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Face-to-face training versus Web-based training : which instructional approach is better?

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Abstract

Training skilled employees is essential in determining the success of an organization. Determining which type of training, whether face-to-face or web-based, will best serve the needs of an organization remains an issue. This literature review will attempt to answer the questions, "How do adults learn; what is web-based training; what is face-to-face training; is web-based training more effective than face-to-face training; and can web-based training and face-to-face training be combined?"

FACE-TO-FACE TRAINING VERSUS WEB-BASED TRAINING: WHICH

INSTRUCTIONAL APPROACH IS BETTER?

A Graduate Review

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By

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ABSTRACT

Training skilled employees is essential in determining the success of an organization. When organizations seek to implement training programs, they choose the most effective and cost efficient forms of training. Determining which type of training, whether face-to-face or web-based, will best serve the needs of an organization remains an issue. The advantages from both forms of training may be effectively combined into blended learning, but the foundation necessary to support the successful facilitation of adults is the integration of adult learning principles into training.

There are many advantages and disadvantages of face-to-face and web-based training, but organizations must know the unique characteristics of adults and how they learn in order to create a successful learning program. This literature review will attempt to answer the questions, "how do adults learn; what is web-based training; what is face-to-face training; is web-based training more effective than face-to-face training and can web-based training and face-to-face training be combined?"

The information included in this review provides insight on how trainers use adult learning principles to facilitate adult learners, the challenges organizations face when implementing face-to-face or web-based training, and the advantages organizations have when combining both types of training.

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INTRODUCTION

Training skilled employees is essential in determining the success of an organization. Organizations who emphasize the importance of training are able to increase sales, improve productivity, and maintain a competitive edge over organizations who do not invest in training (Kapp & McKeague, 2002). As organizations move forward to increase training, they are not always aware of which form of training tools, whether face-to-face, web-based, or blended learning to adopt.

The discussion of what form of training tools to adopt will remain an issue as organizations increasingly favor web-based training over face-to-face-training. Organizations have discovered that no single delivery method is appropriate for all types of training. Both forms of training have both advantages and disadvantages, yet the best advantages of both forms of training may be effectively combined into blended learning (Kapp & McKeague, 2002).

Blended learning, like face-to-face and web-based training, involves training tools which must be properly assessed to determine if they meet the training objectives of the organization. The adoption of a blended learning approach does not guarantee the success of a training program. What makes any training program good or poor depends on how well it is designed, delivered and conducted, not whether the program is face-to-face, web-based, or follows a blended learning approach (Moore & Kearsly, 1996). Second, the integration of adult learning principles helps to provide organization and structure to the curriculum to accommodate the prior learning experiences of adult learners. Moreover, it increases the chances of adults completing the training program because they control the environment and the pace of instruction.

The purpose of this literature review is to examine the importance of adult learning principles as they relate to training, determine the advantages and disadvantages of face-to-face and web-based training, uncover reasons why web-based training cannot replace face-to-face training, and show how the best advantages of both forms of training may be combined to form blended learning.

METHODOLOGY

Several methods were used to locate reliable and valid sources of information on training, adult education, and blended learning. The information used in this review included using the Internet, searching databases such as, the Educational Resources Information Center (ERIC), PROQUEST, INFOHAWK, and UNISTAR, using a metacrawler search engine known as Dogpile, reviewing scholarly articles from journals, examining articles from the web sites of well-established organizations, such as the American Society for Training and Development (ASTD) and the International Society for Performance Improvement (ISPI), and reviewing books from respected authors within the field.

The rationale for selecting these sources came as a result of an interest in the topics of web-based training and face-to-face training. Secondly, the identification of the literature was necessary to fully support each discussion within the review.

The procedure used for analyzing data was based on three sources. First, the phrases of *training*, *blended learning*, and *adult education* were entered into databases as descriptors or keywords. The primary source of this information was retrieved from the University of Northern Iowa's Rod Library catalog UNISTAR and ERIC databases. The second most prodigious source of information was retrieved from InfoHawk, at the

University of Iowa's Library, using specialized and general indexes. Authors of respected

scholarly books and journals were used to support the topics in the review. Finally, the

researcher searched the websites of well established organizations, such as ASTD and

ISPI for additional resources.

The criteria used to evaluate these sources consisted of the following:

1) the publication and research date

2) current professionals in the fields training and adult education

3) the credibility of the author, journal, and other resources

ANALYSIS AND DISCUSSION

Adult Learning

First pioneered by Malcolm Knowles (1975, 1980), adult learning principles

highlight the unique characteristics of adults, their needs, and how they learn. By

understanding the learning process of adults and how the brain functions at its peak, The

American Society for Training and Development (2000) indicated that "Trainers can

create cost-effective programs with extraordinary creativity and power that will

accelerate learning" (p.3).

Adult learning principles help to provide a theoretical framework for training

programs (Simonson, Smaldino, Albright & Zvacek, 2003). This framework provides a

foundation necessary to support the facilitation of adult learners. It also helps by

organizing and structuring the curriculum to accommodate the prior learning experiences

of adult learners.

Knowles (1980) emphasized that adults bring a great deal of background

experiences and prior learning to any new learning process. When adults are introduced

to new instructional material, "The brain has a predisposition to search for how things make sense and automatically looks for meaning in every experience" (American Society for Training [ASTD] 2000, p. 4). These experiences and prior learning may not relate directly to the new instructional material. The trainer uses his/her knowledge of adult learning principles to assist adults in making connections between their prior learning experiences and the new instructional material. More importantly, trainers who have a better understanding of what defines an *adult* and the characteristics of adult learners can be better prepared to facilitate adult learners.

