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Asynchronous Training Delivery Methods Used in Business and Industry

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Asynchronous Training Delivery Methods Used in Business and Industry

Abstract

Effective training is a crucial component of a company's success. Traditional training delivery methods can be inconvenient, and cause conflicts with other trainee responsibilities. In this case, there are a number of alternative training delivery methods that can be used. The problem of this study was to identify the various asynchronous industry training methods, determine the advantages and disadvantages of each, and identify how selected Iowa industries are using these methods.

ASYNCHRONOUS TRAINING DELIVERY METHODS
USED IN BUSINESS AND INDUSTRY

A Research Paper for Presentation
to the Graduate Faculty of the
Industrial Technology Department
University of Northern Iowa

Submitted in Partial Fulfillment of the Requirements
for the Non-Thesis Master of Arts Degree

by

Jeffrey D. Rose

March 2002

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4-9-02

Dr. Ali Kashef, Graduate Faculty Member

Date

4/02/02

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CHAPTER 1

INTRODUCTION

Nature of the Problem

Training is necessary for new employees and the established work force. Many employees are being required to learn new technologies and update their knowledge, skills, and attitudes on existing technologies (Blanchard and Thacker, 1999). This can become overwhelming for trainers that are faced with unmanageable class size, multiple trainee locations, and conflicts with the trainee's regular responsibilities.

Many training methods are used in industry today with traditional synchronous training methods being the most common (Blanchard and Thacker, 1999). These methods use direct interaction between student and the instructor (Johnson, 1999). Some traditional training methods include the familiar lecture and discussion methods. For many years traditional training has been the standard for business and industry, but as the needs for training change, so must the methods used for training. Many alternatives to traditional training exist. However this study has been delimited to asynchronous training methods.

Statement of the Problem

Effective training is a crucial component of a company's success. Traditional training delivery methods can be inconvenient, and cause conflicts with other trainee responsibilities. In this case, there are a number of alternative training delivery methods that can be used.

The problem of this study was to identify the various asynchronous industry training methods, determine the advantages and disadvantages of each, and identify how selected Iowa industries are using these methods.

Statement of Purpose

The purpose of this study was to gain information about asynchronous training methods as well as to share this information with training personnel in business and industry.

Research Questions

This study intended to answer the following questions:

1. What are the various asynchronous training methods appropriate for industry?
2. What are the advantages and disadvantages of each method according to the literature?
3. How are selected industries in Iowa using asynchronous training methods?

Assumptions

The following assumptions were made in this study:

1. There are multiple asynchronous training delivery methods to evaluate and compare.
2. The interviewees will have sufficient knowledge of their company training methods.

Limitations

The following limitations were identified in this study:

1. The selected industry group will be too small and diverse to allow for generalization to all companies.

Delimitations

The following delimitations were made in this study:

1. This study was restricted to a literature review and selected interviews with industries in Iowa.
2. This study uses references from the Internet and Midwestern libraries.
3. Time and money have delimited this study.
4. Only five companies were contacted for this study.

Definitions of Terms

The following terms are defined to clarify their uses in the context of this study:

Synchronous - "A learning style that allows participants to interact immediately and simultaneously with their classmates and/or the instructor." (Johnson, 1999)

Asynchronous - "A learning style that delays the interaction between student and the teacher or other students" (Johnson, 1999)

Programmed Instruction - "Prepackaged sequences of information that are designed to lead a student through a learning process in which there are predetermined and predictable responses." (Miller and Miller, 1998)

CHAPTER 2

REVIEW OF LITERATURE

Need for Asynchronous Training

Asynchronous training, as defined by Johnson (1999), is a “learning style that delays the interaction between students and the instructor or other students.” In many instances using asynchronous training methods may be a solution to meet the challenges facing training departments.

Asynchronous Training Methods

Asynchronous training methods come in a variety of forms. Each form has specific characteristics that separate it from the others. For example, some methods incorporate books, while other methods utilize computers. A side by side comparison of the methods identified in this study can be found in Table 2.1 .

For more than a century educators have used print methods of asynchronous training (Moore and Kearsley, 1996). For example, in correspondence study the trainer prepares the course which includes reading, commentary, and assignments. Assignments and other communication between the trainer and trainee are then typically submitted through the mail (Johnson and Foa, 1989). This method uses the learner’s visual senses to process the course content and there is delayed communication between the instructor and learner.

