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An analysis of the training methods utilized in business and industrial organizations by West Virginia training professionals

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An Analysis of the Training Methods
Utilized in Business and Industrial Organizations
by West Virginia Training Professionals

Thesis Submitted to
The Graduate College of
Marshall University

In Partial Fulfillment of the
Requirements for the Degree of
Educational Specialist
Adult and Technical Education

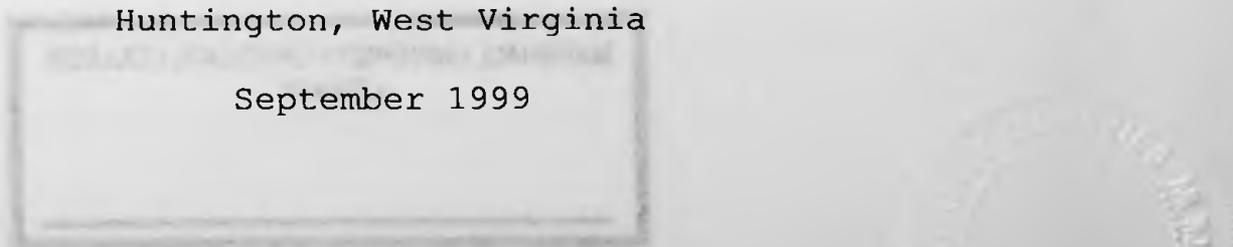
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as meeting the research requirements for the Education
Specialist degree.

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CHAPTER 1

INTRODUCTION

The question of which method of instruction is most appropriate for delivering instruction in training and development venues is very important for today's human resource personnel. As more and more business and industrial organizations downsize, reorganize, or even expand, the need arises for new training or retraining of adult workers. This training of employees is crucial in order for the employees to efficiently perform their current jobs or future positions in the workplace.

As technology advances and job requirements change, what types of training methods are business and industrial organizations implementing in order to achieve maximum benefits from employee training? Are companies offering employee training on a regular basis? These are the types of issues addressed to business and industrial organizations in the research project.

The research study has identified the various training methods utilized in business and industrial organizations by training professionals in the state of West Virginia. The types of training methods employed and the frequency of

use of each training method will be studied. The information that is obtained from the research project will provide information to trainers which will be useful in developing training programs in the state of West Virginia.

The following information is being provided to you for your information. It is not intended to be used as a guide for your own program.

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Statement of the Problem

With numerous changes taking place in today's workplace, are business and industrial organizations in West Virginia providing training to employees on a regular basis? If employees do not receive the type of training they need, they are unable to perform the duties required of their job at the maximum level of efficiency.

Purpose of the Study

The purpose of the study is twofold:

1. To determine how often training was provided to employees in business and industrial organizations in West Virginia.
2. To determine the various types of training methods used by business and industrial organizations in West Virginia.

Research Questions

The following research questions were used to guide the study:

1. What type of training methods are being utilized by trainers in the state of West Virginia?
2. How frequent is training being provided to employees in the state of West Virginia?

3. Do various types of organizations in West Virginia utilize different types of training methods when implementing training programs?
4. Do trainers in West Virginia with different levels of training experience use different methods of training?

Significance of the Study

Adults have various learning styles; some adults are tactile learners, some visual learners, some kinesthetic learners, and some auditory learners (Filipczak, 1995a). In order for training to be most effective, it is essential for the training session to match the learners' style of learning. Therefore, when developing training for business and industrial organizations, trainers should keep in mind that adults use various styles to learn. Trainers should also incorporate various instructional methods into their training design. This will allow all the participants to have an optimum chance to learn.

The study will survey business and industrial organizations in the state of West Virginia to determine what methods of instruction are currently being used and how often they are being implemented for employee growth and development. The information obtained from the study will provide information to trainers which will be useful

in developing training programs in the state of West Virginia.

Limitations of the Study

The findings and conclusions reached in the study are limited by the following:

1. The study was limited by the descriptive design of the study.
2. The study was limited to training programs in the state of West Virginia.

Basic Assumptions

It is assumed in the study that:

1. Since the surveys were completed by individuals in charge of company training programs, that all the questions asked were understandable.
2. Since the survey subjects were responsible for company training programs, that the subjects accurately completed the questions regarding the type of training methods used and frequency of their use.
3. Since the subjects were all working in the state of West Virginia, that the geographical area was the same for all subjects.
4. Since subjects participated anonymously, that all data obtained was given in an honest manner.

Definition of Terms

The following terms were defined for use in the study:

Accelerated Learning. A holistic approach to learning which involves learners in the learning process and involves activities such as mental concentration, guided imagery, music, and mnemonics in a comfortable surrounding.

CBT. Computer based training.

Games and Simulations. A series of activities which are regulated by certain constraints which allow individuals to interact and play out some aspect of a simulated real-world condition in a safe setting.

Learning Styles. The way individuals begin to concentrate, process, internalize, and remember new and difficult material.

Training Leader. The director, manager, or supervisor of a training department who determines the need for training and evaluates training programs.

Training Method. The instructional approach used to deliver a concept or training program.

Video Teleconferencing (Distance Learning). Training (audio and visual) delivered across hundreds of miles via satellite or over short distances via local area networks.

Organization of the Study

The study was organized into five chapters:

Chapter 1 contains the introduction, statement of the problem, purpose of the problem, research questions, significance of the study, limitations, basic assumptions, definition of terms, and organization of the study.

Chapter 2 contains a review of related literature on methods of training used in business and industrial organizations.

Chapter 3 contains the procedures and design of the research which include research population and sample, research design, and instrumentation.

Chapter 4 contains the findings of the research and analysis of the obtained data.

Chapter 5 contains conclusions of the study, recommendations of the study, and suggestions for further research.

CHAPTER 2

REVIEW OF RELATED LITERATURE

This review begins with an overview of adult learners, theories and learning styles. A variety of training methods utilized in business and industrial organizations are then reviewed.

Adult Learners

Historically, only children and the way children learn were considered a professional field of study. The study of adults and adult learning was not always considered a separate entity from child learners. Malcolm S. Knowles, often known as the father of adult education, first presented his theory of andragogy in his book The Modern Practice of Adult Education: Andragogy Versus Pedagogy in 1970 (Lee, 1998). Andragogy is a term which was used by Knowles to describe his theory of helping adults learn. Knowles based his theory of andragogy on adult learner characteristics and on a set of basic assumptions for teaching adults which separated adult learners from children (Lee, 1998).

Today, adult workers often need to be retrained; therefore, the issue arises of how to facilitate learning to meet the needs of adult workers. When developing a

training program for workers in business and industrial organizations, it is recommended that the following distinguishing features of adult learners be considered as indicated by Heimlich and Norland (1994) in their book, Developing Teaching Style in Adult Education:

1. Adult learning is self-directed.
2. Adults have a rich experience base to build upon.
3. Adults have a need to address real-life problems.
4. Adults need to apply learning immediately.

Adult workers who are being trained or retrained at work, do, indeed, have a life history on which to base their training; plus under most circumstances, their training and development will address a real-life "on-the-job" problem where learning can be immediately applied.

Learning Styles

Rita Dunn, director of the St. John's University Center for the Study of Learning and Teaching Styles in New York, has defined learning styles as "the way individual people begin to concentrate, process, internalize, and remember new and difficult material" (Filipczak, 1990a, p. 44). Filipczak (1990a) points out in his article, "Different Strokes: Learning Styles in the Classroom," four basic learning styles of adult learners: visual, auditory, kinesthetic, and tactile.