<div style="text-align: center;">*Definition of an Adult*</div>

Knowles (1980) determined there were two ways to define an adult by giving social and psychological definitions. The social definition states "A person is an adult to the extent that the individual is performing social roles typically assigned by our culture to those it considers to be adults-the roles of worker, spouse, parent, responsible citizen, soldier, and the like" (Knowles, 1980, p. 24). Knowles (1980) defined the psychological definition "As a person is an adult to the extent that the individual perceives herself or himself to be essentially responsible of her or his own life" (p. 24). Both definitions of adult learners help to provide insight into the unique characteristics of adult learners. Nevertheless, Driscoll (1998) identified these unique characteristics as follows:

1. *Real-life experiences.* Adults bring a wealth of real-life experience to training which consists of education and work experiences. These experiences will be a resource for learning the trainer will use for teaching and developing instructional materials.

2. *Problem-centered learning.* Adults are motivated to learn as a response to

problems in their lives. As a result, trainers must organize the content around the problem area.

3. *Continuous learners.* Adults are continuously learning to solve problems and negotiate changes in their lives.

4. *Varied learning styles.* Adults prefer to learn in a variety of ways and different settings. There is no one "correct" method of learning. Trainers should utilize different instructional techniques to address different learning styles of their audiences.

5. *Responsibilities beyond the training situation.* Adults have responsibilities and obstacles in the form of community, family, and workplace commitments. All of these responsibilities and obstacles reach beyond the confines of the training program and may affect their learning.

6. *Meaningful learning.* Adults expect trainers to develop and instruct training programs around exercises and examples based on real-life problems, actual situations and applications. Adults can relate to a training programs based upon these qualities and immediately apply what they have learned. (p.14-15)

Andragogy vs. Pedagogy

Knowles (1980) defined the term, andragogy, as the art and science of helping adults learn. He defined the term, pedagogy, as the art and science of teaching children (Knowles, 1980). What separates the two terms is the amount of experience and control adults have over their environment. Knowles (1980) indicated that andragogy differs from pedagogy in four distinctive areas: concept of the learner, role of learners' experience, readiness to learn, and orientation to learning.

Table 1: A Comparison of the Assumptions of Pedagogy and Andragogy.

Regarding:	Pedagogy	Andragogy
Concept of the learner	The role of the learner is a dependent one. The teacher is expected by society to take fully responsibility for determining what is to be learned, how it is to be learned, and if it has been learned.	It is a normal aspect of the process of maturation for a person to move from dependency toward increasing self-directedness. Teachers have the ability to encourage and nurture this movement. Adults have a deep psychological need to be generally self-directing, although they may be dependent in particular temporary situations.
Role of learners' experience	The experience learners bring to a learning situation is of little worth. It may be used as a starting point, but the experience from which learners will gain the most is that of the teacher, the textbook writer, the audiovisual aid producer, and other experts.	As people grow and develop they accumulate an increasing reservoir of experience that becomes an increasingly rich resource for learning-for themselves and for others. People attach more meaning to learning they can gain from experience than those they acquire passively. Primary techniques in education are experiential techniques-laboratory, experiments, discussion, problem-solving cases, simulation exercises, field experience, and the like.
Readiness to learn	People are ready to learn whatever society (especially the school) says they ought to learn, provided the pressures on them (like fear or failure) are great enough, Most people of the same age are ready to learn the same things. Therefore, learning should be organized into a fairly	People come ready to learn something when they experience a need to learn it in order to cope more satisfyingly with real-life tasks or problems. The educator has the responsibility to create conditions and provide tools and procedures for helping learners discover their

	standardized curriculum, with a uniform step-by-step progression for all learners.	"needs to know". Learning programs should be organized around life-application categories and sequenced according to the learners' readiness to learn.
Orientation to learning	Learners see education as a process of acquiring subject-matter content, most of which they understand will be useful only at a later time in life. The curriculum should be organized into subject-matter units which follow the logic of the subject (e.g., from ancient to modern history). People are subject-centered in their orientation to learning.	Learners see education as a process of developing increased competence to achieve their full potential in life. They want to be able to apply whatever knowledge and skill they gain today to living more effectively tomorrow. Learning experiences should be organized around competency-development categories. People are performance-centered in their orientation to learning.

Note. From Modern Practice of Adult Education: From pedagogy to andragogy (p.43-44) by M. Knowles, 1980, Chicago: Association Press.

Barriers to Participation in Adult Education

Since the 1920's numerous studies have been conducted at the local, state and national levels, identifying why adults participate in education programs (Merriam & Caffarella, 1991). Understanding why adults do or do not participate in adult education programs will give employers, trainers, and designers more information about the obstacles and barriers adults face in extending their learning.

Merriam and Caffarella (1991) have indicated the two most socially acceptable reasons for nonparticipation in adult programs were lack of time and money. Cross (1981), using the data from the Commission on Nontraditional Study, identified obstacles which prevent adults from participating in adult education programs. These obstacles were classified as follows:

1. *Situational barriers.* Situational barriers are those arising from one's situation in life at a given time. These obstacles my be related to community, family, workplace commitments.

2. *Institutional barriers.* Institutional barriers are related to the workplace. They consist of all those practices and procedures that exclude or discourage working adults from participating in educational activities-inconvenient schedules or locations, full-time fees for part-time study, inappropriate courses of study.

3. *Dispositional barriers.* Dispositional barriers are those related to attitudes and self-perceptions about oneself as a learner. Examples of a dispositional barriers may include age, physical health, and gender. (p.98)

More importantly, Merriam and Caffarella (1991) have concluded that sociological and psychological factors have also accounted for nonparticipation in adult learning programs.

How Do Adults Learn?

As mentioned earlier, adults typically bring prior learning experiences into any new learning process, but an environment conducive for learning is a crucial element needed in order to facilitate learning for adults. Brookfield (1986) identified the importance of the environment by identifying principles of effective practice for adult learning:

- Voluntary participation

- Mutual respect

- Collaboration

- Self-direction

- Control over learning environment

- Action and critical reflection (p.11-19).

