio or video might cost $30,000 to $40,000 to develop (Kruse, "How Much Will It Cost?").

Another benefit of having employees access training from a centralized location rather than sending them to different sessions around the country is that regardless of location, everyone receives the same training that is company-specific. Part of a sound e-Learning experience is making sure that it meets the users' and organization's expectations. In "Designing Successful E-Learning Courses," Clare Davis and Melissa Haughton stress the importance of this and suggest asking the following series of questions:

- At the end of the training, what should students be able to do?

- If they are able to do this, how will it impact their performance?

- What is most critical for improving performance?

- How can this impact be measured?

Developers can schedule meetings with managers and project leads to understand their needs, environment, and the staff's learning styles. The findings can be compiled in a design document with a needs/task analysis section to ensure that the client or manager understands the development process that will be followed for the project (10).

Once the training session concludes, the content can still be made available to use as a refresher or it can be reused in the future for additional training. Developers who incorporate

users' feedback not only get advanced support from the user community, but they foster a team environment.

Project Management

To implement an e-Learning platform successfully, Lou Russell explains in "Project Management and E-Learning: MORE is Worse" that the project team must strike a balance in understanding that there are two projects happening simultaneously: one is a software project combined with a performance enhancement ("training") project. This fact means more of everything like communication opportunities, risk, duration, scope, and stakeholders. To begin proactively and prevent the project from failing, the developer must ask questions about how the training investment will increase revenue, avoid costs, or improve service (Russell, "Project Management and E-Learning"). This approach is not only logical from an economic perspective, but it also gets other business areas involved in the process and can help foster an environment of inclusion so that development is not done in a vacuum. If areas are involved early in the phase of defining the e-Learning project, the upper level managers will be more receptive to their employees using the Web-based instruction and answering questions throughout the development lifecycle.

Another task to accomplish before the project begins is to define the learning objectives so that everyone agrees on how the learners will use the curriculum and what they should be able to do once it is completed. Moises Sheinberg also discusses this in "Know thy Learner: The Important of Context in E-Learning Design." Defining the objectives also prevents the scope of the project from eroding and guards against the program not delivering anything at all (Russell, "Project Management and E-Learning").

Scope is defined by the number of stakeholders, meaning the people who either provide something to the project (for example, subject matter expertise) or gain something from the project (for example, learning). The stakeholders of a traditional classroom training program are typically learners, executive sponsors (who provide funding), subject matter experts, and the course developer (Russell, "Project Management and E-Learning"). E-Learning projects involve the same individuals and stakeholders that traditional classroom training does and more. When corporations develop online learning content, the project manager also needs to have the following individuals involved: a Learning Management System manager, the e-Learning developer (who is the authoring expert), a graphic designer, a Web manager (for hosting the content), a security analyst (to prevent the data from being vulnerable online), and a hardware technician (to ensure that the performance is optimized online when users access the content) (Russell, "Project Management and E-Learning"). Meeting with all of these people can be challenging and a sound way to improve the flow of communication and prevent missed deadlines is to take and distribute meeting minutes and establish a timeline at the onset of the project.

Another method that Russell recommends is creating a release-based, iterative approach to development. Project management is still critical, but it is done in phases throughout the course of the project. An example of her suggested sample flow is shown below:

1. Create a Project Charter (Business Case) for the entire project.

2. Create a Project Plan for the first iteration.

3. Build the first iteration, test it, play with it, and finish it.

4. Deliver it to the learner.

5. Go to Step 2 and keep doing iterations until your executive sponsor says you are done (Russell, "Project Management and E-Learning").

Kruse shares similar beliefs with Russell and he expands upon them in "The e-Learning Project Team: Roles and Responsibilities." Kruse explains that when e-Learning emerged in the late 1980s and early 1990s, a single developer (or super-producer) was responsible for the curriculum. Times have changed and now the majority of the work is divided among team members who likely play more than one role (Kruse, "The e-Learning Project Team"). These teams tend to be eclectic and the members can "vary between self-taught members and those with academic credentials such as degrees in instructional design, psychology, programming, art, and other areas of study" (Kruse, "The e-Learning Project Team").

Empowering Users

Lynnette Porter explains how E-Learning creates a safe environment for users in Developing an Online Curriculum because individuals who are shy, have difficulty keeping up with other students, or need time to effectively express themselves feel more comfortable online. Learners who dress or look different from their counterparts feel that e-Learning creates an equal playing field because they are not treated differently in this environment by their remote peers. It is also beneficial to employees who need more time to express themselves because they can take time before they post on a message board or send an email (14).

Online forums also give everyone an opportunity to get involved in the learning process because during an online chat, everyone has to participate and no one can hide at the back of the classroom. The chances of someone giving a non-verbal cue are also not threatening because no one can be seen during the interaction (15). Since negative body language is not a factor, learners

get to speak more freely online because they can post complete thoughts without being interrupted by someone with a dissenting opinion. This is yet another benefit that optimizes the learner's experience. While participating in online forums, students respond well to the positive feedback they receive. "Comments like 'good point,' 'I never would have thought of that,' or 'great idea' are often more common online (15)." Sometimes even if learners in traditional classroom environments agree with the speaker, they are not inclined to comment or make positive remarks. Instead, they will make gestures like a nod or smile to show that they agree with the topic. These gestures are not as easy to discern as the positive written comments that boost morale (15).

In addition to bolstering learners' experiences, online learning makes information readily available because employees do not have to be limited by conventional academic institutions and adhere to schedules that involve attending a single location on particular dates and times or fit within some of the narrow parameters of conventional societal standards. In Web-based Instructional Learning, part of a compilation created by Mehdi Khosrow-Pour, Henry H. Emurian states that

> It will no longer be business as usual within academe, and the transformation
> will produce a global, egalitarian, shared, and ultimately optimistic
> sociological context for education and training. The reason is that the conditions
> that promote efficient and effective learning will be made increasingly
> accessible to public scrutiny, debate, and evaluation. Students, as newly
> empowered consumers of education and training products and services, will
> not be complacent in the face of inferior alternatives, whether provided by

public, private, or commercial sectors of society. The consumer of education

and training products and services now has so many options available that

a constructive competition among providers is responding to a consumer-

generated evolution of intellectual products and services. This evolution

favors a better match between the individual student and the process of

learning. This evolution will occasion a reconsideration of the significance

of traditional accreditation and credentialing authority, and most importantly,

the reconsideration will be driven by the student consumer, not by

elitist organizations. (127)

Emurian also challenges the conventions of making education available and asserts that

"the results of public dissemination and discussion of education and training strategies, via the

World Wide Web, will produce an informed learner who will shop, comparatively, for the

optimal learning strategy to achieve a specific competency objective" (127).

He also maintains that topics most suited for being taught online fall within knowledge

domains that have steps to mastery and the assessment of competence are precise and non-

controversial (127). Instructional designers can incorporate this premise into their development

by creating courses that focus on software tutorials about job-specific tasks like processing daily

data entry or how to file a weekly timesheet. More often than not the recurring tasks that

employees do incorrectly waste time and cost the company money. Basic training can counteract

these occurrences and make employees feel more comfortable in their work environment.

"Neglecting fundamental learning parameters in favor of a preoccupation with information

technology and with making e-Learning systems more and more human-like could drive the

'Turing test' to gratuitous philosophical discourse that will not advantage a learner's acquisition, retention, and use of knowledge" (128).

Learners can also become engaged in the benefits of online learning by doing self and peer assessments. These assessments provide them with additional ways to become engaged and have an interactive online experience because they can work with and learn from others who are taking the class. This skill also transfers into the workplace from the online classroom because people have to evaluate what their coworkers produce everyday. Tim S. Roberts discusses this practice in Self, Peer, and Group Assessment in E-Learning. He believes that the learning experience is enhanced "when one combines (peer review) with other identified benefits, such as: assisting learners to quickly identify areas requiring further study, improving communication skills, and increasing self reliance; the importance of such methods should be apparent to all" (2).