In order to determine if a student's learning style can be an important factor in determining the student's success, Bell (1998) conducted a study which consisted of a class of 40 beginning business statistic students. Bell (1998) administered The Learning Style Inventory, an instrument designed to determine an individual's learning style, to the 40 students. After analyzing data obtained from The Learning Style Inventory, Bell (1998) found the business statistic class to consist of three types of learners: visual, auditory, and tactile.

At the end of the statistics course, the final grades for the visual learners were significantly higher ($F=3.38$, $p=.045$) than the auditory and tactile learners in the course (Bell, 1998). Bell's study emphasizes the importance for trainers to try to incorporate various teaching methods into their training in order to allow trainees' with various learning styles to achieve the maximum benefit from the training session.

Training Methods

Another factor to consider which is crucial to adults' learning is the method in which the training is being presented. In order for training to be most effective, it is essential for the training session to match the learners' style of learning. Therefore, when developing

training for business and industrial organizations, trainers should keep in mind that adults use various styles to learn and should incorporate various instructional methods into their training design so that all the participants will have an optimum chance to learn.

Lectures. There are various instructional methods which can be utilized in developing effective training sessions. Of course, there is the old "traditional" method of lecturing. Lecturing consists of expository oral presentations made by a trainer. However, not all trainees will find this method of instruction suited to their learning styles, because lecturing relies on the skill of listening (Tall and Hall, 1998). Tall and Hall (1998) emphasize in their article "Effective Training" that listening is actually one of the weakest skills of adult learners.

In addition, not all employees will be able to successfully apply what they have learned in a lecture to their actual jobs. Therefore, other instructional methods are also frequently utilized in training such as computer-based training (CBT), accelerated learning, case studies, games, simulations, distance learning, role-playing, video instruction, multimedia, video teleconferencing, hands-on activities, etc.

Games and Simulations. According to Hequet (1995) in "Games that Teach," games and simulations are training methods which are being employed more and more in the workplace. Unlike the traditional training method of lecturing, games and simulations allow employees to actually participate and engage in their own learning process. According to Training's 1994 *Industry Report*, 60% of companies use games or simulations as methods compared to only 44% use by companies in 1989 (Hequet, 1995).

The utilization of games and simulations as training methods are on the rise. This could be attributed to the fact that games and simulations do provide learning but are also fun, require trainee participation, and often encourage teamwork. Margaret Gredler, professor of educational psychology at the University of South Carolina comments, "[Games and simulations] pull the learner into the center of learning. You're in the middle of a case study instead of on the outside hearing or reading about it" (Hequet, 1995, p. 56).

Accelerated Learning. Accelerated learning (AL) is another instructional method which is used by some trainers in business and industrial organizations. The birth of accelerated learning as a training method took place in the 1970s, along with the development of other new training

methods such as computer training and distance education (Zemke, 1995). The origin of accelerated learning can be traced to Bulgarian psychiatrist Georgi Lozanov's technique of suggestology, which was used to aid the teaching of foreign languages (Zemke, 1995). Accelerated learning has since evolved and exists today in a modified version which employs various instruction techniques such as the use of multimedia, music, games, participant activities, etc. (Zemke, 1995).

David Meir, director of the Center for Accelerated Learning in Lake Geneva, WI, describes accelerated learning in today's society as "a variety of holistic learning techniques that can be incorporated into new or existing development programs. Accelerated-learning methods seek to involve participants in the learning process and overcome negative views toward learning itself or toward their own ability to learn" (Zemke, 1995, p. 95). Accelerated learning uses themes, props, color, music, imagery, and comfortable surroundings to establish a training environment which is conducive to learning. Accelerated learning incorporates trainee participation in exercises such as role playing, scavenger hunts, simulations, and games.

Computer-Based Training (CBT). The use of computers in the workplace is increasing; so, therefore, computer-based training in the workplace is also increasing. Computer-based training (CBT) or multimedia-based training (MBT) is a method of training which incorporates the use of computers and/or World Wide Web technology. According to a survey from OmniTech of 146 Fortune 1,000 companies, 16% of these organizations' training was solely MBT based in 1996 and projected to increase to 35 percent (more than double) in 1998 ("Multimedia Training," 1996).

Major reasons for the incredible growth of MBT training include: learning is self-paced, learning is available when needed, and learning is accessible over a wide geographic area ("Multimedia Training," 1996). There are, however, drawbacks to MBT training: MBT is expensive to develop and maintain; learning is impersonal; data, software, and hardware are difficult to update; and it is ineffective for training some subjects (Training 58). Even though MBT does have its drawbacks, most organizations, at least for the time, seem to think the advantage of using this method for training its employees outweigh the disadvantages.

One aspect of computer training which is becoming popular is the use of the World Wide Web, otherwise known

as the Internet. Primary Internet training delivery methods include e-mail, bulletin boards, downloading information, interactive tutorials, and real-time conferencing (Wulf, 1996). Internet training delivery methods allow instant access to valuable information. Training via the Internet can be categorized into five basic options or levels: general communication; online reference; testing, assessment, and surveying; distribution of computer-based training; and delivery of multimedia in real-time (Kruse, 1997).

Distance Training. With the rapid growth of technology, the training method using distance learning, otherwise known as distance training, has become a viable training option for companies and organizations. According to Picard (1996) in his article entitled, "The Future is Distance Training," Picard estimates that some form of distance training is being used by approximately 85% of all Fortune 500 companies. Distance learning can be defined as training that occurs when people in different sites are connected to each other via technology so that they can communicate and interact with each other. Distance learning includes the training delivery methods of videoconferencing, audioconferencing, and document conferencing (Filipczak, 1995b).

Distance training is a delivery method of training which is expected to experience rapid growth in the upcoming years. Picard (1996) goes on to say in his article, "The Future is Distance Training," that growth in the next five years in distance training will be due to the following three interrelated factors:

1. Substantial lower technology costs.
2. Increased pressure to decrease technology costs.
3. An increasing need to be able to distribute information more quickly and more effectively in a global, competitive marketplace.

On the downside, however, there are drawbacks to distance training such as an expensive initial cost for setup equipment and reluctance of workers to change and use today's newer technologies. Distance training, however, is a training method which trainers need to consider when planning training for their company or organization.

Summary

The literature review began with an overview of adult learning theories and the characteristics of adult learners. The review then described the different types of learning styles which adults utilize in the learning process.

The literature review also focused upon the various training methods utilized by business and industrial organizations along with the advantages and/or disadvantages of the training methods. Specific training methods identified and discussed included lectures, games and simulations, accelerated learning, computer-based training, and distance training.

The next chapter will describe the methods used in the study.

CHAPTER 3

METHODS

Professional trainers in business and industrial organizations were sent a survey/questionnaire in order to measure the types and frequency of training methods utilized in the state of West Virginia. The purpose of the methods chapter is to present the population and sample, the data collection, the research design, the instrumentation, and the method of data analysis used in the research project.

Population and Sample

The population for the study consisted of professional training leaders in business and industrial organizations throughout the state of West Virginia. A random sample of 240 companies, which represented 34% of the accessible population, was obtained from the Regulatory Training Center (RTC) located in Charleston, West Virginia. The RTC utilized their business and industry mailing list in order to obtain the random sample. The mailing list initially consisted of a list of business and industrial organizations obtained from the Department of Labor. Additional organizational names have been added by the RTC to the mailing list on an as needed basis.