Kidd (1973) concluded that the quality of learning is influenced by environmental and organizational factors. In any learning situation, adult learners want to establish the maximum amount of control over their learning environment and organizational factors. This allows learners "To set their own pace and select the content they wish to pursue" (Thomson, 2002, p.6). Hence, adult learners are able to meet timeframe requirements without a rigid schedule and progress at their own pace (Thomson, 2002).

Another important environmental factor critical to the success of adult learners is a supportive environment where the participants, including the trainer, can freely exchange ideas and information. This may be accomplished when the trainer moves from the role of instructor to coach or mentor whose main function is to maintain a creative, yet respectful, environment where opinions are valued. Any environment where the learner has developed negative feelings, emotions, and attitudes may impede the learning process (Brewer, DeJonge, & Stout, 2001).

Knowles (1975) promoted the concept of self-directed learning for adults. Self-directed learning can be described as "A process in which individuals take the initiative, with or without the help of others in diagnosing their learning needs" (p.18). This concept allows adult learners to create learning objectives that would enable them to set individual goals and practice using what has been learned in a practical way. Moreover, Knowles created the concept of a learning contract to help develop adults into self-directed learners (Knowles, 1975). This contract allows the participants to identify and

write personal goals and determine how to meet those goals. Upon the completion of training, participants have the opportunity to reflect upon those goals, accomplishments, and determine what they may do differently in order to maximize the learning process.

Critical reflection is another important element of adult learners. The concept of critical reflection may be described as thinking and feeling activities which allow the learners to explore their experiences in order to develop a deeper understanding (Taylor, Marienau, & Fiddler, 2000). Dewey (1933) developed the concept of critical reflection as a way of considering the actions of the learner in order to promote change and growth. However, Taylor and Marienau (2000) suggested that participants do not learn from their experiences, but from reflecting upon them. This may be accomplished by documenting experiences in a reflective journal. Reflective journals help learners document changes in their feelings and actions over a period of time, which may determine their overall growth and development. When journals are shared with the trainer and other participants, it provides insight into the problems experienced by the learners and an informal evaluation of the trainer.

Face-to-Face Training

What is Training?

Rossett and Sheldon (2001) defined training as, "What the organization provides to help employees to become more effective and satisfied individuals and employees" (p. 9). Training is often seen as work or job related and may be formal or informal (Cook, 2002). Giguere and Minotti (2003) emphasized the goal of training "…is to improve skills, enhance learning and understanding, and change attitudes and behaviors over time" (p.1).

Training is considered one of the most important aspects in determining the success of an organization. It is considered so important that Michael Moe, Director of Global Growth Research at Merrill Lynch, considered training the "Number one source of competitive advantage in today's economy" (cited in Kapp & McKeague, 2002, p. 2). Several other experts believe that training enhances an organization's ability to learn faster than one's competitors and maintain a competitive advantage over organizations who do not invest in training (Kapp & McKeague, 2002).

There are several reasons organizations must focus on training. One of the strongest reasons is called the half-life of knowledge. Kapp and McKeague (2002) defined the half-life of knowledge as, "The time span from when knowledge is gained to when it becomes obsolete" (p. 2). Since the amount of knowledge has doubled in the past 10 years and doubles every 18 months, this means that information learned today in training will become obsolete and must be replaced with newer instructional material (Kapp & McKeague, 2002).

Another reason stems from the increased pressures felt from the federal government to train employees on topics, such as safety and sexual harassment. Topics such as these are considered necessary to address "Before they endanger people, relationships, reputations, or productivity" (Rossett & Sheldon, 2001, p. 13). Since government rules and regulations are constantly changing, organizations must respond by developing training programs to meet the government's standards. Failure to comply would result in governmental fines, penalties, and legal action against organizations.

Globalization remains another reason companies must focus on training. The demand for training increases, when organizations seek to expand their markets outside

of the United States. Driscoll (1999) emphasized "Most Fortune 500 companies have offices and competitors around the world" (p.2). Training allows these organizations to help prepare employees for work and other unseen circumstances they may encounter when negotiating with customers outside of the United States (Rossett & Sheldon, 2001).

What is Face-to-Face Training?

Face-to-face training can be described as the traditional classroom where both trainer and student share the same physical space. Instructional material is delivered and supported with tools, such as chalkboards, projectors, films, and handouts (Dainels & Salisbury, 2002).

Face-to-face training was once the major form of training employees before the progression of technology. In 1997, Training Magazine's annual training census (Industry report, 2000) reported that "81 percent of training in organizations with more than one hundred employees occurred in the classroom" (cited in Rossett & Sheldon, 2001, p. 10). The literature reviewed revealed that the integration of more technology into training, face-to-face training had slipped to 70 percent, by 1998 (Rossett & Sheldon, 2001).

Technology has created a number of options for training and development. These allowed instructional material with various forms of technology, such as e-mail, listervs, and threaded discussions to assist in the delivery of the content. Organizations responded to these newer forms of technology by integrating more web-based training, to provide a more efficient and economical way of training employees.

As mentioned earlier, as the need to expand training markets increases so does the demand for web-based training. As organizations struggled to met the demands of rapidly changing governmental rules and regulations, globalization, and control costs, it became

more evident that, "Traditional training methods are no longer able to satisfy the demand for continuous staff development and re-skilling. The growth of open and distance learning methods across all industries demonstrates the demand for non-traditional training" (Little, 2001, p.3).

Advantages of Face-to-Face Training

While web-based training may be favored by organizations because of its flexibility and ability to save money, face-to-face training presents a number of advantages over web-based training. An advantage face-to-face training presents is a high degree of socialization which happens between the trainer and the learners and the learners among each other (Kapp & McKeague, 2002).