Table 2.1
Asynchronous Delivery Methods

Asynchronous Method	Correspondence Study	Study Guides	Audio	Video	CBT	WBT
Delivery Device	Print	Print	Cassette Tape, CD, Radio	Video Cassette, DVD, Cable	Computer	Computer
Learner Stimulus	Visual	Visual	Auditory	Auditory, Visual	Auditory, Visual	Auditory, Visual
Instructor-Learner Contact Method	Mail, Email, Fax	None	None	None	None	Email, Online forums

Study guides are also a widely used print method of instruction. Study guides are often used with other delivery methods. The study guide provides specific instruction along with the instructor's opinions and advice about the content (Moore and Kearsley, 1996).

Many forms of electronic delivery methods exist. As a rule these methods incorporate the use of an electronic device to deliver the course material. The use of audio as a delivery method utilizes only the auditory senses. This method talks the student through the course work as well as provides content-specific sounds using devices such as radio, cassette tape, public address systems, and compact disk (Kinder, 1973). Content-specific sounds such as a bad automobile transmission or a fire alarm may be used. Many times audio methods are accompanied by instructional aides, such as a study guide or other hands on objects (Moore and Kearsley, 1996).

The video method, also known as the audio-video method of instruction, uses the learner's auditory senses and the visual senses. Video instruction utilizes filmstrips, television, and videocassettes to deliver content (Moore and Kearsley, 1996). The use of video closely resembles traditional classroom training with an instructor guiding you through the instruction on the video screen, similar to a lecture. The video can show examples that can reinforce the training (Blanchard and Thacker, 1999).

Computer Based Training (CBT) can also use the auditory senses and visual senses. This method incorporates a computer to generate and present the training material. The content can then be stored on a computer disk, CD-ROM, or a removable hard drive, which can be taken from one computer to the next as needed. The presentation may be accomplished on an individual basis or given to a group of people on a large screen (Blanchard and Thacker, 1999). Computer based training can incorporate audio, video, slides, and pictures as well as present questions to the learner to test their knowledge as they progress through the content. Using computer based training as a delivery method is ideal when using programmed instruction (Miller and Miller, 1998).

In many aspects web based training (WBT) is similar to CBT. Like CBT, WBT can use both the visual and auditory senses. Web based training can utilize audio, video, pictures, and slides, as well as provide links to other web sites which specialize on specific content areas (Blanchard and Thacker, 1999). As its name hints, web based training is conducted across the World Wide Web, but it may also be conducted on private intranets, or extranets (Hofmann, 2001). The learner needs only a computer with the proper network

access. This makes it possible for the learner to change locations while taking the training course (Driscoll, 1998).

Advantages and Disadvantages of Asynchronous Training Methods

All asynchronous delivery methods share common traits. For example, asynchronous training does not use direct instructor-learner interaction. For many organizations this can be very advantageous. Table 2.2 provides a three tier comparison of the advantages and disadvantages of the methods identified in the previous section of this study. These advantages and disadvantages are then be described more in-depth later in this chapter.

Table 2.2
Asynchronous Delivery Method Comparison

Asynchronous Method	Correspondence Study	Study Guides	Audio	Video	CBT	WBT
Cost	Low	Low	Medium	High	High	High
Production Time	Medium	Medium	Medium	High	High	High
Need for Specialized Skills	Low	Low	Low	Medium	High	High
Need for Specialized Equipment	Low	Low	Medium	Medium	High	High

Correspondence study is inexpensive, since print material is simple to create and widely used. Many times correspondence study uses text that has already been developed, which also saves on development time and cost. The actual delivery is a non-threatening

form of instruction since the majority of learners have adequate reading skills. It can be used spontaneously by the learner due to its portability (Gottschalk, 2001a).

A common limitation to correspondence study is its limited view of reality. Due to its dependence on text and illustrations it is difficult to describe the actual events that occur (Gottschalk, 2001a). Development of additional documents can be time consuming and labor intensive (Blanchard and Thacker, 1999). Another common limitation is slow instructor-learner interaction; even with technologies like email and fax it can take an extended time for these communications to happen.