The training leaders of these randomly selected companies were sent a cover letter introducing the researcher and the purpose of the study as well as detailed instructions, a Training Methods Survey, and an Explanation of Training Methods. The training leaders were asked to complete the Training Methods Survey, and to return it to the researcher. Postage-paid, self-addressed envelopes were also included for the trainers to use in returning their survey forms to the researcher.

Research Design

The research design for the study utilized descriptive research methods. Descriptive research has been defined by Gay (1996) in Educational Research as a type of research which involves collecting data in order to test research questions or hypotheses regarding the subject's current status. The method of collecting data included the Training Methods Survey, which included a questionnaire section dealing with the participants' demographical data.

The use of a descriptive research design was appropriate for the research study because information needed to be obtained regarding the types of training methods utilized in business and industrial organizations as well as how often training was provided to employees. Self-administered surveys/questionnaires were efficient and

offered the advantage of providing contact with a large number of subjects. However, according to Gay (1996), a disadvantage of utilizing survey/questionnaires is low response rates.

The random sampling of the study's population should assist in controlling internal validity issues such as location and instrumentation decay. The group size remained constant throughout the study; therefore, there were no maturation, mortality, or historical threats to the study's validity.

The weakness of using the descriptive research design is that only relationships between the variables were discovered. No actual cause and effect can be determined using this type of research design. Another weakness is that the use of this population limited the generalizability of the results of the study to the state of West Virginia.

Instrumentation

The instrument used to obtain data in the research study was the Training Methods Survey, which was developed by the researcher to measure training methods in a valid and reliable manner. Before the Training Methods Survey was administered to the sample, a pilot study was performed utilizing two professors in the Adult and Technical

Education Department at Marshall University in West Virginia. The professors reviewed the survey, as if they were trainers, and provided feedback to the researcher. The researcher incorporated the professors' suggestions into the final version of the Training Methods Survey, which was administered to the sample population in the study.

The Training Methods Survey was developed by the researcher to measure the types and frequency of training methods utilized by business and industrial organizations in West Virginia. The survey evaluates 12 different teaching methods used by professional trainers in the state of West Virginia. Each teaching method is rated on a five item scale based on its frequency of use: (a) always, (b) frequently, (c) sometimes, (d) seldom, and (e) never.

Demographic data was obtained from training leaders by utilizing a questionnaire which assessed the professional trainer's age, gender, race, educational level, educational field, current job title, and the number of years the trainer had been in his/her current position. Professional training leaders were also asked questions regarding their organization's structure. The training leaders were asked to identify the type of organization, the size of the organization, the size of the organization's training

department, and how often training was offered at the organization.

Data Analysis

The analysis of data obtained in the study involved utilizing descriptive statistics and the chi-square nonparametric test of significance. Descriptive statistics were used to report the frequencies, percentages, means, and standard deviations. A two-dimensional chi-square was utilized to describe frequencies of categorical variables. Statistical analyses were performed using the computer software program Statistical Analysis System (SAS).

Summary

Chapter 3 began by providing a description of the population and sample utilized for the research study. The chapter then discussed the descriptive research design that was used for the research study. The instrument utilized in the research study, the Training Methods Survey, was then described in detail. The chapter concluded by discussing the method of analysis of the data used in the research study.

The next chapter will present the results of the analysis of the data.

CHAPTER 4

ANALYSIS

Introduction

The research questions presented in Chapter 1 are addressed in Chapter 4, which includes the results and analysis of the data gathered in the study. The purpose of the research study was to determine the types and frequency of training methods utilized by professional trainers in business and industrial organizations in the state of West Virginia.

Sample Returns

A pilot study was performed using professors in the Adult and Technical Education Department at Marshall University in West Virginia. The professors reviewed the Training Methods Survey and made suggestions which were implemented into the Training Methods Survey.

The training leaders of 240 randomly selected business and industrial organizations in West Virginia were sent a cover letter (See Appendix A) introducing the researcher and the purpose of the study as well as detailed instructions, a Training Methods Survey (See Appendix B), and an Explanation of Training Methods (See Appendix C).

The training leaders were asked to complete the Training Methods Survey, and to return it to the researcher.

Responses were received from 93 of the research subjects, for a response rate of 38.75%. Of those subjects responding, two subjects only completed the demographic data section of the questionnaire and did not complete the survey section regarding the utilization of training methods. Therefore, there were 91 study responses which were completely filled out, for a response rate of 37.92%.

Demographic Data

The demographic data for the study's sample are listed in Tables 1 and 2. Most of the training leaders were in the age category 40 to 49 years, were male, were Caucasian, had a bachelor's degree, and had been in their current job position for one to five years.

Table 1

Demographic Data on Sample (n=91)

Demographic	Grouping	<u>f</u>	%
Age	20 - 29	7	8
	30 - 39	20	22
	40 - 49	42	46
	50 - 59+	22	24
	<u>Nonresponding</u>	0	0
	TOTAL	91	100
Gender	Female	16	18
	Male	74	81
	<u>Nonresponding</u>	1	1
	Total	91	100
Race	African-American	1	1
	Hispanic	2	2
	Caucasian	86	95
	Other	1	1
	<u>Nonresponding</u>	1	1
	Total	91	100

(table continues)

Table 1 (Continued)

Demographic	Grouping	<u>f</u>	%
Education	High School	20	22
	Associate's	5	5
	Bachelor's	38	42
	Master's	25	27
	Doctorate	2	2
	<u>Nonresponding</u>	<u>1</u>	<u>1</u>
	TOTAL	91	100
Number of Years In Current Position	0 - 5	32	35
	6 - 10	21	23
	11 - 15	15	17
	16+	22	24
	<u>Nonresponding</u>	<u>1</u>	<u>1</u>
	Total	91	100 ^a

^aPercentages may total more or less than 100 when rounded.

Table 2

Demographic Data on Organizations (n=91)

Demographic	Grouping	<u>f</u>	%
No. of Employees In Training Dept.	0	5	5
	1 - 2	46	51
	3 - 4	21	23
	5 - 6	8	9
	7+	10	11
	<u>Nonresponding</u>	<u>1</u>	<u>1</u>
	TOTAL	91	100
Type of Organization	Manufacturing	26	29
	Wholesale/Retail	11	12
	Educational	1	1
	Medical	10	11
	Other	43	47
	<u>Nonresponding</u>	<u>0</u>	<u>0</u>
Total	91	100	

(table continues)

Table 2 (Continued)

Demographic	Grouping	<u>f</u>	%
No. of Employees In Organization	1 - 50	29	31
	51 - 100	16	18
	101 - 250	17	19
	251 - 500	11	12
	501 - 999	6	7
	1000+	12	13
	<u>Nonresponding</u>	<u>0</u>	<u>0</u>
	TOTAL	91	100
Frequency of Employee Training	Weekly	31	34
	Once monthly	27	30
	Once each 3-4 mos.	19	21
	Twice a year	5	5
	Once a year	4	4
	Ongoing as needed	3	3
	<u>Nonresponding</u>	<u>2</u>	<u>2</u>
	Total	91	100 ^a

^aPercentages may total more or less than 100 when rounded.

Frequency of Usage by Training Method

The frequency of usage of training methods by West Virginia training professionals in business and industrial organizations is demonstrated in Figures 1 through 12. The most commonly utilized training methods by these training professionals included videotapes and on-the-job training.