One such methodology that is applicable in a corporate setting is reflection because it provides students with opportunities to consider not only their own learning, but also how they have learned, including any problems encountered along the way. Such reflection aids in self awareness and can provide invaluable feedback to guide future learning (3). The process of learners performing self and peer assessments is also valuable for instructional designers and developers because it provides them with feedback regarding the course material. If individuals are struggling with certain areas in the data and are receiving continuous feedback that the content or concepts are vague, then the instructional designers can take the opportunity to fix the information.

Ultimately, the focus of e-Learning is on the users and what they obtain from taking the courses. It important for corporations to offset some of the risks of shifting to an online platform by defining a budget, knowing which guidelines to follow, establishing a sound project management team, and empowering users through curriculum development. Because online instruction is so flexible, it is critical for the development team to stay organized and put forth the necessary time and effort to plan accordingly to ensure a successful implementation.

E-Learning has a multitude of user benefits, but one that is the most entertaining and has the most impact is the ability for instructional designers to include games and simulations. The next chapter discusses the methods that enable learners to view content in ways which are non-text based and access some of the material (like software applications) before they have to incorporate it into their daily work duties.

CHAPTER 3: TEACH ME AND ENTERTAIN ME

When learners embark on an e-Learning course, the first thing they may notice is the absence of an instructor lecturing them and guiding them through the lesson, but this does not necessarily apply to all instances of this instructional medium. This deviation from a traditional learning environment is perfect for incorporating games because they engage the learner; can break up the monotony of reading text on a screen and answering content-related questions; and create a memorable experience for users.

The purpose of this chapter is to highlight how flexible an e-Learning environment can be because developers have numerous possibilities when it comes to making creative and engaging decisions about what interactive elements to include. The first topic defines games, explains why they are beneficial to the learner, and provides some background on their usage. The next topics discuss when to use games and the type of information and format they should have. The subject of games is structured this way because each topic builds off the preceding to enhance developers' understanding and application.

Once games are developed with the requisite components like sound objectives and incorporated into a logical section of the content, they can be used to create an experience for the learner that involves more than reading online content and answering questions. Along with developing games for different learning styles comes understanding what motivates learners and how understanding their personalities can enrich their experience. Developers and instructors also need to explore how to integrate a classroom learning pedagogy with e-Learning and what they can do to facilitate communication. All of these topics are critical to developing a sound e-

Learning environment because they build on one other to optimize the time learners spend online.

What's in a Game?

Games should not be mistaken for ice breakers or simulations that are used to engage learners in an activity. "Come Play: Using Games to Teach Motivate, and Engage," by Karen Baranich and Cynthia Currie, stresses that a game is an organized, active competition or contest engaged in by players who act individually or collectively as a team (6). Games can be used to assess what users have learned without the negative connotations of formal tests and quizzes. They often bring "enjoyment and laughter that are tied to strong positive emotions that allow the brain to make better perceptual maps" (6). Depending on the e-Learning environment, the score of the game can be tracked by the instructor or manager to ensure that the users are benefiting from the online learning environment and its content.

Games are also very versatile because they appeal to multiple learning styles. Students who are visual, auditory or kinesthetic learners will benefit by reading the text within the game's platform, conversing with other players, and using the game's controls for maximum interaction.

When to Use Games

Baranich and Currie suggest using games to "practice and check knowledge; identify gaps in knowledge or skills; provide opportunity for review and refinement; and develop new mental relationships and avenues for the application of information" (7). Developers can use games to incorporate an array of content and provide varying levels of difficulty to reach all user groups. It is also convenient to use games when the content will change consistently because a template can be created and reused.

Games are also important components of e-Learning because they reduce the amount of time that is needed for training and alleviate some of the pressure on the developer or online facilitator. E-Learning content can be formatted as a game and delivered to the audience as an alternative format to words or graphics on the screen.

Game Components

Joel Foreman, in "Game-Based Learning: How to Delight and Instruct in the 21st Century," maintains that it is ideal for a game to create a sense of community for the players because the environment fosters communication among the users, encourages creative thinking, and stimulates decision making. The game also enables the users to learn from each other so they do not have to rely solely on the online content.

Foreman explains that games should have the following elements: a goal, an objective, a clear start and finish, obstacles and challenges, a way to win, and rules. A goal helps the learners understand why they are playing the game and how it benefits their educational experience. The objective enhances the goal and explicitly defines what the learner will gain by playing the game or participating in the activity. The start and finish are important because the game has to be available at the most opportune moment in the e-Learning environment so that the learner is not disrupted by its placement. The game should also be well organized so that it can be completed in a reasonable amount of time (54).

The challenges should reflect occurrences that could happen in the real world or in the learners' job activities. Regardless of the problem, it should provide the learners with some knowledge that he can apply to work (55). Winning the game should not be the primary focus of the exercise and the learner needs to perceive the value of the experience despite the outcome.

Players can also be rewarded in ways besides winning. Evaluations can be conducted on who completed the game with the fewest errors or in the shortest amount of time (55).

Finally, the rules must be clearly defined so that the learners know what is expected of them, how to navigate within the game interface, and understand how they interact with other players and their team. The rules should be simple enough so that the users have the opportunity to have fun and do not have to spend a substantial amount of time figuring out what is expected of them.

Creating an Experience

The experience of playing a game in a safe environment contributes to the learning process because the user can solve real-world problems and not worry about encountering errors. Lisa Galarneau believes that failure deepens the learning experience. She comments, "Learning games with simulation elements can engage, motive, and even thrill learners, and people may learn better [because of them]" (5).

The students' interactions with games can also be enhanced by presenting a structure that most are familiar with. Variations of games like "Jeopardy," "Wheel of Fortune," and "Who Wants to be a Millionaire" are good to model because the principles are simple and most of the users already understand the objectives and rules. Templates for these games can be downloaded at little or no cost from the Internet and are beneficial to instructors who may be short on time and development resources.

Games are flexible, reusable and, if developed correctly, can appeal to all types of learning styles. They also provide the opportunity to also assess the learners' knowledge in a relaxed environment that is more desirable than a formal test or quiz structure. Everyone

involved with games benefits because they foster creativity and communication among the learners and the developers.

Learner Motivation

"Learner Motivation and e-Learning Design: A Multinationally Validated Process," by John M. Keller and Katsuaki Suzuki, explores how to make online instruction appeal to learners without becoming trite. Problems exist with sustaining motivation in learners because they become accustomed to working in a certain electronic environment and gradually lose interest over time. In this particular article, e-Learning is considered "any learning environment in which electronic media, such as computers, are used as a component of an instructional delivery system" (230). A system that the authors use for motivation is the ARCS model, which is an acronym for attention, relevance, confidence, and satisfaction. The components of this model are gaining and sustaining the learners' attention, building relevance, developing confidence through their learning, and ensuring that they find satisfaction with their experience. Overall, the learners must believe that the lessons were created in a fair and equitable fashion. They also should agree that the amount of work involved with the course was adequate; there was consistency between the objectives, content, and tests; and that there was no biasness in grading. Ultimately, all of these tactics are used to influence learner motivation and not to control it because these efforts are "contributing to more systematic and predictably effective ways of understanding and influencing learner motivation" (237).