Study guides have many of the same attributes as correspondence study. For instance, study guides are also inexpensive to develop and distribute. A study guide's delivery is non-threatening, and can also be spontaneous (Gottschalk, 2001a). Study guides provide necessary interaction by providing guidance and commentary directly from the instructor to the learner (Moore and Kearsley, 1996).

Study guides have some limitations. Study guides can have high costs and long development times, since study guides are individualized to each instructor (Moore and Kearsley, 1996).

Since audio methods of instruction rely primarily on audio, the receivers can perform a limited amount of multitasking (Kinder, 1973). This makes audio delivery methods very convenient for those learners whose schedule prevents them from using other methods of training, because it can be used in a car, on an airplane, or on a walk (Blanchard and Thacker, 1999). A company may choose to use audio delivery for its ease of use and low cost. The

learner may prefer audio delivery since they can control the flow by stopping, pausing, and reviewing the content (Harrison, 1999).

Audio delivery methods can be passive. The learner may find it difficult to take notes over the content and become distracted from the training (Harrison, 1999). Development of audio training can also be expensive and time consuming (Moore and Kearsley, 1996).

Using video delivery in training is effective at stimulating both the auditory and visual senses in the learner (Blanchard and Thacker, 1999). Most learners have used video cassette recorders in their own lives, making the technology less threatening to the learner (Gottschalk, 2001b). Video training can be delivered to a large number of learners in different locations through the use of satellite television (Harrison, 1999). This delivery method can be portable and in general can be viewed at the trainee's convenience (Blanchard and Thacker, 1999).

Video training development and production can be expensive (Gottschalk, 2001b). Specialized equipment is typically required for creating and viewing training delivered by video (Miller and Miller, 1998). Video training is usually developed with the typical learner in mind, so the instruction is general in nature and may not be effective for learners with special needs (Gottschalk, 2001b).

Computer based delivery is another method that incorporates the stimulation of both the auditory and visual senses (Blanchard and Thacker, 1999). Many CBT programs use various simulation and interactive video throughout the course, allowing for a more realistic feel of the content (Gottschalk, 2001c). Computer based training is simple to distribute to

learners on a small light weight CD-ROM, which can be mailed directly to the learner (Gates, 1995).

Computer based training has limitations related to cost. It is expensive to develop, it takes specific technical skills to develop and produce, and uses costly computers to run the software on (Blanchard and Thacker, 1999). Also, technologies related to CBT are changing quickly. The best software from a few years ago may not work on newer computers or with new software. Developers are also getting sidetracked by innovative computer technologies, and not focusing on developing courses that build the student's knowledge, skills, and attitudes. (Gottschalk, 2001c). For many learners the computer is still foreign, creating a great amount of apprehension (Gottschalk, 2001c).

Web based training is becoming a leading training tool. It also utilizes the auditory and visual senses. Learners can typically control the pace of the content in WBT (Hofmann, 2001). Accessing WBT can be made throughout the world with an Internet connection. In Guide #6 Gottschalk (2001c) discusses how this makes it possible for the learner to continue a course while on a business trip or take courses offered at distant offices, or universities. Web based training can easily be updated by the trainer from any location. This can be beneficial when content and curriculum change (Harrison, 1999). Expert documentation can also be easily incorporated with WBT (Driscoll, 1998).

Similar to CBT, WBT has limitations related to cost. Web based training is expensive to develop and operate. Developers constantly contend with changing computers, networks, and software (Driscoll, 1998). Cheating is easy for the learner, since usernames and passwords can be given to coworkers to complete their work (Blanchard and Thacker,

1999). There are still many workers who do not use the Internet, causing resistance to this form of training (Gottschalk, 2001c). Computer and networks break down or get bogged down creating learning delays and aggravation (Driscoll, 1998).

CHAPTER 3

STATEMENT OF METHODOLOGY

Research Methodology

This is a descriptive study concerning different methods of asynchronous training and the current state of asynchronous training in industry (Salkind, 2000). This study uses a survey to determine the current state of asynchronous training in industry. The surveys were conducted as an interview to provide a general understanding of how Iowa based businesses are using asynchronous training.

Conducting the Interviews

Five businesses were randomly selected from the 250 Iowa businesses that have more than 500 employees (W. Schutt, personal communication, December 12, 2001). Attention was given to survey both manufacturing and service based industries. Training personnel of the participating businesses were interviewed by phone. The author asked the interviewees questions pertaining to their use of asynchronous training. The questions were developed and reviewed by the author and an advisor.