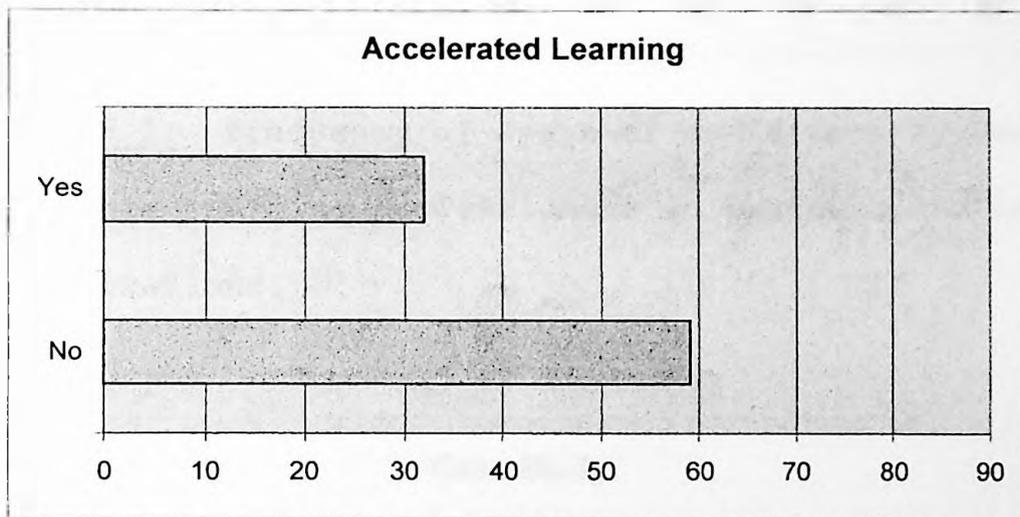


Figure 1. Frequency of usage of accelerated learning by West Virginia training professionals in business and industrial organizations.

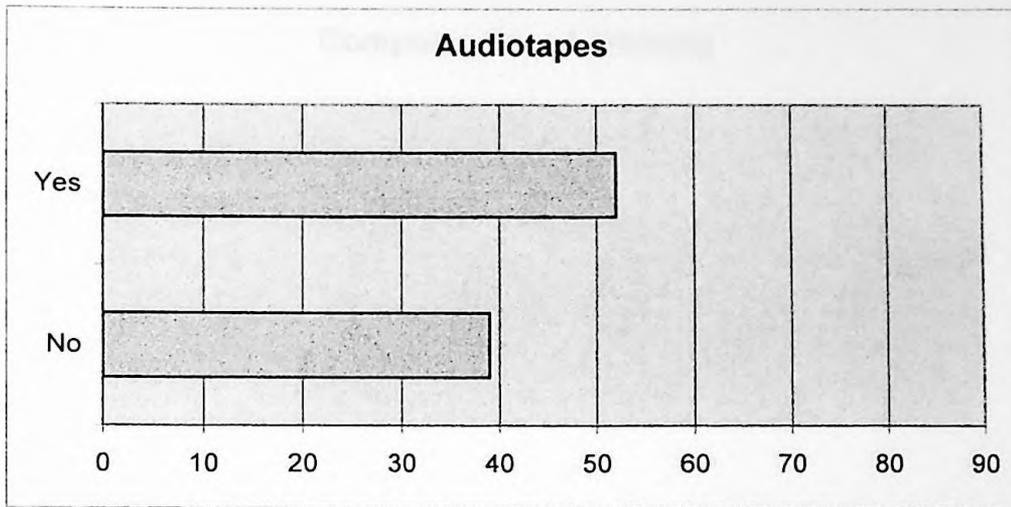


Figure 2. Frequency of usage of audiotapes by West Virginia training professionals in business and industrial organizations.

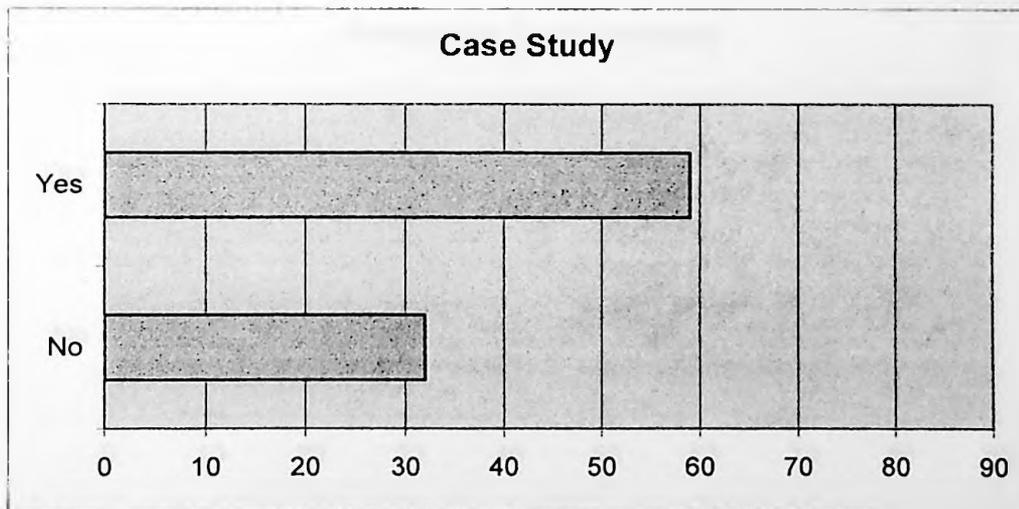


Figure 3. Frequency of usage of case studies by West Virginia training professionals in business and industrial organizations.

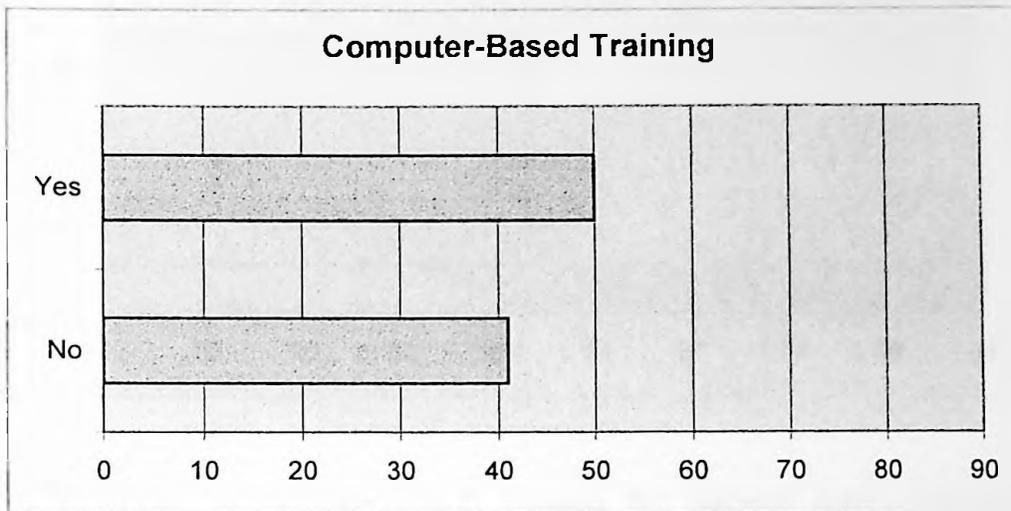


Figure 4. Frequency of usage of computer-based training by West Virginia training professionals in business and industrial organizations.