"Whatever happened to the e-Learning Revolution?" is an editorial that coincides with some of the ideas that were included in the article written by Keller and Suzuki. Specifically, the editorial addresses the fact that just because "technologies can enable worthwhile learning to

happen, they do not cause it come about" (5). It is not enough for educators to simply deliver and present educational materials using information and communication technologies. A concerted effort needs to be made that goes beyond posting class notes, reading suggestions and PowerPoint slides on a Web site, and adding hyperlinks that group the information together. This methodology does not guarantee that quality learning transpires and educators should realize that it takes more than transferring materials to a digitized environment to make e-Learning successful. The editorial specifies that "learners need to be motivated; they need to develop new skills for locating, evaluating, and selecting relevant and appropriate information" (6). Most importantly, learners need to know why they are expected to perform the tasks and activities for their studies and to appreciate the benefits they will develop.

Drs. Toni Bellon and Richard Oates further expand upon the research done by Keller in their article "Best Practices in Cyberspace: Motivating the Online Learner." They briefly discuss the ARCS model and delve into it further by conducting a survey that suggests that student personalities contribute to motivating the online learner. Bellon and Oates explain that teachers must realize that "having knowledge of effective teaching in a traditional situation does not automatically translate to effective online instruction". Teachers must incorporate applications that promote learning by using students' prior knowledge and ensuring that connections to the course content are established. By creating these correlations and by providing manageable structures and pacing expectations, the instructor helps learners develop confidence and satisfaction. Students need to know how much they have learned so they can perceive the value from the e-Learning course.

<u>How Learner Personalities Influence the E-Learning Experience</u>

<u>Individual Preferences in e-Learning,</u> by Howard Hills, describes how to create e-Learning materials that appeal to an array of personalities types. Hills obtained the data from studies conducted by researchers in the United Kingdom and the United States to determine certain individuals' qualities. The use of the Myers-Briggs Type Indicator (MBTI) provided the conclusion that the majority of the users learn best when they are considered either a member of the introvert or extrovert category.

Hills explains that it is easy for an e-Learning developer to assume that because someone is an introvert that she does not need people and would thrive in an impersonal online environment. One of his beliefs is contrary to this logic and states: "introverts need people to serve as sounding boards and others to build their own confidence" (129). On the other hand, Hills attests that there are the classic introverts who have only a slight need for others while learning and they use the application as a sounding board and are internally motivated. The e-Learning developer should present the information in two formats: "theory and concepts [along with] examples of the application of those theories and concepts" (129).

To build an effective e-Learning environment for extroverts, Hills recommends using practical examples that enable these learners to "touch and feel as well as look and read" (135). E-Learning can only take these users so far and Hills says that developers have to accept this reality and know that extroverts will learn additional information about their area of study through the use of practical application like an internship or in their day-to-day jobs. Hills's conclusion is that "…it is impractical to design or implement e-Learning for all personality

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types. If developers concentrate on practical examples based in reality, they may, at best, suit the preference of 75 percent of the population" (150).

Conducting assessments of potential users facilitates the e-Learning development process according to Moises Sheinberg's article "Know thy Learner: The Importance of Context in E-Learning Design." Sheinberg asserts that "gathering information about the intended audience before designing and developing a course can greatly improve its chance for success." Developers and instructors who are responsible for the course materials and e-Learning environment should ask questions like these:

- What are my user's experiences and employment backgrounds?

- What type of education has my audience obtained?

- What type of language will the users respond best to? Am I using a vocabulary that is too technical?

- What do the participants need to obtain from these courses?

- How much experience do the users need with the interface before they begin?

- Is the interface user-friendly?

The questions that Sheinberg finds valuable vary by topic and those that were listed are only a brief sampling. The development team should use these questions to focus their goals and objectives to ensure that they all share a common vision for the future product.

Students' opinions of e-Learning were thought to be impacted by three factors according to "Students' Perceptions of E-Learning in University Education," by Christina Keller and Lars Cernerud. These factors include previous computer experience, technology acceptance, and individual learning style. The study that Keller and Cernerud conducted determined that "the

implementation strategy of an e-Learning system plays an important role in influencing students' perceptions" (65). The best way to design an implementation strategy is to have management support, user involvement, and a defined degree of complexity and risk according to the new technology and role of project management in the implementation process. In the final results of the study, Keller and Cernerud determined that a relationship did not exist between students' learning style and their e-Learning perceptions. Their data also showed that students with less computer experience were more receptive to e-Learning than those with more knowledge. These findings benefit e-Learning developers because they can focus their environment creation on inexperienced computer users, rather than trying to appeal to a seasoned user.

Lynnette R. Porter's development strategies are in alignment with Hills' because she believes that accommodating different learning styles should be a focus while e-Learning courses are developed. Her article, "Making the Grade, or How to Upgrade an Online Class," discusses a case study conducted by other scholars that she relates to because it was similar to her experience with online students. Some of the techniques that she incorporates into her e-Learning classes are delivering information not only through asynchronous methods, but also by having students form online groups so that they can communicate together in chat rooms with their peers and post comments to a bulletin board. These techniques appeal to students who need to do more than just process text to learn. Another recommendation that Porter provides is to make links from graphics rather than just text. She says that "this is a very low-tech way to vary the types of assignments in the course" (5). She also recommends using audio, video, and simulation in conjunction with print to appeal to visual and hands-on learners. Varying the methods will appeal to all learners so that they are doing more than simply reading and answering questions.

The E-Learning Revolution, by Martyn Sloman, describes techniques that facilitate how to present and validate that the learning process is effective. He recommends using a postulate developed by Peter Honey and Alan Mumford that identifies an individual's learning styles. The learning cycle begins with an Activist who has an experience, is followed by a Reflector who reviews the experience, then is followed by a Theorist who forms conclusions from the experience and ends with the Pragmatist who plans the next steps. If developers and instructors understand how to incorporate this information into their e-Learning environments, then they will be sure that they have content that appeals to everyone.

Like Bellon and Oates, Sloman also focuses on learner motivation and believes that it is important to foster it. He believes that one of the main practices to reduce the lack of motivation is to identify and remove learning barriers. Examples of these barriers are "that learners fear demonstrating a lack of skill or competence, they have a general lack of awareness of the need to develop or of the opportunities available, and that they lack personal confidence" (116). Once instructors are aware of some of these barriers, they can address them and modify some of their strategies to improve the user experience.

In Margaret Driscoll's Web-Based Training, the focus is on the practices that make the overall online learning experience more appealing to a specific audience. She suggests incorporating relevant and problem-centered programs because "adults are motivated to learn as a response to problems and changes" (43). Along with the programs, she also believes that meaningful feedback should be provided so that it improves performance. For example, if a user answers a question incorrectly, the feedback should go beyond stating that it was wrong. A more effective approach would be to include a graphic or model that illustrates the solution so that

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eventually the learner corrects the mistake without being prompted. Driscoll also recommends engaging the learner to increase his experience. She says that rather than "providing an interaction every three screens, interaction should be based on the content's complexity" (51).

Instructor to Learner Communication in E-Learning and Beyond

Communication in e-Learning transcends the traditional role of teacher-to-learner interaction that transpires in a classroom situation. E-Learning enables students and instructors to communicate in real-time simultaneously as well as engage in ongoing discussions via virtual bulletin boards and email. Patti Shank explores communication elements in "Out with the Old: Is it Time to Rethink Instructional Design?" She aims to use technology as a method to go beyond what conventional face-to-face communication can do. An innovative idea that Shank presents is to have students work together to develop and evaluate the content because they will come up with "new alternatives (for communication) and open up endless possibilities for helping folks learn." A byproduct of having students involved with development is that they will be benefiting from the process and increasing their knowledge. Involving students accomplishes the purpose of making sure that the learning experiences work, which is another of one of Shank's objectives in the development process.