Each interview began with a short introduction to the topic to ensure each interviewee understood the topic and the information being sought. Following this, the subject was asked eight questions (Appendix A).

CHAPTER 4

RESULTS OF INTERVIEW

Company Profiles

This study addresses three questions. The first two questions relate to identifying asynchronous training methods and their corresponding advantages and disadvantages. These are answered in the review of literature section of this study. The third question is addressed in this chapter beginning with descriptions of the companies, employment worldwide, and financial details.

Company one is a service company that operates convenience stores that carry a broad selection of food, including freshly prepared foods such as pizza, donuts and sandwiches, beverages, tobacco products, health and beauty aids, automotive products, other non-food items, and self-service gasoline. It listed 5,434 employees and sales of \$2,040,000,000 in fiscal year 2001.

Company two is a service company, that writes property, casualty and life insurance. Company two reported 737 employees and sales of \$461,300,000 in fiscal year 2000.

Company three is a manufacturing company that provides aviation electronics and airborne and mobile communications products and systems for commercial and military operations. For fiscal year 2001, company three reported 17,500 employees and \$2,800,000,000 in sales.

Company four is a manufacturing company that produces and distributes equipment worldwide for agricultural, commercial, residential, and construction uses. It is reported to have 45,100 employees and sales of \$13,300,000,000 in fiscal year 2001.

Company five is a manufacturing company that produces motor homes, self-contained recreation vehicles used primarily in leisure travel and outdoor recreation activities. Company five reported 3,325 employees and sales of \$698,800,000 in fiscal year 2000.

Interview Results

Tables 4.1 and 4.2 give a synopsis of the data collected. Table 4.1 depicts questions one through four, and Table 4.2 shows questions five through 8. More thorough data can be found in Appendix B.

Table 4.1
Survey Synopsis: Questions 1-4

	Company 1	Company 2	Company 3	Company 4	Company 5
Industry Type	Service	Service	Manufacturing	Manufacturing	Manufacturing
Presently use Asynchronous Training	No, but have in the past	Yes	Yes	Yes	No, but have in the past
What method are/were used	Audio Tapes & Manuals	Correspondence study	WBT	WBT	Video & Study Guides
Best topics for Asynchronous Training	Introductions to Topics	General Topics	Not Sure	Application Learning	Sales & Product Training
Best Learners for Asynchronous Training	New Users	Motivated Learners	Works same as Synchronous	Motivated Learners	Younger Users

The research revealed that all the companies interviewed are using or have used a form of asynchronous training. There was a wide variety of asynchronous training methods reported by the interviewees. The majority of the respondents had used the electronic forms of delivery, and typically did not think about the paper forms of asynchronous delivery until

deeper discussion of their training programs. It was observed that the manufacturing industries polled used or had used primarily electronic delivery methods, while the service industries utilized paper delivery methods. There was also a wide variety of opinion on what topics are best suited for asynchronous training. The responses for what type of learner asynchronous training is suited for varied between “motivated learners” and “young/new learners.” One company commented that the majority of their training is to “seasoned” learners that typically do not take the time or effort to learn on their own and become apprehensive in new learning environments.

Table 4.2

Survey Synopsis: Questions 5-8

	Company 1	Company 2	Company 3	Company 4	Company 5
Industry Type	Service	Service	Manufacturing	Manufacturing	Manufacturing
Advantages to Asynchronous Training	Good for Non Trainers to Train With	Pace & Schedule set by Students	None	Caters to Motivated Learners	No Advantages for Older Users
Disadvantages to Asynchronous Training	Non-personnel, Equipment Breaks Down, Workers May Not gain Adequate Knowledge	No Interaction with other Students	Calls on More Memory, & Causes a Lack of Learning	Lack of Feed Back	High Cost, and Users Seldom use if Given the Choice
Your Future with Asynchronous Training	None, Will Develop more Instructor Lead Training	None, Will use Instructor Lead Training	None, Will use more Synchronous Training	Will Develop more	None
Additional Comments	Great Method when used Properly	Learners need Discipline	None	Has a lack of Credibility Associated with it, & Learners are Scared of New Technologies	Looked into WBT & CBT, but to Expensive

Summary

This research revealed that there is a large range of advantages and disadvantages to the use of asynchronous training. Only one of the five companies plan to further develop their use of asynchronous training. Coincidentally this was also the largest company polled in both number of employees and revenues. There was also a wide range of additional comments.