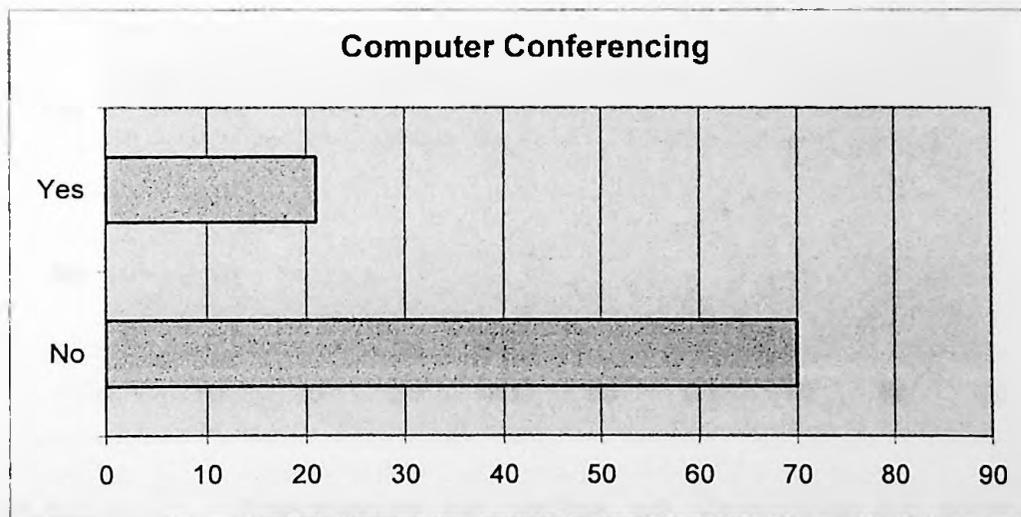


Figure 5. Frequency of usage of computer conferencing by West Virginia training professionals in business and industrial organizations.

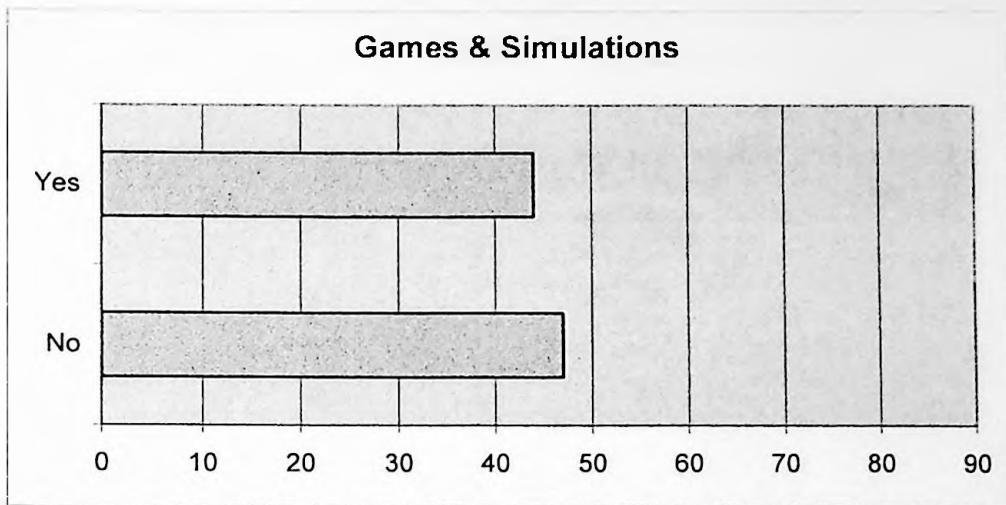


Figure 6. Frequency of usage of games and simulations by West Virginia training professionals in business and industrial organizations.

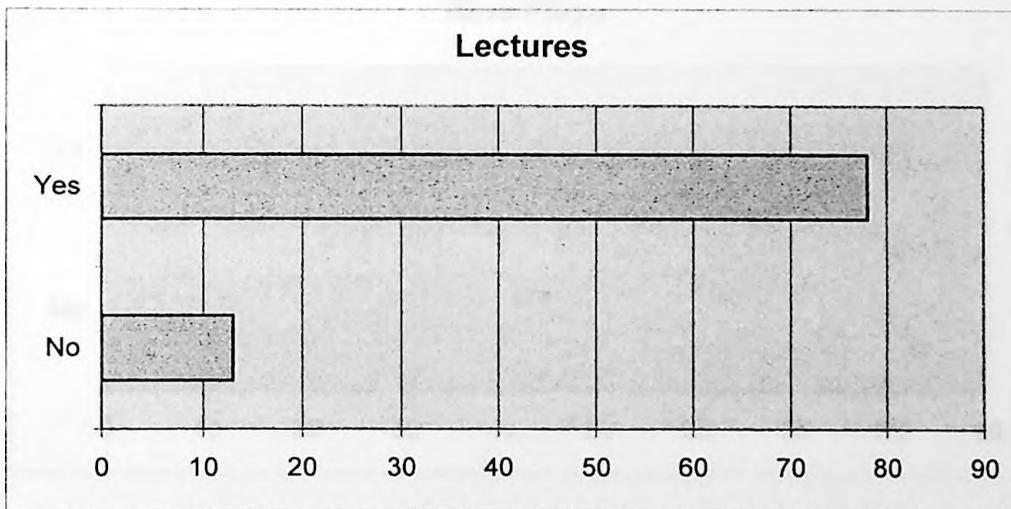


Figure 7. Frequency of usage of lectures by West Virginia training professionals in business and industrial organizations.

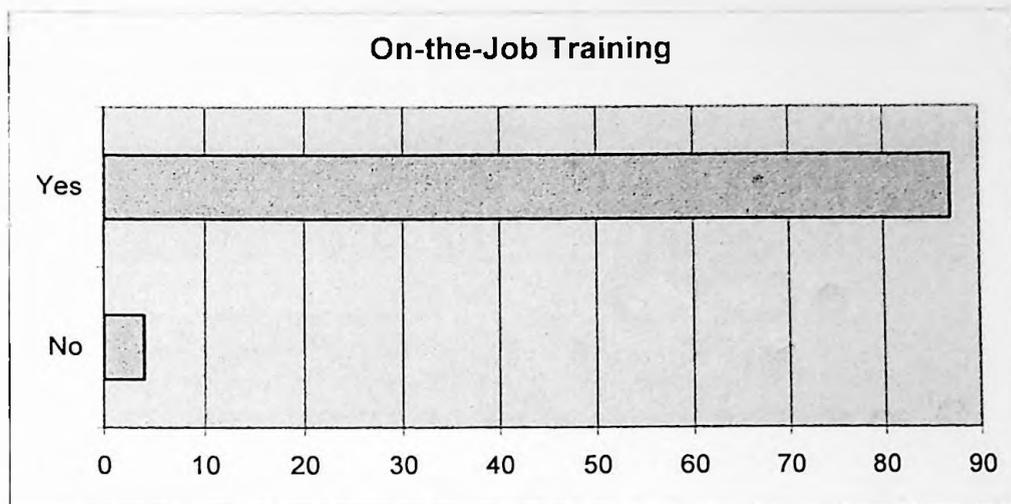


Figure 8. Frequency of usage of on-the-job training by West Virginia training professionals in business and industrial organizations.