"Mapping the Expanding Landscape of Usability: The Case of Distributed Education," by Roger Grice and Bill Hart-Davidson, contends that it is very important to develop a sense of community for learners that reside in a virtual classroom. Grice and Hart-Davidson recommend that the classes should be structured using the syllabi and technology that best take advantage of the environment. For instance, the technology should be in place before a curriculum is developed to ensure that the course fits the environment. Aside from structure, it is important for

students to feel like they are receiving the same amount of interaction that they experience in a classroom. Teachers need to be prepared to accommodate the additional communication that is involved with online learning by sending and reading emails and participating in online chats.

"Planning a Community: The Value of Online Learning Communities in Technical Communication," by Lynnette R. Porter, emphasizes the importance of creating a community to facilitate students' learning processes and create a human connection in a virtual environment. She believes that rather than the "Net serving as an information repository, it can serve as a true communication forum for academia and business if used to build interactive learning communities" (1). Her practices for creating such an environment are to start at the least common denominator with students who are completely unfamiliar with technology and bring them into the realm of online learning. Once these students are engaged, she is sure to accommodate other students because basic learning needs are met through this emphasis. In addition to creating inclusion, educators should stress the importance of building effective interpersonal skills for e-Learning users. This communication increases the experience for the user and aids the instructor's teaching practices.

Exposition techniques solely focus on the way that instructional designers present content to learners. This is one of the e-Learning foundations contained in <u>Advanced Web-Based Training Strategies</u> by Margaret Driscoll and Saul Carliner. "The main objective of exposition techniques is to address one part of the mastery lesson: the part in which the skill to be taught and its underlying concepts are described" (301). This presentation helps learners quickly grasp new skills and ideas. In conjunction, instructional designers must make sure that definitions are clearly stated. Sometimes developers may assume that once the definition is written, it can be

readily understood by the user. Occasionally, if communication is limited between the instructor and learners, the users will not admit that there are elements of the content that they do not know. Driscoll and Carliner recommend that developers should determine what types of definitions they are going to provide and choose from the following three types:

- In-text definition: "a parenthetical phrase that immediately follows the unfamiliar technical term that sufficiently explains the term so readers can comprehend the sentence".

- Basic definition: "a one- or two-sentence definition that may appear in the body of the text as well as in a list of terms called a glossary or dictionary".

- Expanded definition: "a one- to three-paragraph description of the term that begins with a basic definition and expands with additional explanatory information" (311).

Once these principles have been incorporated, the learners' understanding will be greatly facilitated.

Nada Dabbagh and Brenda Bannan-Ritland's book <u>Online Learning: Concepts, Strategies and Application</u> focuses on incorporating learning activities that "support problem solving, collaboration, reflection, exploration, and exposure to multiple perspectives" (205). This approach is important because students apply their current knowledge-base and adapt it to new situations and complexities. The problem-solving experience also promotes communication among the learners and with the instructor because they are challenged while seeking guidance.

Along with interactive problem solving, it is beneficial to include a frequently asked questions (FAQ) area within the interface so that students can use it as a resource. This improves

communication because it enables the users to solve problems and minimize asking the instructor

and others questions that may have already been asked and answered.

Integrating a Classroom Learning Pedagogy with E-Learning

Beryl C. McEwen shares her experiences and best practices in "Web-assisted and Online

Learning." She discusses how her students became more enthusiastic once she transitioned

effective classroom teaching methods to an online learning environment. Some of the tools that

she used in an electronic format were "PowerPoint slides, grammar quizzes and puzzles,

tutorials, chapter quizzes, and writing guides" (99). Even though a textbook was used, McEwen

made sure to link to the materials that she wanted her students to use consistently so that there

would be minimal confusion, and she also posted their assignments, syllabus, schedule, and

course materials online. The students also had access to an electronic grade book, chat rooms,

email, and an asynchronous discussion board that would engage them in the learning process.

Not only did the students benefit from the e-Learning environment, but it made monitoring the

students' performance easier for McEwen because she could see "who was reading and when

and who was doing practice materials and how often" (99). McEwen's experience was very

positive because the users perceived the value of their e-Learning class and this is a critical factor

that Bellon and Oates also mention. Overall, McEwen believes that "instructor preparation,

course development, instructor accessibility, and course monitoring are all critical elements of

effective online courses" (101).

Making the transition from traditional classroom instruction to online learning does not

have to be difficult according to Lynette R. Porter in "Ten Ways to Improve the Business of

Online Education." She stresses the importance of educators adhering to high academic

standards and a sound educational design for their courses, but emphasizes that they also have to make sure that the courses meet students' needs and expectations. The first method that Porter recommends for creating a successful online environment is to have developers "strike a balance between the latest, fastest technology and the slower, older computer systems available to the majority of students" (1). This combination is important because it ensures that students can learn and not be hindered if their computers do not use current technology. Porter's method that increases technological accessibility is to "present course content through online documents, simple graphics and sound files, links and text-based chat sessions" (1). Once the technology is in place, it should be updated yearly (at the very least), monthly, or weekly depending on the content.

Another technique to make content appealing to all users in an e-Learning environment is to be "sensitive to the nuances of language and provide information in a variety of formats to suit students with different learning and language styles are some ways of planning for a diverse audience" (3). By incorporating relatively basic strategies that appeal to many users, instructors can create simplistic and useful e-Learning environments.

Kristine L. Blair's article "Digital Language and Literacy: An Online Course Design Learning Community" offers insights on how to foster relationships between students and their online instructor. This is an important aspect of e-Learning because if a class is not structured properly, students may miss valuable learning opportunities. Blair recommends following these principles to ensure sound teaching practices:

- Encourage contact between students and faculty
- Develop reciprocity and cooperation among students

- Encourage active learning

- Give prompt feedback

- Emphasize time on-task

- Communicate high expectations

- Respect diverse talents and ways of learning

In addition to these principles, she also suggests that roles are assigned to the students and faculty so that they all share a semblance of responsibility to ensure that the e-Learning is successful. These roles can be defined by an organization to meet specific needs and practices.

Creating a learning architecture is central in Marc J. Rosenberg's book <u>e-Learning: Strategies for Delivering Knowledge in the Digital Age</u>. The considerations are components that will create a streamlined process so that developers can take what works in the classroom and apply it online. Rosenberg contends that these guidelines will stand the test of changing content and changing business requirements. Conducting thorough needs assessments will help organizations choose between content that belongs online and content that is presented in the classroom. From the needs assessment, the developers can base their architecture design on the competencies that are to be built. Knowing how the users' performances will be evaluated once they have learned the content will drive how the content is presented.

As Rosenberg asserts, "Starting to associate classroom learning with application and teamwork, and e-Learning with content and tools will help appropriately position the learning requirements" (126). To achieve the best results, most of the information should be moved to the online environment and the classroom time should be spent applying the topic, especially when teams are involved. When posting the information online, Rosenberg also recommends using

existing source material to save time and resources. Finally, Rosenberg suggests helping people learn "how to learn" by encouraging employees to continue to use the online resources to improve their skills as the tools evolve. This also helps employees become independent learners.

There are many different instructional methods that can be incorporated into an online learning environment. Martin Weller describes some of these tactics in <u>Delivering Learning on the Net</u>. Constructivism is a learning theory rather than a teaching theory which argues that humans construct meaning from current knowledge structures. It is relevant because it suits many of the advantages that the Net can bring to distance solutions, which shifts the focus to the learner and not the instructor. This shift of focus brings in structured discussion, group work, and fostering the users' experience through feedback.

Problem-based learning is different from Constructivism because it begins with a problem, rather than providing information, and then gives another problem to test understanding. This is a sound methodology to increase user motivation and is flexible because students can develop different solutions to the problem. Weller explains that "students are given a problem that is complete and then they must gather the requisite information and in the process obtain new skills to solve it" (71).