Face-to-face training is one of the most effective methods for teaching problem solving skills (Kapp & McKeague, 2002). When students do not comprehend the instructional material, the trainer has the ability to observe the students and the body language exhibited during training sessions. Driscoll (1998) emphasized "It is an intuitive human response to stop and ask about the problem" (p. 158). This allows the trainer to temporarily stop the lesson and respond to questions from the participant.

One of the most important advantages face-to-face training has over web-based training is the transmission of an organization's norms and culture. Driscoll (1998) emphasized that "Traditional instructor-led training does more than train people, it plays an important role in passing along the corporate culture making people feel like part of the company" (p. 5).

Disadvantages of Face-to-Face Training

While face-to-face training presents a number of advantages, it also has a number of shortcomings in the areas of cost, flexibility and time, and learning and understanding. The cost of creating face-to-face training is an expensive endeavor. Organizations often incur travel-related expenses such as; airline tickets, hotel rooms, rental cars, and meals (Driscoll, 1999). This amount does not include what organizations must spend to acquire the facility where training sessions will be conducted and hiring trainers, subject matter experts, and other staff.

Another disadvantage face-to-face training presents is delays in training. Some organizations can take up to a month from the time a new employee is hired before they attend training, while the organization's policy may state that training should occur in the first few days of being hired. Kapp and McKeague (2002) indicated "The main cause of the delay was scheduling conflicts between the departments and the trainers" (p. 5). This creates a potential problem with maintaining consistency in training, which ensures that employees have access to information and have an understanding of the same instructional information.

Instructional consistency remains a problem associated with face-to-face training. A topic taught by one instructor on a particular day, may not be taught in the same manner when repeated by another instructor on another day. It is important that employees receive consistent instruction, especially when teaching topics relate to federal rules and regulations and sexual harassment.

Another problem associated with face-to-face training in the areas of learning and understanding is the relatively small amount of time devoted to instruction. It is estimated

that face-to-face training loses up to 40 percent of its instructional time on non-instructional tasks, which include emergencies and interruptions (Kapp & McKeague, 2002). Each time a training session is interrupted it slows the pace of the class and may halt the learning process. When this happens "The instructor is rarely able to stop the class and repeat the instruction" (Kapp & McKeague, 2002, p. 6). As a result, students may miss a vital part of training they may never recapture.

Finally, with face-to-face training it is difficult to track employee performance. Normally, organizations do not conduct performance assessment after face-to-face training. This means that employees begin applying what they have learned in training to their jobs. When organizations attempt to track employee performance, "It becomes an administrative nightmare for the training department who has to record each employee's score and keep those records for auditing purposes" (Kapp & McKeague, 2002, p. 6). However, the inability to track employee performance and training means that the organization will not be able to determine if an effective transfer of training has occurred. Caffarella (1994) described a transfer of learning as "The effective application by program participants of what they learned as a result of attending an educational program" (p. 108).

<center>Web-Based Training</center>

<center>*What is Web-Based Training?*</center>

Giguere and Minotti (2003) defined web-based training as, "The use of the World Wide Web for training purposes that can be delivered anytime, anywhere to anyone with access to an Internet-enabled computer" (p. 1). This means that employees may access

instructional materials anywhere, either off or on the job at their convenience, as long as they have access to an Internet-ready computer.

The success of the use of web-based training is wide spread and its effectiveness is well documented. In fact, web-based training has proven to be quite successful with retention and comprehension rates of 25 to 60 percent when compared to instructor-led or face-to-face training (Dainels & Salisbury, 2002).

As the need to expand training markets increases, the demand for web-based training will continue to grow. Urdan (2000) indicated, "The online training market is expected to double in size every year" (cited in Hassett, J., Hassett, M., Ingram, A.L., & Marino, E., 2003). According to Jefferies & Company, a leading investment bank, by 2005 the web-based training market will reach $28 billion (cited in Sauer, 2001). It is expected to represent at least 22 percent of the corporate training market as companies shift from instructor-led training to web-based training (Sauer, 2001).

Types of Web-Based Training

Before web-based training is implemented, trainers and administrators must decide which type of web-based training meets the instructional needs of the organization. Driscoll (1999) described four types of web-based training.

1. Web-based/Computer–based training (W/CBT). Web-based/Computer-based training is the most common form of web based training, yet similar to traditional computer-based training programs. Learners engage in self-paced programs and interactions that are either controlled by the learner or by the program, based on responses.

2. Web/Electronic performance support systems (W/EPSS). Web/Electronic performance support systems consist of online job aids that provide step-by-step instructions using tools such as: hypertext documents, JAVA based calculators, e-forms, databases and other tools to provide information and to help employees solve problems.

3. Web/Virtual asynchronous (W/VAC). Web/Virtual asynchronous allows students and instructors to engage in collaborative learning activities without being online at the same time. Class members work at their convenience and communicate using asynchronous communication tools, such as e-mail, online forums, bulletin boards, and listservs.

4. Web/Synchronous classroom (W/VSC). Web/Synchronous classroom is similar to a traditional instructor-led classroom, however, the instructor and the classes are online at the same time participating in live discussion, debates, and brainstorming (p.3-10). Web/Synchronous classrooms have been simplified with the adoption of Course Management Systems (CMS) or Online Course Management Systems (OCMS). Mackie (2004) described (OCMS) as a system which "Integrates various components into an application that the participant, (facilitator/instructor, or student) can access online. Some of these components are: syllabus, schedule, assignments, notes, and gradebook" (p.3). Two examples of (CMS) and (OCMS) are Blackboard and WebCT. Both commercially developed computer tools have changed traditional teaching methods into a virtual operation used to deliver e-learning content (Jafari, 2000).