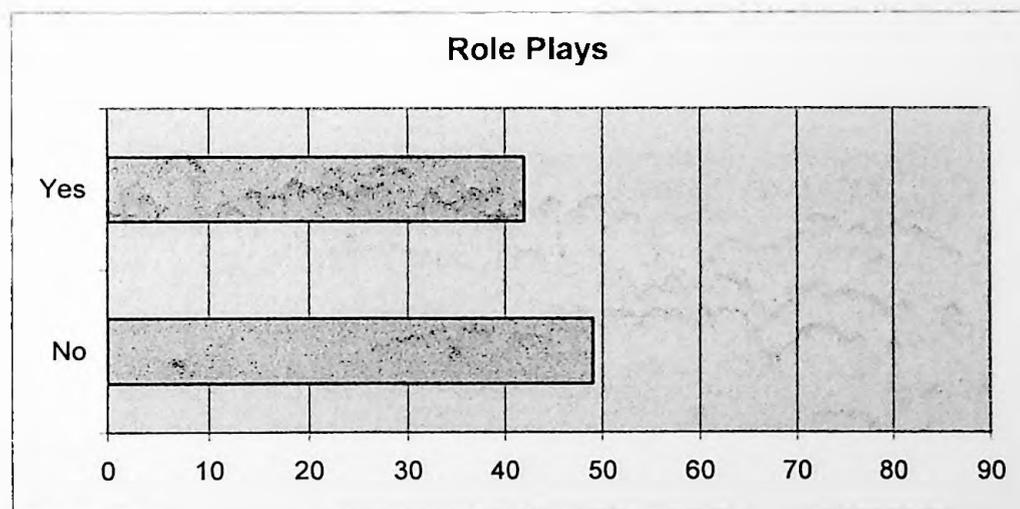


Figure 9. Frequency of usage of role plays by West Virginia training professionals in business and industrial organizations.

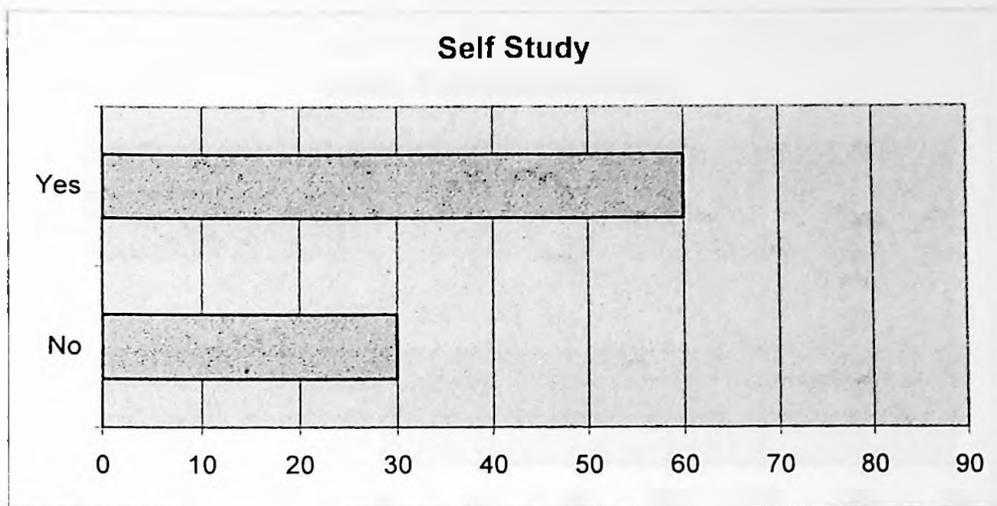


Figure 10. Frequency of usage of self studies by West Virginia training professionals in business and industrial organizations.

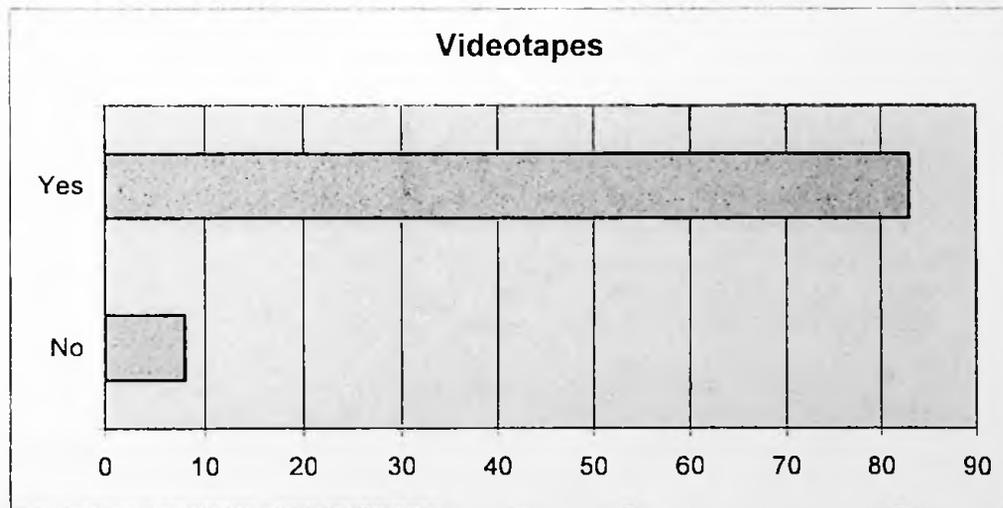


Figure 11. Frequency of usage of videotapes by West Virginia training professionals in business and industrial organizations.

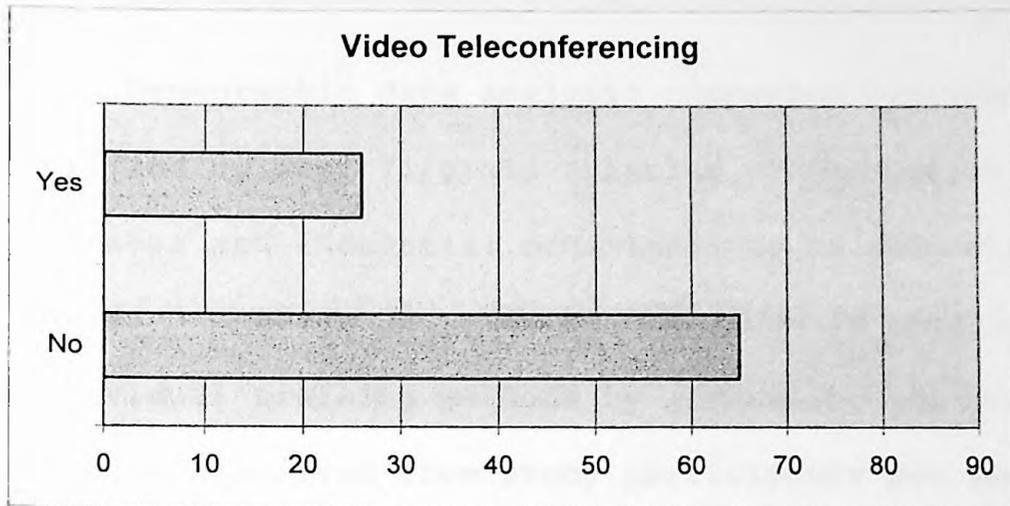


Figure 12. Frequency of usage of video teleconferencing by West Virginia training professionals in business and industrial organizations.

Demographic Data Analysis Comparing Training Methods

Demographic data analysis comparing training methods utilized by West Virginia training professionals in business and industrial organizations is demonstrated in Tables 3 through 14. Tables 3 through 14 analyze individual training methods by indicating the most frequent response received from study participants per demographic category.