Narrative-based teaching differs from Constructivism and Problem-based learning because it is based on a "well developed human capacity to absorb, remember, and understand stories" (73). This is an important methodology because it makes subjects more memorable, provides structure, and presents a familiar format. A drawback is that it can detract from interactivity, but this disadvantage is relative to the context in which the material is presented.

Once developers know how to apply the theoretical and interactive components, they must structure the content in such a way that optimizes learning and prevents the learners from getting lost by navigating away from the core content or questioning the design elements. The next chapter explores these design standards and what developers need to know about how to incorporate color so that it facilitates the learning process and does not strain the users' eyes. The graphics used must also be simplistic and convey the message without detracting from the text.

CHAPTER 4: IF YOU DESIGN IT, THEY WILL COME

E-Learning is revolutionizing the methodologies that are used by individuals and companies to learn and disseminate new information. Almost anyone can create a Web site and write extensive amounts of "how to" content, but there is no guarantee that it actually teaches the reader anything. Since e-Learning is rapidly being incorporated into corporations and higher education as a viable instructional format, members of the technical discourse community need to be aware of components that yield an effective training tool. It is important for developers to adhere to design guidelines and principles that are engaging and simplistic. The methodologies range from designing simulations to choosing a design that is appealing and user-friendly.

This chapter focuses on the features that facilitate the transfer of information from screen to learner. The visual elements are defined first and then information about creating an experience for the learner and how to incorporate the principles of adult learning are discussed. Finally, all of this content is incorporated into the text that creates cohesion to guide the learners through the online learning process.

Effective Graphics, Layouts and Techniques that Facilitate E-Learning Development

The visual appeal and structure of an e-Learning environment are just as important as the content. The most important feature of any environment is to make it look consistent from page to page or module to module. The reason for this structure is to make it easier for the user to navigate and to learn where certain objects are like the help menu or where to click to get to the next lesson. Also, it is critical that when users navigate to another page or section of the materials they are sure that the selected section is correct. If every lesson looked different

depending on the material, the user would be confused because she would not be certain that the location was still in the desired lesson or module.

Aside from consistency, the look and feel of an e-Learning environment should be uncluttered and easy to read. Beth Archibald Tang advocates in "E-Learning 1.0: 10 Tips to Optimize Your E-Learning" that using different fonts can increase interest and readability balance. The best fonts to use are sans serif fonts like Arial, Helvetica, or Geneva and if possible, the users' should be able to change their settings to determine an optimal font. She also asserts that regardless of the font type, contrasting colors should always be used on the screen. A combination of a dark font color like black on a maroon background will cause eyestrain for the user and eliminate the opportunity for the document to be printed because the two colors will blend together. The ideal combination is one that creates a significant contrast like a beige background with black text (Tang, "E-Learning 1.0").

Another formatting technique that Tang suggests to use sparingly is underlining words because users may tend to click on the underlined word and confuse it with an active hyperlink. If this happens enough and the learner gets used to the link being inactive, then he may not click on the appropriate link that produces a necessary learning component.

The use of effective white space is a technique that should be incorporated into the environment because it "separates main ideas into readable sections" (Tang, "E-Learning 1.0") and it reduces eyestrain. White space can also aid users with navigation because it emphasizes the links (top, back, next, menu, and exit) that can take them to different sections of the environment without the use of "scrolling and extensive mouse use" (Tang, "E-Learning 1.0").

Tang also recommends that users should not scroll vertically because it detracts from their experience.

In <u>Renaissance e-Learning: Creating Dramatic and Unconventional Learning Experiences</u>, Samantha Chapnick and Jimm Meloy recommend using graphics sparingly in an e-Learning environment because they can potentially degrade quality and distract the audience. The authors define poor graphic design as "an overwhelming number of images and tenuous connections between graphics and text" (154). The font types that Tang advocates are not ideal to these authors and they find them to be generic and lacking imagination. Chapnick and Meloy recommend using fonts that are slightly stylish (like Lucida or Garamond) because they are unexpected, more interesting, and hold the users' attention.

Graphic design that is sound and positively impacts an environment should reflect a certain style that either captures the organization's culture and environment or the program's goals. Chapnick and Meloy write that it is very important for the design to be in alignment with the content's message or it will gradually erode. One way to structure a sound layout is to make sure that the design works with the eye's natural movement. The authors specify that "the layout should provide a visual hierarchy that immediately indicates to the participants which content is most important (this should be the most noticeable), which is the second most important (this should be the second most noticeable), and so on" (159). Layouts that are visually appealing are most commonly designed either with a sample or a grid.

Grid layouts serve as templates and give the design uniformity that assists with user navigation and information retention because the components are in an anticipated area and order. Chapnick and Meloy state that "the difference between columns and grids is [that] the

content of your pages can span multiple columns and the most common e-Learning grids have either three or four columns" (160). Once the layout is established, the authors agree with Tang that users should not have to scroll horizontally unless it is an essential part of the design.

Linda E. Moore's article, "Serving the Electronic Reader," discusses the importance of grouping similar information and topics onto one page. If the topic warrants more than a single page, then they should be linked together. Grouping is also important because readers tend to skim online content to find the desired topic and once they find the information, they may ignore the rest of the content. Moore also stresses that it is valuable to "slim down a document by deleting anything you don't need, like topic sentences that repeat headings or descriptions of graphics that are self-explanatory" (2).

Susan Boyd offers insightful techniques about how to ensure that learners will apply new skills and competencies to their jobs after they have completed e-Learning training in "E-Learning 1.0: Tips to Make E-Learning Stick." The curriculum structure should be concise enough to define the skills based on job needs and relate each training module to a job skill. She also writes that managers need to be consulted so that their business goals and objectives are incorporated into the training. Gathering management's input is easily obtained even if a manager is unavailable for a face-to-face meeting because she can provide developers with document samples and business models (Boyd, "Tips to Make E-Learning Stick").

Once all of the information has been obtained, Boyd contends that the content must be engaging and include real world examples. An efficient way to create engaging content is to "have learners answer a few questions after each major concept to test their understanding throughout, not just at the end of a lesson" (Boyd, "Tips to Make E-Learning Stick"). If software

training is being conducted, Boyd's recommendation is to create job-related exercises to demonstrate how the software is used and have learners use the software to complete a series of exercises after each module. Once students have experienced the e-Learning environment, the design team can conduct surveys and incorporate some of the users' feedback to improve and revise the course. Boyd, like Porter, emphasizes the importance of making e-Learning dynamic so that it continues to meet evolving job needs.

Designing for the User

Another aspect of e-Learning that other authors have not mentioned is how to incorporate user experience into an application's design. L. Ravi Krishnan and Venkatesh Rajamanickam emphasize how important it is to incorporate experience (the way in which the self relates or connects emotionally to the world) in "Experience-Enabling Design: An Approach to e-Learning Design." According to the American Institute of Graphic Arts (AIGA) it is more important for developers to create conditions that support user experience than creating objects in design. This condition translates an e-Learning layout into an experience that psychologists feel is an important factor in learning and the creative thought process. Krishnan and Rajamanickam explain that "an e-Learning course can create a satisfactory experience only if it commands trustworthiness in the way it is designed, the content it presents, and the user perplexity it prevents." The methods for creating experience are to adopt experience as an outcome; create a common language; condense the gap from idea to outcome; and focus constituent parts towards a total experience. Expanding upon the criteria listed above ensures that developers and instructors are on the right track to developing effective content.