Types of Interactions

When designing web-based training, it is important to match the training with the appropriate type of interaction. These interactions represent an important part of the delivery and communication processes between the trainer and the participants. This is considered necessary to facilitate the learning process and as part of an effective training program. Driscoll (1998) emphasized "Interactions make learning active rather than passive and they provide learners and the instructor with feedback" (p. 101). In web-based training these interactions may be synchronous or asynchronous.

The American Management Association (2003) describes synchronous learning as, "Real-time, instructor-led online learning in which all participants are logged on at the same time and communicate directly with each other and the instructor through the computer and possibly other means as well" (p. 8). This implies that synchronous interactions are similar to the traditional face-to-face training inside the classroom. Synchronous learning requires the use of tools, such as Internet relay chat (IRC), live audio, application sharing, white boards, and video conferencing. One advantage of this form of interaction is to bring both the learner and trainer together to become apart of a community, which "Reveal the tone and personality of learners and create a greater sense of presence" (Driscoll, 1998, p.146).

A disadvantage this type of interaction presents is the inability of the learner to train at his/her convenience. Synchronous learning requires the learners to be proficient writers, have the ability to express themselves quickly, and possess excellent typing skills. Failure to possess these skills may result in a missed opportunity for the learner to respond to a comment, which must be done in a short amount of time. In addition, since

learning takes place in real time, "The interactions do not allow learners time to review their prose" (Driscoll, 1998, p. 150).

The American Management Association defines asynchronous learning as, "A more or less self-paced learning environment in which learners are accessing programs online at different times and cannot communicate without a time delay" (2003, p. 8). Asynchronous learning involves the use of online tools, such as e-mail, listserv, online threaded discussions/forums, hypertext/media, and quizzes/tests (Driscoll, 1998). Since the learner and the instructor are not required to be online at the same time, there is a reciprocal form of communication among the learners as well as the instructor. Incidentally, this represents an advantage of asynchronous learning, because learning is self-paced and instruction takes place at the convenience of the learner.

A disadvantage that asynchronous learning presents is the "Limited interaction with the facilitator or other learners" (Valdez, 2001, p.4). Since the trainer and the participants are not required to be on-line at the same time, this may result in immediate or delayed feedback. Asynchronous learning requires "Time for the instructor and other learners to respond to listserv, forum, and e-mail messages" (Driscoll, 1998, p. 103).

Advantages of Web-Based Training

Driscoll (1999) emphasized the tactical and strategic benefits for companies who use web-based training. Tactical advantages are often associated with a reduction in cost. This indicates the primary reason companies prefer web-based training over face-to-face training is due to its ability to save money and potentially offer a higher return on investment (ROI). An example of a strategic advantage is the flexibility associated with the web-based training. Another distinctive advantage of web-based training is the ability

to "Cater to each learner's preferred learning style by providing multiple paths to learning" (Little, 2001, p.3).

According to authors Giguere and Minotti (2003), the advantages of web-based training can be determined in the areas of flexibility and time, cross-platform access and varied software, learning and understanding, and cost. Flexibility and time refers to the ability to design and establish training at a convenient time for the learner. Cross-platform and varied software may be associated with the versatile nature of web-based training accessed on different computer platforms, such as Windows and Macintosh (Hall, 2004). Learning and understanding refers to the degree to which web-based training may be modified to address different learning styles. Cost may be described as the amount of money used to acquire personnel, hardware, software, and other items.

Flexibility and Time

Web-based training is considered location-independent (Dainels & Salisbury, 2002). Training can occur anytime and anywhere there is Internet access. Learning can occur at the individual's pace, not the instructor's, and difficult material can be reviewed at any time without disruption to other learners. Another advantage web-based training presents is that it enables life-long learning (Rossett & Sheldon, 2001). When an individual desires to learn a new hobby or skill, web-based training can accommodate the learner by providing options of learning continuously at home and the workplace. Web-based training allows an individual to freely communicate with colleagues, experts, and other individuals they ordinarily would not communicate with (Giguere & Minotti, 2003).

Moore and Kearsly (1996) describe life-long learning as a different view of education, which developed from the early twentieth century "schooling model" of education in North America. This early schooling model was designed for students to "Attend school for most of their youth to be prepared for the adult world of work, family, and social responsibilities" (Moore & Kearsly, 1996, p. 238). The early schooling model first changed to life long learning when professionals, such as attorneys, engineers, farmers, and physicians needed to continue their education in order to advance in their professions (Moore & Kearsly, 1996). Later as technology became more advanced, the demand for continuing education increased. As a result, face-to-face training or the "traditional classroom cannot cope with the sheer size of such demand for continuing education" (Moore & Kearsly, 1996, p. 238).

Cross-Platform and Varied Software

Web-based training may be accessed by web browsing software on several different computer platforms, such as Windows, Macintosh, and Unix (Hall, 2004). Once training is delivered over the Internet the trainer does not have to modify the training for each platform used. Giguere and Minotti (2003) indicated that "Web-based training may be accessed using many of the common web browsers, including Netscape Navigator, Internet Explorer, America Online, Lynx, and other free proprietary software" (p. 2).

Learning Understanding

Web-based training allows individuals to have more control of their own learning by accommodating a student's learning style (Dainels & Salisbury, 2002). Since learners have more control over their own learning, the responsibility for learning is even greater on the part of the individual. In web-based training, emphasis is placed on a learner-

centered approach, which means the learner takes an active role and has "Access to real world examples, databases, experts, and additional sources of online information" (Giguere & Minotti, 2003, p. 2).

Cost

Web-based training eliminates costs associated with travel and facility fees, and shortens the hours of training instruction. It is estimated that the reduction in training cost "Ranges from 20-80 percent, with 40-60 percent being the most common" (Kapp, & McKeague, 2002, p. 9).