Table 3

Demographic Data on Accelerated Learning (n=91)

Demographic Category	Response	%
Age	40+ years	72
Gender	Female	50
Race	Caucasian	94
Level of Education	Bachelor's+	78
Yrs. In Current Position	1 - 10 years	66
Employees in Training Dept.	1 - 7 employees	97
Type of Organization	Other	44
Employees in Organization	101+ employees	69
Frequency of Training	At least monthly	75

Table 4

Demographic Data on Audiotapes (n=91)

Demographic Category	Response	%
Age	40+ years	67
Gender	Female	69
Race	Caucasian	94
Level of Education	Bachelor's+	79
Yrs. In Current Position	1 - 10 years	60
Employees in Training Dept.	1 - 7 employees	98
Type of Organization	Other	50
Employees in Organization	101+ employees	56
Frequency of Training	At least monthly	69

Table 5

Demographic Data on Case Study Methods (n=91)

Demographic Category	Response	%
Age	40+ years	69
Gender	Female	63
Race	Caucasian	95
Level of Education	Bachelor's+	73
Yrs. In Current Position	1 - 10 years	59
Employees in Training Dept.	1 - 7 employees	97
Type of Organization	Other	46
Employees in Organization	101+ employees	56
Frequency of Training	At least monthly	66

Table 6

Demographic Data on Computer-Based Training (n=91)

Demographic Category	Response	%
Age	40+ years	74
Gender	Male	57
Race	Caucasian	98
Level of Education	Bachelor's+	88
Yrs. In Current Position	1 - 10 years	58
Employees in Training Dept.	1 - 7 employees	94
Type of Organization	Other	48
Employees in Organization	101+ employees	62
Frequency of Training	At least monthly	68

Table 7

Demographic Data on Computer Conferencing (n=91)

Demographic Category	Response	%
Age	40+ years	76
Gender	Female	25
Race	Caucasian	100
Level of Education	Bachelor's+	86
Yrs. In Current Position	1 - 10 years	67
Employees in Training Dept.	1 - 7 employees	95
Type of Organization	Other	48
Employees in Organization	101+ employees	71
Frequency of Training	At least monthly	71

Table 8

Demographic Data on Games & Simulations (n=91)

Demographic Category	Response	%
Age	40+ years	70
Gender	Female	50
Race	Caucasian	93
Level of Education	Bachelor's+	80
Yrs. In Current Position	1 - 10 years	73
Employees in Training Dept.	1 - 7 employees	98
Type of Organization	Other	50
Employees in Organization	101+ employees	68
Frequency of Training	At least monthly	77

Table 9

Demographic Data on Lectures (n=91)

Demographic Category	Response	%
Age	40+ years	69
Gender	Male	65
Race	Caucasian	96
Level of Education	Bachelor's+	73
Yrs. In Current Position	1 - 10 years	55
Employees in Training Dept.	1 - 7 employees	95
Type of Organization	Other	50
Employees in Organization	101+ employees	53
Frequency of Training	At least monthly	68

Table 10

Demographic Data on On-the-Job Training (n=91)

Demographic Category	Response	%
Age	40+ years	70
Gender	Male	96
Race	Caucasian	97
Level of Education	Bachelor's+	72
Yrs. In Current Position	1 - 10 years	53
Employees in Training Dept.	1 - 7 employees	95
Type of Organization	Other	47
Employees in Organization	1-100 employees	51
Frequency of Training	At least monthly	67

Table 11

Demographic Data on Role Plays (n=91)

Demographic Category	Response	%
Age	40+ years	64
Gender	Female	50
Race	Caucasian	95
Level of Education	Bachelor's+	88
Yrs. In Current Position	1 - 10 years	67
Employees in Training Dept.	1 - 7 employees	95
Type of Organization	Other	50
Employees in Organization	101+ employees	69
Frequency of Training	At least monthly	76

Table 12

Demographic Data on Self Study (n=91)

Demographic Category	Response	%
Age	40+ years	67
Gender	Female	88
Race	Caucasian	95
Level of Education	Bachelor's+	80
Yrs. In Current Position	1 - 10 years	57
Employees in Training Dept.	1 - 7 employees	93
Type of Organization	Other	43
Employees in Organization	101+ employees	58
Frequency of Training	At least monthly	75

Table 13

Demographic Data on Videotapes (n=91)

Demographic Category	Response	%
Age	40+ years	92
Gender	Male	92
Race	Caucasian	96
Level of Education	Bachelor's+	72
Yrs. In Current Position	1 - 10 years	53
Employees in Training Dept.	1 - 7 employees	95
Type of Organization	Other	48
Employees in Organization	101+ employees	53
Frequency of Training	At least monthly	69

Table 14

Demographic Data on Video Teleconferencing (n=91)

Demographic Category	Response	%
Age	40+ years	73
Gender	Female	38
Race	Caucasian	96
Level of Education	Bachelor's+	77
Yrs. In Current Position	1 - 10 years	73
Employees in Training Dept.	1 - 7 employees	92
Type of Organization	Commercial	35
Employees in Organization	101+ employees	69
Frequency of Training	At least monthly	73

Analysis of Training Methods Used Together

Table 15 analyzes pairs of training methods utilized together by West Virginia training professionals in business and industrial organizations by indicating the frequency of the usage of pairs. The following abbreviations are used in Table 15 on the next page:

AL = accelerated learning

AUD = audiotapes

CS = case study

CBT = computer-based training

CC = computer conferencing

GS = games and simulations

LEC = lectures

OJT = on-the-job training

RP = role plays

SS = self study

VHS = videotapes

VT = video teleconferencing

Table 15

Pairs of Training Methods Utilized

Utilized With Training Method												
Method	AL	AUD	CS	CBT	CC	GS	LEC	OJT	RP	SS	VHS	VT
AL	32	25	26	23	15	23	30	31	20	26	31	16
AUD	25	52	36	39	20	35	46	50	30	43	52	24
CS	26	36	59	33	18	36	53	56	36	42	57	20
CBT	23	39	33	50	21	34	46	49	31	40	48	21
CC	15	20	18	21	21	19	20	21	17	20	21	15
GS	23	35	36	34	19	44	43	44	33	40	43	20
LEC	30	46	53	46	20	43	78	77	37	57	74	26
OJT	31	50	56	49	21	44	77	87	42	59	81	26
RP	20	30	36	31	17	33	37	42	42	34	41	18
SS	26	43	42	40	20	40	57	59	34	60	58	24
VHS	31	52	57	48	21	43	74	81	41	58	83	26
VT	16	24	20	21	15	20	26	26	18	24	26	26

Note. AL = accelerated learning; AUD = audiotapes; CS = case study; CBT = computer-based training; CC = computer conferencing; GS = games and simulations; LEC = lectures; OJT = on-the-job training; RP = role plays; SS = self study; VHS = videotapes; VT = video conferencing.

Analysis of Relationships Utilizing Chi-Squares

Tables 16 through 34 analyze positive relationships utilizing chi-squares on data obtained from West Virginia training professionals in business and industrial organizations. The chi-square probability is less than .05 in all the following tables, which indicates that there is a significant relationship between the variables involved.