Many of the respondents noted that asynchronous training lacked the feedback and interaction that they felt was necessary. Most of the interviewees stated that asynchronous training was an effective training tool when used and implemented properly, but the cost and lack of acceptance to the newer technologies will continue to prevent widespread use of asynchronous training.

CHAPTER 5

CONCLUSIONS, DISCUSSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to gain information about asynchronous training methods as well as to share this information with training personnel in business and industry.

To do this the study posed three questions concerning asynchronous training, which were:

1. What are the various asynchronous training methods appropriate for industry?
2. What are the advantages and disadvantages of each method according to the literature?
3. How are selected industries in Iowa using asynchronous training methods?

Conclusions and Discussion

The first question dealt with identifying asynchronous training methods that are appropriate for industry. Six asynchronous training methods were identified in the Review of Literature section of this study. These methods varied from basic print methods that incorporate study guides, and require reading texts, to advanced electronic methods that utilize computers and the Internet, including movies, audio, and links to additional information.

The second question dealt with the advantages and disadvantages of the six methods that were identified by answering question one. The results of this question can be found in the Review of Literature section of this study. A few of the advantages and disadvantages

that were evaluated are the cost, production time, need for specialized skills, and the need for specialized equipment.

The final question related to how selected industries in Iowa use asynchronous training methods. The Results of Interviews section of this study addressed this question. It was found that each of the companies that were interviewed presently use or have used various forms of asynchronous training. It appears that the various print methods of instruction was the most frequently used. The author believes this is due to the low cost and ease of creating methods such as correspondence study and study guides.

All of the methods identified in this study had been used by at least one of the polled companies. The only observed difference between service and manufacturing industries was the type of asynchronous training methods used. Service industries appeared to utilize the paper methods of asynchronous delivery methods, such as correspondence study, while manufacturing industries utilized the electronic asynchronous delivery methods, such as web based training.

Most of the respondents stated that general and introductory topics were best suited for asynchronous training. The author believes this is because more advanced topics require direct interaction to be cost and time efficient. The author also noticed that “younger” and “new” learners were identified as being better suited for asynchronous training. It is believed that this is due to their familiarity with the technologies used in the electronic forms of asynchronous training. One respondent commented that the majority of their training is to “seasoned” learners that typically do not take the time or effort to learn on their own and become apprehensive in new learning environments. Two companies identified “motivated”

learners as being best suited for asynchronous training, which makes the author believe that these learners see the value of what they are learning and put forth the effort needed to succeed.

A number of advantages and disadvantages emerged from the surveys. These advantages and disadvantages appear to coincide with those that were identified in the literature. A few of the interviewees noted characteristics common to asynchronous training such as the students having more control of their learning (advantage), and lack of feedback and interaction (disadvantage). Only one of the five companies interviewed had plans to further develop their use of asynchronous training, which was also the largest company polled. The author believes this is due to the cost and time associated with developing asynchronous training.

A number of additional comments were also made by the interviewees. These comments encompassed topics ranging from what it takes to be a successful learner in asynchronous training to discussions about the credibility associated with asynchronous training.

Recommendations

Further study could be done concerning future developments in asynchronous training delivery methods. Over time new delivery methods will be developed, creating an opportunity to reevaluate the methods used in the delivery of asynchronous training.

Another area for further study would be an in-depth investigation into how Iowa businesses or how businesses in general use asynchronous training. A new study specifically

focused on how businesses use asynchronous training may answer many questions training professionals have involving the use of technology in training.

Further study into the differences between how service and manufacturing companies use asynchronous training methods is also recommended. These recommendations would validate the findings in this study and provide a document that many businesses could consult to further develop their employees in an effective and efficient manner.

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Appendix A

Asynchronous Training Interview

Company Name _____

Company Contact _____

City _____ State _____ Date _____

Overview:

I am performing a study on asynchronous training delivery methods, which are methods that delay the interaction between the instructor and the learner. Typical asynchronous delivery methods are the use of correspondence study, audio, video, and web based training.