Coincidentally, companies implementing web-based training often incur what is referred to as opportunity cost. Driscoll (1999) defined opportunity cost as, "Revenues that are lost as a result of chasing one option over another" (p.2). When this occurs a company experiences a loss of profits or revenues, as a result of their employees attending training.

Web-based training can be updated and recycled, which "Ensures that changes are uniform and that learners have access to the most current training materials" (Driscoll, 1998, p. 6). Finally, the costs of duplicating, packaging, and mailing instructional materials are eliminated as a result of web-based training (Driscoll, 1998).

Disadvantages of Web-Based Training

Web-based training requires learners to become more familiar with new technologies before engaging in instruction (Giguere & Minotti, 2003). When the learner is uncomfortable learning new technologies and working with different operating systems, such as personal computers, they may never be able to move beyond the first initial stages of training. Consequently, web-based training requires both trainers and

designers to adapt to instructional materials offered through the web. Using a web-based medium requires a change in teaching style and different instructional strategies.

In addition, learners will experience time lapses while waiting for responses from the trainer as well as other learners (Giguere & Minotti, 2003). This is especially true when participants are engaged in asynchronous learning.

Web-based training may leave some individuals feeling isolated as a result of not being in the same place with the trainer and other learners (Giguere & Minotti, 2003). Since learning is viewed as a social process, it is apparent that "Web-based training does not provide the type of interaction that can be a critical aspect of a well-rounded training encounter" (Dainels & Salisbury, 2002, p. 816). As a result, some participants may experience difficulty concentrating on the instructional material without a structured classroom (Giguere & Minotti, 2003). This produces a great deal of frustration for the participant and increases the learner's chances of dropping out of the course.

Designing web-based training is more expensive than face-to-face and determining the breakeven point for an investment is considered harder to estimate (Giguere & Minotti, 2003). According to the U.S. News Report (2002), one customized web-based training program can cost anywhere from $25,000 to $50,000 (cited in Kapp & McKeague, 2002). Web-based training programs require the expertise of trainers, designers, and other professionals to design, develop, and deploy the instructional material (Driscoll, 1998). Consequently, companies designing web-based training will spend additional funds to acquire software, hardware, and other resources. These companies must spend additional costs to develop web-based training are referred to as the cost of development. Marty Murrillo, a sales manger at iPlanet, the Sun/Netscape

Alliance, indicated the "Design development, and delivery represent about 20 percent of the cost the tip of the iceberg. The other 80 percent, the unseen base of the iceberg, are the hidden cost of content maintenance, infrastructure, equipment, and content updates" (cited in Rossett & Sheldon, 2001, p. 204).

Companies implementing web-based training often experience a high drop out rate of their employees. These drop out rates are attributed by several factors, which include "Poor incentives to learn, lack of accountability for completing classes, problems with technology, and the inability of a poorly designed courseware to hold a person's attention" (Zielinski, 2000, p. 66). Experiencing any one of these unpleasant factors may possibly send participants back to the classroom for face-to-face-training. This is especially true for those who are experiencing web-based training for the first time. Zielinski (2000) indicated six reasons why learners bail from web-based training.

1. *No incentive*. Lack of compelling reasons, such as money and career advancement may leave employees with little motivation for remaining in web-based training.

2. *Lack of connectedness*. Participants prefer to be connected to their peers and to the trainer. A feeling of being isolated from the instructor and other participants may cause some to drop the course.

3. *Learner preference.* Many people prefer instructor-led training. Participants want to feel connected to the instructor and have the opportunity to socialize and network with peers. This produces an exchange of concepts, ideas, and information.

4. *Poor course design.* A majority of online training may not be engaging enough for the learner (Zielinski, 2000, p.72). Poor website design and cognitive overload

are some of the reasons participants "Tend to get lost and distracted in cyberspace" (Rossett & Sheldon, 2001, p.195).

5. *A chunk is enough.* Online learners may choose to take from any given course only the content they need to learn a certain skill and decide to drop the rest of the content. This may be the concept of web-based training, but may not be perceived as enough for the learner.

6. *The perk factor.* Participants may drop out of online course when the completion of the course is not necessary to qualify for advancement or keep specific jobs. (Zielinski, 2000, p.72)

Is Web-Based Training More Effective Than Face-to-Face Training?

The Thomson Learning Corporation (2002) conducted a two-year study based on current instructional design, learning style, training evaluation research, and theoretical significance (p.1). The primary research objectives of the Thomson Job Impact Study were to: determine performance differences on real-world tasks among learners who received blended learning versus e-learning or no training and to determine if there is any time performance differences on real-world tasks among learners who received blended learning versus e-learning or no training.

The study measured learning results from 128 participants from both academic and corporate organizations which included: Lockheed-Martin, National Cash register, Utah State University, University of Limerick, Ireland, Anoka-Ramsey Community College, Minnesota, Executive Service Corps of Chicago, and Knowledge Pool (Barbian, 2002).

In order to compare e-learning with a blended learning approach, the Thomson study focused on teaching elements of Microsoft Excel to three different groups of people in order to measure on-the-job productivity (Barbian, 2002). Group one received a blended learning course which consisted of five scenario-based exercises (SBEs) "That provided a realistic business situation outlined for the learners to attempt by using the 'live' Excel application that could be applied to real-world tasks" (Barbian, 2002, p. 2). Arranged in order of progressing difficulty, SBEs were considered core to the structured blended learning model developed for the Thomson Job Impact study (Thomson, 2002). More importantly, Scenario-based exercises allowed access to web-based training and the use of a facilitator/mentor.