Another aspect that facilitates e-Learning development is creating a development team. "Developing e-Learning Content," by the Australian Flexible Learning Framework Quick Guides series, provides a specific skill set outline to follow when establishing a team. The skills to look for are "instructional design, content matter expertise, technical expertise, expertise in resource discovery and information management, and project management" (http://www.flexiblelearning.net.au/guides/content.pdf). After the team is assembled, another critical step is developing the content that the users will see. Some of the recommendations are establishing the assessment criteria that will be used for the students to demonstrate skills and understanding and at what phase of the learning they will be assessed; determining the technical and/or multimedia decisions; deciding on what will be presented on the screen and what the user will print and/or download; and assigning time allocations for each learning activity or module to ensure that the content is complete and clear. Following these ideas can assist the development team with accomplishing the tasks that they need to meet to facilitate the creation of a successful e-Learning environment.

The software that is used for an e-Learning environment should meet specific requirements that are established by the organization. Karl M. Kapp recommends five standards that an e-Learning environment should meet to be successful in any organization in "The e-Learning Market: It's About the Learner, Not the Instructor!" Kapp contends that maintainability, compatibility, usability, modularity, and accessibility are all critical for success. Maintainability is important because if it is difficult to update users or content in a system, then instructors will promptly abandon the application. It is also important for employees in the company to be independent of a vendor and have the ability to make updates and changes.

The second factor suggested by Kapp is compatibility. Make sure that if a vendor provides a product, that it is compatible with a majority of other e-Learning systems on the market. This feature also makes a company independent of the vendor for the lifetime of the e-Learning product and ensures that it "adheres to certain standards that are emerging within the industry" (4).

The third factor is usability, but it sometimes gets overlooked. Above all other criteria that comprise an effective system, it should be an easy-to-use solution. If this is not the case, then it is probable that learners or teachers will tend not to use it. Along with usability is the concept of modularity. The content that is developed should be reusable so that it can transfer from one course to another. This reduces production time and ensures that the content is usable because it has already appeared in other classes.

The final factor is accessibility which can cover two aspects of e-Learning. The first is to "make the program available to all individuals regardless of physical obstacles" (5) and ensure that the software complies with the Americans with Disabilities Act (ADA) Section 508 standards. The other aspect of accessibility is to make sure that users have the latest software installed on their workstations so that the content displays correctly. This process can be facilitated by developers working with an IT department to ensure that all of the requisite installations are made prior to an e-Learning launch.

When designing e-Learning programs, one of the greatest challenges is ensuring that people actually learn from them. To aid in the development process, Saul Carliner provides Seven "Bytes" of adult learning theory in <u>Designing E-Learning</u>. He stresses focusing the

content, clearly identifying the audience, and describing the learning context while keeping in mind some of the general characteristics of adult learners (82).

"Byte 1: Adult Learning Is Andragogy, not Pedagogy" is derived from a term popularized by Malcolm Knowles in 1988. Knowles's definition of andragogy references the art and science of teaching adults and encompasses the principles that e-Learning developers must address when preparing learning modules for adults (82). This term is quite different from pedagogy because it focuses on the adult learner, while pedagogy focuses on the art and science of teaching children.

"Byte 2: Adult Learners Are Pressed for Time" is applicable because adults have to make time for learning between work, family, and civic responsibilities (82). Even if adults have a strong desire to learn, the amount of time that they can actually spend focusing in front of a PC is limited. Adult learners benefit substantially from the "any time, any place convenience of e-Learning" and comprise one of its primary markets because of the flexibility it offers in their on-the-go lives.

"Byte 3: Adult Learners Are Goal-Oriented" and generally participate in learning programs to achieve particular goals that are either personal or work-related (82). This can pose a challenge to e-Learning developers because classroom trainers often begin training sessions by polling the class and gathering feedback about the students' goals. This is difficult to do with asynchronous e-courses, so e-Learning developers must conduct a comprehensive needs analysis to anticipate the learners' needs (82).

"Byte 4: Adult Learners Bring Previous Knowledge and Experience" and in some instances, they know some or all of the content. E-Learning designers can anticipate this by assessing what learners already know and incorporating ways that enable them to bypass familiar

content (82). Developers can also "tie new material to learners' existing knowledge and backgrounds to create a more powerful and relevant learning experience" (83). This can be done by referencing old content and adding new learning dimensions to it.

"Byte 5: Information Overload is Real" and while technology offers a wealth of learning options, the intricacies can detract from the experience. Carliner gives the example of passwords and how many learners have to use on a given day. There are passwords for the computer, voicemail, ATM, online banking account, gym locker, and the list goes on and on. Fortunately the human brain has an infinite long-term memory capacity, but everything stored there must go through the constrained capacity of the short-term memory (83).

Since learners' short-term memory capacity is limited to five to nine items, a developer must avoid overwhelming them by only asking them to memorize the most significant material (83). "Learners need to know where to find the less essential material when they need it" and the content that is not important can be eliminated all together (83). On the other hand, repeating content that is important for the learners to know helps reinforce learning.

"Byte 6: Adult Learners Have Different Motivation Levels" and when they first begin a job, they are highly motivated to learn. This motivation declines when the fear of failure sets in and they have difficulty "unlearning" old habits (83). It also diminishes as employees become more familiar with a subject.

"Byte 7: Adult Learners Have Different Learning Styles" and some prefer to "do" first and pick up content through trail-and-error; others want to learn everything first, perform the task, and hope that they have reduced the likelihood of errors when trying something new. Neither approach is entirely correct; they represent different learner's approaches (84).

Because it is generally not feasible for developers to create separate versions for each learning style—one for the learner who learns best by hearing, one for an auditory learner, one for a kinesthetic learner, and one for a visual learner—designers must incorporate a variety of strategies for presenting content. Over the course of the entire learning program, most learners' styles will ideally have been addressed once (85).

Another factor that improves the development process is if designers have the opportunity to be e-Learning students. In "Digital Language and Literacy: An Online Course Design Learning Community," Kristine Blair explains that developers should have the opportunity to be students to better understand "the learning style, motivation, alternative delivery, and assessment strategies necessary for course and student success" (131).

Once developers have e-Learning exposure, they can incorporate the seven principles of good teaching practice within electronic learning spaces:

1. Encourage contact between students and instructor.

2. Develop reciprocity and cooperation among students.

3. Encourage active learning.

4. Give prompt feedback.

5. Emphasize time on task.

6. Communicate high expectations.

7. Respect diverse talents and ways of learning (131).

Like Linda E. Moore, Shirley Waterhouse recommends "chunking" information in an e-Learning environment. This insight comes from her book, The Power of E-Learning: The Essential Guide for Teaching in the Digital Age. She says that "chunking" makes it easier for the

learner to process the information because if only lines and lines of text are used to structure the information, the learner will be less inclined to read it. She is also adamant that learners never have to scroll horizontally because they may miss critical content and her belief on this issue aligns with Chapnick and Meloy.

Waterhouse's structure of URL (uniform resource locater) links is particularly interesting because she feels that they should be placed in a centralized location so that users will avoid clicking on them while they are reading. If users are constantly navigating around to other information sources, they will be inclined to forget the material that they were reading before they navigated elsewhere. From Waterhouse's suggestions it is apparent that in e-Learning less is more and that the content's structure is very important to maximize the presentation.

<u>**Designing with Color and Graphics**</u>

Skills for Access, a collaborative Web site developed by two Universities in the United Kingdom that specializes in accessibility, usability, and digital media development, stresses the importance of avoiding color problems. Color is a critical factor when designing online learning environments because there are many groups of people with color blindness who may not be able to discern between specific color pairs. "Color combinations with insufficient contrast may result in material that is difficult to read and these same problems may be experienced by anyone accessing the content using a device that has limited (or no) capability to display colors" ("How to Avoid Color Problems"). For example, the text and images on a flat screen monitor can cause confusion and can look different from the same content on a CRT (cathode ray tube) monitor. Certain color combinations like blue and red can also cause a temporary problem called chromostereopsis for people without visual impairments ("How to Avoid Color Problems").