1. Does your company presently use any forms of asynchronous training?

2. What methods are being used?

3. Does asynchronous training work better with certain topics?

4. Does asynchronous training work better with certain groups of learners?

5. What are the advantages of asynchronous training?

6. What are the disadvantages of asynchronous training?

7. What future does your company have with asynchronous training?

8. Do you have any additional comments concerning asynchronous training?

Appendix B

Company 1		
Business Type	Employees Worldwide	Revenues Year 2000
Convenience Stores	5,343	\$2.04B
1. Does your company presently use any forms of asynchronous training?		
No but we have in the past.		
2. What methods are being used?		
Used audio tapes, and manuals		
3. Does asynchronous training work better with certain topics?		
Yes, introductions to topics.		
4. Does asynchronous training work better with certain groups of learners?		
New learners		
5. What are the advantages of asynchronous training?		
Good introduction, and good for non trainers to use when training.		
6. What are the disadvantages of asynchronous training?		
Non-personel, problems with equipment, workers may not gain adequate knowlege of topic		
7. What future does your company have with asynchronous training?		
None, will further develop instructor lead training		
8. Do you have any additional comments concerning asynchronous training?		
Great method when used properly		

Company 2

Business Type
Insurance

Employees Worldwide
737

Revenues Year 2000
\$461.3M

1. Does your company presently use any forms of asynchronous training?

Yes

2. What methods are being used?

Correspondence Study

3. Does asynchronous training work better with certain topics?

Yes, general topics

4. Does asynchronous training work better with certain groups of learners?

Works best with motivated learners that want to read and understand. Does not work with those who use visual and hands-on learning.

5. What are the advantages of asynchronous training?

Pace and schedule is set by the student.

6. What are the disadvantages of asynchronous training?

No interaction with the other students.

7. What future does your company have with asynchronous training?

Plans are to continue to use instructor lead training.

8. Do you have any additional comments concerning asynchronous training?

Learners needs to have discipline.

Company 3

Business Type	Employees Worldwide	Revenues Year 2000
<u>Electronics Manufacturing</u>	<u>17,500</u>	<u>\$2.8B</u>

1. Does your company presently use any forms of asynchronous training?

Yes

2. What methods are being used?

Web Based Training - Intranet

3. Does asynchronous training work better with certain topics?

Not Sure

4. Does asynchronous training work better with certain groups of learners?

Works as well as synchronous training.

5. What are the advantages of asynchronous training?

None

6. What are the disadvantages of asynchronous training?

Calls on more memory and causes a lack of learning.

7. What future does your company have with asynchronous training?

Moving towards more synchronous training.

8. Do you have any additional comments concerning asynchronous training?

None

Company 4

Business Type
Off-Road Vehicles

Employees Worldwide
45,100

Revenues Year 2000
\$13.3B

1. Does your company presently use any forms of asynchronous training?

Yes

2. What methods are being used?

Web Based Training

3. Does asynchronous training work better with certain topics?

Works better with application learning ex. computer programs

4. Does asynchronous training work better with certain groups of learners?

Caters to motivated learners

5. What are the advantages of asynchronous training?

Opens doors to older learner and those unable to leave the home ex. hadicaped

6. What are the disadvantages of asynchronous training?

Lack of feed back

7. What future does your company have with asynchronous training?

Will use more asynchronous training. Desolving the small plant training groups.

8. Do you have any additional comments concerning asynchronous training?

Asynchronous training has a lack of credibility associated with it. Learner are also scared of the new technology and how things from the change.

Company 5

Business Type
Recreational Vehicles

Employees Worldwide
3,325

Revenues Year 2000
\$696.8M

1. Does your company presently use any forms of asynchronous training?

No, but have in the past

2. What methods are being used?

Video and study guides

3. Does asynchronous training work better with certain topics?

Yes, good for sales and product training

4. Does asynchronous training work better with certain groups of learners?

Yes, younger users

5. What are the advantages of asynchronous training?

None for seasoned adult learners (40+)

6. What are the disadvantages of asynchronous training?

Cost, given the choice users seldom use

7. What future does your company have with asynchronous training?

None

8. Do you have any additional comments concerning asynchronous training?

Have looked into WBT & CD ROM, but not cost effective