Group two completed an e-learning Excel Fundamentals course, with no SBEs. Group three was used as a control group to bench mark on-the-job performance, but did not receive any training. Groups one and two were similar because they completed a database application post-assessment and all three groups completed three real-world tasks (Thomson, 2002).

The results from the two-year evaluation concluded that SBEs gave learners an advantage over online instruction (Barbian, 2002). Group one, (the blended learning group) performed 30% more accurately than Group two, (the group receiving e-learning alone). Group 2, performed 159% more accurately than group three, (the control group). In determining the secondary goal of the study, time performance differences, the study found the blended learning group completed real-world tasks 41% faster than the e-learning group.

In another investigation, Coppola and Myre (2002) conducted a study to evaluate the effectiveness of web-based training as a stand alone alternative to traditional face-to-face training in a corporate environment. This study used the theories of Gagne and Medsker which were based upon the five categories of human learned capabilities. These categories consist of verbal information, intellectual skills, motor skills, attitudes, and cognitive strategies (Coppola & Myre, 2002).

First, twenty participants were solicited for the study and divided into two groups, those who would receive instructor-led training and the other half web-based training. The participants were administered a pre-test designed to measure the participants' prior experience with computers and to determine their overall attitudes towards computers and training. After the participants received the instructor-led and web-based training portions, they were administered a post-test. The post-test was based upon data provided in the field test form, which were divided into four sections. The maximum score for each section was twelve points, while the number of points earned for the test was thirty-nine. The results for the test indicated that participants for web-based training scored 37.5 while participants who received instructor-led training scored 37.3. The participants who received web-based training scored slightly higher than the participants who received instructor-led training. Coppola and Myre (2002) indicated the following were needed to ensure the success of web-based training:

1. *Interaction.* The participant should be required to respond appropriately and to automatically receive feedback.

2. *Attitudes toward computers.* The lack of effectiveness in web-based training may be due to the negative attitude toward computers or web-based training.

3. *Student skill level.* Computer literacy is considered a key to the success of web-based training.

Organizations attempting to replace face-to-face training with web-based training often experience challenges when attempting to do so. This is especially true for organizations who seek to expand their markets outside the United States.

Why Web-Based Training Cannot Replace Face-to-Face Training

Web-based training cannot replace face-to-face training due to cultural differences. Other cultures may find web-based training with its Western influences to be offensive to their culture and tradition. The high expenses associated with the development of web-based training, may be an impractical choice to adopt as the only form of training.

One of the reasons web-based training cannot replace face-to-face training is due to cultural differences. Authors Ashamalla, Ghobashy, and Mohamed (2001) indicated that web-based training carries the cultural influence and traditions of Western culture, which may conflict with other cultures.

Hall (1981) described a low context culture such as the United States as people who exclusively use words to communicate. In a high context culture such as Saudi Arabia, individuals "Usually communicate with body language, behavior, physical environment, and tone of voice in addition to words" (Ashamalla & et al., 2001, p. 5).

When organizations seek to expand their markets outside the United States, they often find employees who may not be computer literate. Moran (2000) reported that 50 percent of the U.S. workforce is computer literate (cited in Ashamalla & et al., 2001).

This rate of literacy may be much lower in developing countries where organizations are seeking to expand their markets.

Ashamalla, Ghobashy, and Mohamed (2001) indicated that the lack of computer skills may hinder the success of an individual in two ways. First, individuals who lack computer skills may simply avoid web-based training. Second, it is likely that "Technical issues, such as system navigation, may consume the cognitive powers of the trainee leaving less power for the actual learning of the training content" (Ashamalla & et al., 2001, p.4).

Driscoll further identified two more reasons web-based training cannot replace face-to-face training. Driscoll (1998) emphasized technically and theoretically just about anything can be taught on the web, but it can be impractical and expensive (p. 2). Driscoll (1998) identified two skills that would be impractical to teach on the web:

1. *Psychomotor skills.* Psychomotor skills require a combination of physical movement and thought. These skills are difficult to teach in a web-based program because they require an environment with coaching and detailed feedback.

2. *Attitudinal skills.* Attitudinal skills consists of teaching learners to change their opinions and, in turn, to change their behavior. (p. 2)

Blended Learning

Can Web-Based Training and Face-to-Face Training be Combined?

Both face-to-face and web-based training are instructional delivery strategies which have advantages and disadvantages. However, the advantages of both may be effectively combined and utilized in a blended learning approach. The American

Management Association describes blended learning as "The combining of e-learning with face-to-face instruction, job aids, or other common instructional techniques, it can also include readings, special projects, practicum, writing, and so forth" (AMA, 2003, p. 8).

The goal of blended learning is to address the different learning styles of the audience. Consequently, the combination of two or more instructional techniques allows the trainer to reach individuals, especially across cultural differences. Thorne (2003) indicated that blended learning represents a real opportunity to create learning experiences that can provide the right learning at the right time for each and every individual.

Advantages of Blended Learning

Blended learning can address learning styles, one of the most difficult issues related to training (AMA, 2003). Since it is recognized that people learn differently, most instructors try a variety of styles in their classes, but "Learning is skewed heavily toward those who listen well" (AMA, 2003, p. 310). The combination of two or more instructional techniques allows the trainer to teach individuals who are oral, visual, tactile, or kinesthetic learners.

The flexibility associated with blended learning allows organizations to save both time and money by reducing the amount of time employees spend in the classroom. Since blended learning combines web-based training with traditional classroom training, it may be "A practical choice for organizations that are being challenged to exploit advances in technology to train employees rapidly and effectively at less cost" (Daniel & Salisbury, 2002, p. 816).