Color, however, should not be avoided and multimedia accessibility does not mean relying on black and white text. Developers should not rely on the requirement of color perception, but be sure to use color conventions that are recognizable to the audience without requiring color perception.

When creating templates and deciding on background/text pairs, developers should avoid colors at opposite ends of the color spectrum like combining red or orange with blue or purple. If there are doubts in the development process, tools like vischeck.com can be used to test how uploaded e-Learning content would be viewed with specific examples of color deficit ("How to Avoid Color Problems"). Some other testing options include adjusting browser settings to ignore colors, listening to content through a text-to-speech device, or printing screen shots using a monochrome printer ("How to Avoid Color Problems"). Once this testing is done, the developer can ask: Are features referenced by their color? If so, does the data still make sense when experienced without color ("How to Avoid Color Problems")?

After the instructional designers decide on the content's color scheme, the creative process of selecting and designing graphics begins. Tom Kuhlmann discusses effective graphics on The Rapid E-Learning Blog. In "3 Sure-Fire Ways to Make Your E-Learning Graphics Sizzle," he discusses the tools to use and how to make graphics pop off the screen by adding depth.

The tools that Kuhlmann recommends are Photoshop and Fireworks. If developers are on a budget, some free image and photo editing software alternatives like GIMP and Paint.Net are available. He says that when he uses Photoshop, the techniques he uses are independent of the application and most have similar features to do what he suggests. If developers require

advanced help they can search online for additional information and resources (Kuhlman, "Make Your Graphics Sizzle").

Kuhlman's first technique for adding depth is "instead of (inserting) the whole picture, just use cut outs." He says to remove the image from the background and when editing it, leave the background transparent. This type of background allows the designer to overlap other images and blend the screen with the background (Kuhlman, "Make Your Graphics Sizzle"). Using this method not only eliminates extraneous images that may distract the user, but it gives the developer the option of putting the graphic anywhere and increases the possibility that it can be reused.

The second technique is using bevels and drop shadows to add depth. This gives the "image more dimension and pulls it from the screen" (Kuhlman, "Make Your Graphics Sizzle"). Designers do not have to create their own graphics; many can be downloaded for free or for a nominal fee and edited to suit any situation.

The third technique is to add depth by changing the image's perspective. This process involves making a flat image standout on the screen by turning it so that it's diagonal (Kuhlman, "Make Your Graphics Sizzle"). This makes the content more interesting because it attracts the user's eye to the data and creates additional space that prevents the screen from becoming cluttered.

<u>**Writing for the User**</u>

In "Writing for e-Learning," Harry Calhoun recommends that the author's writing should stand on its own by being engaging and clear. He explains that it should "almost be a combination of the best technical writing (for clarity) and marketing writing (to interest the e-

learner in the material and impart information" (14). Some additional guidelines to incorporate

are:

- Follow general rules for good writing.

- Focus on learners' needs, learning design, and overall program intent.

- Keep writing short and stimulating.

- Develop a strategy for sequencing content.

- Ask questions based on course objectives (14).

There are differences between content for the Web, training materials, and textbooks.

Web site copy is meant to be scanned; training materials should be used by trainers; and

textbooks are used by learners to refresh their memories about what was taught in the classroom

(15).

When developers create content, they are helping students internalize the content and

making them pause and think about the illustrated concepts and principles. They also want to

make the learners experience situations presented in the program and provide them with

opportunities to solve problems and interact with ideas (15). Calhoun maintains that "online

writing is more conversational than traditional prose and is more akin to the spoken word than

grammar" (15). It is acceptable to convey messages through pictures rather than text. Short

paragraphs and one-word sentences that are seldom accepted in print are acceptable, even

encouraged, online (16). Since learners are inclined to skim content, writers must provide an

"easy read," one that is understandable on the first read-through so readers do not get lost.

Writers can use conversational language like 'you,' 'I,' 'our,' and 'we' (15). "Ruth Colvin Clark

and Richard E. Mayer, authors of e-Learning and the Science of Instruction: Proven Guidelines

for Consumers and Designers of Multimedia Learning, agree with Calhoun and cite that, in five studies, students who learned with personalized text performed better on knowledge transfer tests than students who learned with formal text" (16). Another point that Calhoun makes is to only include content that is part of the objectives. If a topic does not align, it should be eliminated because it could confuse the reader.

Writers need to have a solid foundation and clearly understand why they are writing the course. Questions that do not originate from the course goals are either inappropriate or represent objectives that should have been included but were not. In the latter case, the list of objectives should be revised to reflect this additional material (17).

> Colvin Clark and Mayer recommend that "Writers should ask themselves questions about their e-Learning task and their instructional objectives; as a writer, you need to understand why you are writing a course. Is its purpose to…
> - make learners recall information?
> - enable them to question their existing notions on the subject?
> - help them apply the knowledge that they have acquired based on their judgment of what they have learned?
> - persuade them to analyze what they have learned in relation to what they already know?
>
> Writers need to ask themselves how the course benefits the users and what they will be able to do after it's completed" (17).

There are many methods that developers can incorporate into an e-Learning environment along with these choices. As with any instructional technology, opportunities exist for designers

to use that will further enhance the experience for users and this information is discussed in the

next chapter.

CHAPTER 5: CONCLUSION

Since there is not a singular methodology that developers can apply to make e-Learning fit an organization's needs, it is imperative that the guidelines discussed in the preceding chapters are followed. This chapter focuses on summarizing those key components and discusses opportunities for further research. To ensure a successful online learning implementation, a sound project management team must be in place and these individuals need to be experienced not only in the areas of making sure that the project adheres to a schedule and a defined budget, but also in finding out about the users and centering the curriculum and design around them to meet their needs.

Key Elements in an Effective E-Learning Program

Once an organization has a plan for implementing an e-Learning program, the most difficult part is making it effective because there are so many options. There are extensive practices that make an e-Learning environment successful, ranging from the layout on the screen to creating content that appeals to particular learning personalities. While not all of the authors agree on every aspect of e-Learning techniques, there are many similarities that exist in communication methods, user motivation, and online structure. It is especially important to consider that the practices that work for one organization may not be relevant to another, but at least there are general aspects of e-Learning that are gradually becoming standardized.

Because there is not a singular methodology that developers can apply to make e-Learning fit an organization's needs, other measures need to be established to ensure a successful online learning implementation. These factors range from a sound project management team being in place with individuals who are experienced not only in the areas of

making sure that the project is launched on time and within the defined budget, but also in asking the right questions about the users, curriculum, and design.

There are different programs that rapidly develop online content and create simulations simply and easily; if instructional designers use these types of packages, they need to be aware of which e-Learning principles to adopt and those to avoid. Developing e-Learning involves more than just developing an online application, writing content, and tracking users' progress because learning methodologies must infuse every phase of the learning creation.

If instructional designers do not incorporate the correct information and sound learning principles during their e-Learning implementations, they will not only perform a disservice to their organization, they will waste valuable company resources because the content will be ineffective. These individuals need to be aware of budgeting principles such as costing benchmarks and be prepared to ask questions about the delivered content, Subject Matter Expert (SME) availability, and Learning Management System (LMS) specifications.

Once a budget is established, a sizable effort must be made to ensure that a capable project management team is in place to oversee the e-Learning implementation through from its inception to fruition. An e-Learning project incorporates two projects simultaneously: one is a software project and the other is a training project. The benefit of an online learning project is that it gets the correct stakeholders involved early in the process because the requisite parties need to be involved from the Information Technology department as well as from each department where the learners use the materials. Once all of these individuals commit to the project, they need to decide on a Business Case, a Project Plan, and a archetype of the content and then deliver it to the users to ensure that it accomplishes the agreed upon objectives.