An instructor can assign training exercises online and determine the day, time and how many times participants have accessed the training instructions online. The online portion of the instruction allows the participants to be prepared for face-to-face training. Essentially," A classroom session where everyone has already done the prework is much more likely to get to higher levels of learning because the instructor is working with an audience whose baseline of knowledge is much higher" (AMA, 2003, p. 310). Kapp and McKeague (2002) indicated that "instructor-led sessions can focus on knowledge transfer and behavioral changes and not simply the memorization of acronyms or company jargon" (p. 11).

How to Support Blended Learning

Hearn (2002) indicated that finding the right blend resembles the perfecting of a recipe and is a very difficult process. Since the majority of training takes place in the classroom, "Many trainers suffer from a lack of vision as to how they might incorporate technology–based lessons into their stand-up courses" (Hearn, 2002, p.2). Paul Sparta, CEO of Plateau Systems, indicated the right blend may be found by keeping "Your eye on the instructional objectives, not the technology or the tools" (AMA, 2003, p. 307). Thorne (2003) indicated eight ways to support blended learning:

1. *Identifying the core learning need.* As training solutions evolve into learning solutions, the hope is that organizations will begin to recognize the importance of making the learning more appropriate for each individual. Since all organizations will not have infrastructure to support blended learning, it is important to identify what works in the best interest of the company's culture and the employees. At this stage, it is important to recognize how to create the

different parts of the solution and include the ways in which the learning objectives can be met. As a result, the learning will be tailored to each individual to make the overall learning experience more personalized.

2. *Establishing the level of demand/timescale*. It is necessary to gain an understanding of the shape and scale of the demand, not just currently but also in the future. Whoever is identifying the learning needs of the organization must have an understanding of blended learning so that they are able to ask the deeper-level questions to understand the immediate and future learning needs.

3. *Recognizing the different learning cycles*. A blended learning approach should take into consideration all the preferred learning styles; such as oral, visual, tactile, or kinesthetic learners and other factors in the way people prefer to learn. This will create a range of different learning strategies for the learners and provide the opportunity to tailor training for each individual.

4. *Looking creatively at the potential of using different forms of learning*. Integrating blended learning represents an opportunity to take what exists and evolve it into a different dimension using new technologies. One of the first steps is identifying what options exists. This can be a simple or complex task.

5. *Working with current providers to identify the learning objectives*. In many organizations this represents the toughest challenge when the providers are located in different parts of the organization, either geographically or psychologically. Individuals in the information technology department may not be strong advocates for designing training with a face-to-face component.

The secret is to analyze the key learning needs are and determine what the most appropriate ways of meeting those objectives.

6. *Undertaking an education process and developing a user-friendly demonstration.* There will be several audiences: the original sponsor of the training and the line managers themselves, as well as the trainers currently delivering the program. The audience, including the employees, will need to be convinced of the value of undertaking a different process.

7. *Being prepared to offer follow-up coaching support.* There should be a support network in place before and during the implementation of blended learning. This support network may consist of a line manager or other individuals in the organization. The main goal is to assist with technology, learning and development, and to monitor the progress of the learner.

8. *Setting up a monitoring process to evaluate the effectiveness of the delivery.* It is important that the learners' needs are fully documented at the start of the project and that success is measured around these. Also seek to gain objective feedback from those involved in the blended learning about their response to the learning and seek to incorporate their findings onto the overall design. (Thorne, 2003, p.40)

The Future of Blended Learning

Blended learning has been successfully adopted by well-known companies and government agencies, such as, Daimler Chrysler, and the US Department of Health and Human Services (Thorne, 2003). It is expected that more organizations will follow once they are aware of the potential advantages for the employees and the company. Thorne

(2003) indicated that the future for blended learning will very much depend on the pace of change in each organization and the level of commitment to doing things differently (p.133). More important, the success and the future of blended learning will lie in the proper execution of the appropriate delivery methods for specific learning outcomes (Valdez, 2001).

There are new technological developments, which may provide even greater convenience and access to training for the learner. Some of these technological developments may work while others are in the experimental stages (Thorne, 2003). Personal Digital Assistants (PDAs) represent one of the developments to be considered for future online learning (Thorne, 2003). Since the PDA has the future possibility of functioning by accessing wireless technology, it has the potential to provide mobile telephone access to e-learning content. Consequently, training instructions may be adapted from the personal computer to a PDA (Thorne, 2003). The use of the PDA to give training instructions to the personal computer and mobile telephone will provide an even greater opportunity in blended learning to provide more flexibility and tailor learning to the individual.

CONCLUSIONS AND RECOMMENDATIONS

Organizations and training professionals may need to rethink what type of training tools should be implemented when designing and developing a training program. This remains one of the challenges training professionals must overcome to design training to meet the needs of adult learners and be consistent with the objectives of the organization.

First, before organizations decide which type of training tools should be implemented, organizations should first perform a needs assessment designed to determine, training needs, objectives, and further determine if the projected training compliments other organizational activities. Second, after the completion of a needs assessment, organizations should know the purpose of training and develop a clear statement of goals and objectives. Third, training professionals must first know the unique characteristics of adult learners and their needs in order to design a flexible training program. Flexibility is the key to remove barriers which prevents successful participation in training for adult learners.

Face-to-face and web-based training are both training tools which carries its shares of advantages and disadvantages. Organizations have learned they should not seek to deliver their entire training program in either format. One type of training format may not be suitable to fulfill all their training needs. Recognition of the value of both forms of training and the advantages associated with each, have been combined into a blended learning approach. This approach allows training professionals the ability to exploit technology and maintain the social interaction needed for adult learners.

Government and private entities have successfully adopted blended learning and it is expected that more organizations will adopt this approach. The success and future of blended learning will lie in the proper execution of the appropriate delivery methods for specific learning outcomes. More important, it is recommended that organizations and training professionals create blended learning programs which are directed toward performance improvement. The role of the line manager will shift from the traditional

management style to a mentor or coach and the attention of the training focused on the

team within the organization, not the individual.

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