E-Learning encompasses more than online content that it is informative and understandable. If it was as simple as this then it would be ubiquitous, and most pages on the Internet would be considered Web-based learning platforms. Users involved with online learning need to be empowered. The online experience can be beneficial to learners who are uncomfortable in a traditional learning environment because they do not have to communicate face-to-face with their peers or be concerned with who is answering questions the quickest if they are confused by the subject material. During a Web-based learning course, students do not feel a great sense of urgency to respond to questions. They can take time to reply to the forums and work independently as well as cohesively by doing peer reviews and self assessments to create communities of their own.

If instructional designers incorporate games into the e-Learning environment, it enhances the learning experience for the student because they can be designed to assess the learners' progress without having some of the negative connotations that are sometimes associated with formal testing implements. There are sound ways to optimize the use of games. Whatever approach is used, the games must create a sense of community and foster communication among the students because the users are empowered when learning is optimized and they feel comfortable in their online setting. Structuring games with clear objectives; providing a discernable beginning, middle, and ending; and making sure that the topics could occur in the learners' job activities are all important because these elements facilitate learning and enrich the time that students spend online.

Another factor that facilitates the learning experience is creating content that matches the students' personalities and materials can be developed that appeal to multiple types of learners.

Studies conducted in the United States and the United Kingdom that used the Myers-Briggs Type Indicator (MBTI) determined that students learn best when they are either a member of the introvert or the extrovert category. Based on these findings, the instructional designer should create content that incorporates theory and concepts along with applicable examples. Other research coincides with these findings because it focuses on learning styles based on learner personality and if developers are aware of these nuances, then they can design content that is appealing to everyone at some level.

Along with designing for the user on a cognitive level comes creating content that is visually appealing because it facilitates the learning experience. In the absence of an organized and consistent design, users may get confused and this uncertainty detracts from their learning because they will be more concerned with where to go and how to get there than with the course objective. Developers must pay special attention to design elements, like graphics, that are used sparingly because if there are numerous graphics with tenuous connections to the text, then they can distract the users. This confusion comes from them trying to make a logical association rather than focusing on the content's message. Other recommended methods that can be employed to combat any misunderstandings that users could encounter are to include a style that aligns with the corporation's culture and create a simplistic layout that provides a visual hierarchy which allows users to immediately identify the most important content. Structuring the content hierarchically and grouping similar information together is important because learners tend to skim online and due to this reading pattern, they can miss critical content due to poor design.

Another important factor of e-Learning development is blending user experience with application design. Findings made by the American Institute of Graphic Arts (AIGA) state it is more important for developers to create conditions that support how users experience the e-Learning content than designs that facilitate education. Once the experience is established it conveys a common language; condenses the gap from idea to outcome; and the design commands a sense of trustworthiness.

Once the design is established and the content is written, the development team has to ensure that what is distributed to the learners is effective. There are some learning theories that encompass Calhoun's Seven "Bytes" of Adult Learning Theory that instructional designers should follow to keep learning optimized. This methodology concentrates on streamlining the content, identifying the audience, and describing the learning context, while keeping in the mind general characteristics of adult learners. These characteristics or "Bytes" incorporate learning styles, motivation, prior experiences and knowledge, and time constraints. Once these "Bytes" are identified, during development the designer can incorporate elements of these characteristics to ensure that each style is addressed at least once in the curriculum.

Instructional designers should take the occasion to be students to ensure that they can relate on some level to the content they are developing. This practice enables them to relate to the users' experiences that impact style, motivation, and delivery; by reviewing the content from the students' point of view, developers can recognize what matters to learners and then incorporate it into the structure of the e-Learning environment.

When using graphics in e-Learning it is not only important to make them correlate with the content, but designers must ensure that the graphics have a range of color that users can

easily see and enough depth to convey the message of the content. Defining the depth of the image eliminates extraneous information within it that may confuse the learners and also increases the possibility that it can be reused in other modules or products that the corporation creates.

Another critical element of design is the prose style. When e-learning is created, technical communicators and instructional designers must be meticulous in their writing and ensure that it could stand on its own by being engaging and clear. This style of writing should almost be a combination of the best technical writing and marketing writing to create interest and impart information. It is also important for developers to factor in that sometimes e-Learning's sole purpose is to teach without the aid of an instructor or reference guide; therefore, the content must enable the learners to experience situations presented in the program and provide them with opportunities to connect with ideas. The following table defines the authors who share similar e-Learning concepts.

Table 1 Theorists Supporting Techniques

Theorists supporting technique	Category	Technique
Foreman and Porter	Motivational strategy	Create a sense of community
Kruse and Russell	Managerial strategy	Establish a diverse team and involve all of the critical resources early in the project
Keller and Suzuki, editorial author, Sloman, Hills, Kapp, and Bellon and Oates	Motivational strategy	Students' personalities contribute to learning motivation
Bellon and Oates and McEwen	Motivational strategy	Learners' must perceive the value of the course
Moore and Waterhouse	Design strategy	Group information into "chunks" for easier understanding
Waterhouse and Chapnick and Meloy	Design strategy	Do not make learners scroll horizontally on the page

Opportunities for Further Research

As with any technology, there are infinite possibilities for additional discoveries and methodologies to improve upon the experience for the learner. Statistical information that shows the amount of how many organizations and companies use e-Learning would be helpful to explore. The potential exists for the values to be used to justify implementing a project or these organizations could be contacted and a best practices exchange could occur between an experienced developer and a novice.

Another topic for research concerns creating branching scenarios within the e-Learning modules. These are useful because they give learners options when they are taking a course and do more than present the information in a demo. Depending on the amount of detail, these scenarios can take learners through situations that are applicable to certain jobs and provide feedback based on the users' input. When developers explore this educational option, the American Society for Training & Development (ASTD) recommends finding the right balance between complexity while still being able to manage the interaction. Developers must ensure that users do not become too involved with the scenarios and design ways to get them back into the core of the content.

The next possibility for research is discovering some of the disadvantages of e-Learning and how to deal with them. It is very possible that individuals who have an aversion to technology may feel threatened by it because it is different and they may believe that if information is available to everyone, at any time, then they are not as valuable to the organization. This could also happen if seasoned trainers feel intimidated by having users learn

outside of an traditional classroom environment. It is also possible that some topics might not be suitable for online learning due to their highly technical nature.

The final important area for e-Learning is to make the applications available on mobile electronics like cell phones and iPods. Companies like Adobe and Apple manufacture software like Flash Lite and iTunes respectively that enable distribution to devices other than computers. This delivery gives learners the option of being away from a computer terminal and still obtaining new information. Applications can be developed to fit on smaller screens with software like Flash Lite, or Podcasts can be created and downloaded using Apple's iTunes platform.

E-Learning is an extremely flexible teaching methodology. Once an organization has a plan for implementing such a tool, the most difficult part is making it effective. There are extensive practices that make an e-Learning environment successful and they range from the layout on the screen to creating content that appeals to particular learning styles. While not all of the research coincides with every aspect of e-Learning techniques, there are many consistencies that exist in communication methods, user motivation, and online structure. It is especially important to consider that the practices that work for one organization may not apply to another, but at least there are general aspects of e-Learning that may one day become standard.

As the field of e-Learning becomes more mainstream, there will be an increased demand for individuals who are knowledgeable about technology and effective teaching practices. The combination of the two will prove to be an invaluable skill set and increase personal career longevity as well as instill life-long learning in employees within organizations.

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