Table 16

Distribution of Educational Level and Computer-Based Training

Frequency	Associate Degree or Less	Bachelor's Degree or Higher	Total
No	20	21	41
Yes	6	44	50
Total	26	65	91

Statistic	DF	Value	Probability
Chi-Square	1	14.933	0.001

Table 17

Distribution of Educational Level and Role Plays

Frequency	Associate Degree or Less	Bachelor's Degree or Higher	Total
No	21	28	49
Yes	5	37	42
Total	26	65	91

Statistic	DF	Value	Probability
Chi-Square	1	10.617	0.001

Table 18

Distribution of Educational Level and Self Study

Frequency	Associate Degree or Less	Bachelor's Degree or Higher	Total
No	14	16	30
Yes	12	48	60
Total	26	64	90

Frequency Missing = 1

Statistic	DF	Value	Probability
Chi-Square	1	6.923	0.009

Table 19

Distribution of Years in Position and Games

Frequency	1 - 10 Years	11+ Years	Total
No	18	29	47
Yes	30	14	44
Total	48	43	91

Statistic	DF	Value	Probability
Chi-Square	1	8.143	0.004

Table 20

Distribution of Years in Position and Role Plays

Frequency	1 - 10 Years	11+ Years	Total
No	20	29	49
Yes	28	14	42
Total	48	43	91

Statistic	DF	Value	Probability
Chi-Square	1	6.063	0.014

Table 21

Distribution of Years in Position and VideoTeleconferencing

Frequency	1 - 10 Years	11+ Years	Total
No	29	36	65
Yes	19	7	26
Total	48	43	91

Statistic	DF	Value	Probability
Chi-Square	1	6.036	0.014

Table 22

Distribution of Organization Type and Accelerated Learning

Frequency	Commercial	Professional	Other	Total
No	27	3	29	59
Yes	10	8	14	32
Total	37	11	43	91

Statistic	DF	Value	Probability
Chi-Square	2	8.010	0.018

Table 23

Distribution of Organization Type and Audiotapes

Frequency	Commercial	Professional	Other	Total
No	21	1	17	39
Yes	16	10	26	52
Total	37	11	43	91

Statistic	DF	Value	Probability
Chi-Square	2	8.234	0.016

Table 24

Distribution of Organization Type and Case Study

Frequency	Commercial	Professional	Other	Total
No	16	0	16	32
Yes	21	11	27	59
Total	37	11	43	91

Statistic	DF	Value	Probability
Chi-Square	2	7.104	0.029

Table 25

Distribution of Organization Type and Self Study

Frequency	Commercial	Professional	Other	Total
No	14	0	16	30
Yes	23	11	26	60
Total	37	11	42	90

Missing = 1

Statistic	DF	Value	Probability
Chi-Square	2	6.266	0.044

Table 26

Distribution of Organization Type and Video Conferencing

Frequency	Commercial	Professional	Other	Total
No	28	3	34	65
Yes	9	8	9	26
Total	37	11	43	91

Statistic	DF	Value	Probability
Chi-Square	2	12.066	0.002

Table 27

Distribution of Number of Employees and Accelerated Learning

Frequency	1 - 100 Employees	101+ Employees	Total
No	35	10	45
Yes	24	22	46
Total	59	32	91

Statistic	DF	Value	Probability
Chi-Square	1	6.541	0.011

Table 28

Distribution of Number of Employees and Computer-Based Training

Frequency	1 - 100 Employees	101+ Employees	Total
No	26	19	45
Yes	15	31	46
Total	41	50	91

Statistic	DF	Value	Probability
Chi-Square	1	5.821	0.016

Table 29

Distribution of Number of Employees and ComputerConferencing

Frequency	1 - 100 Employees	101+ Employees	Total
No	39	6	45
Yes	31	15	46
Total	70	21	91

Statistic	DF	Value	Probability
Chi-Square	1	4.761	0.029

Table 30

Distribution of Number of Employees and Games andSimulations

Frequency	1 - 100 Employees	101+ Employees	Total
No	31	14	45
Yes	16	30	46
Total	47	44	91

Statistic	DF	Value	Probability
Chi-Square	1	10.596	0.001

Table 31

Distribution of Number of Employees and Role Plays

Frequency	1 - 100 Employees	101+ Employees	Total
No	32	13	45
Yes	17	29	46
Total	49	42	91

Statistic	DF	Value	Probability
Chi-Square	1	10.677	0.001

Table 32

Distribution of Number of Employees and Self Study

Frequency	1 - 100 Employees	101+ Employees	Total
No	20	25	45
Yes	10	35	45
Total	30	60	90

Missing = 1

Statistic	DF	Value	Probability
Chi-Square	1	5.000	0.025

Table 33

Distribution of Number of Employees and Video Conferencing

Frequency	1 - 100 Employees	101+ Employees	Total
No	37	8	45
Yes	28	18	46
Total	65	26	91

Statistic	DF	Value	Probability
Chi-Square	1	5.082	0.024

Table 34

Distribution of Frequency of Training and Games and Simulations

Frequency	At Least Once Monthly	Less Than Once Monthly	Total
No	26	34	60
Yes	21	10	31
Total	47	44	91

Statistic	DF	Value	Probability
Chi-Square	1	4.876	0.027

Table 35

Distribution of Frequency of Training and Self Study

Frequency	At Least Once Monthly	Less Than Once Monthly	Total
No	15	45	60
Yes	15	15	30
Total	30	60	90

Missing = 1

Statistic	DF	Value	Probability
Chi-Square	1	5.625	0.018

Summary

Chapter 4 described the analysis of the obtained research data. Responses, which were fully completed, were received from 91 of the 240 business and industrial organizations in West Virginia that were surveyed. This chapter discussed in detail the sample returns, demographic data, frequency of usage of training methods, demographic data analysis comparisons, pairs of training methods utilized, and relationships utilizing two-dimensional chi-squares.

The next chapter will present a discussion of findings, conclusions, and recommendations on the obtained research data.

CHAPTER 5

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter contains the findings, conclusions, and recommendations based upon the results of the research study. The purpose of the study was to determine the types of and frequency of training methods utilized by West Virginia training professionals in business and industrial organizations. The information that is obtained from the research study will provide information to professional trainers which will be utilized in developing training programs in the state of West Virginia. The research data was obtained through administration of a survey which determined the types of and frequency of training methods utilized in business and industrial organizations by West Virginia training professionals.

Findings

The following findings are presented from the analysis of the research data:

1. Training professionals in West Virginia are utilizing various training methods, with on-the-job training and the lecture method being utilized most frequently.

2. Training is being provided on at least a monthly basis to employees in most business and industrial organizations in the state of West Virginia.
3. Professional trainers in the state of West Virginia who have at least a bachelor's degree level of education utilize a wider array of training methods than trainers with less than a bachelor's degree.
4. Professional trainers in the state of West Virginia, who have been in their current position 10 years or less, frequently utilize a more diverse variety of training methods than professional trainers who have been in their current position for 11 or more years.
5. Professional organizations in the state of West Virginia utilize more types of training methods than other types of business organizations in the state of West Virginia.
6. Business and industrial organizations in the state of West Virginia which have more than 100 employees utilize a wider variety of training methods than business and industrial organizations in the state of West Virginia which have 100 or fewer employees.

7. No significant relationships were shown between training methods utilized by professional trainers in the state of West Virginia and demographic data referring to age or gender.

Discussion of Findings

Sample. The sample for the research study consisted of professional training leaders in business and industrial organizations in the state of West Virginia. A random sample of 240 professional trainers in West Virginia was obtained by utilizing the Regulatory Training Center's business and industry mailing list. The 240 professional trainers surveyed represented 34% of the accessible population.

Responses were received from 93 of the 240 research subjects surveyed, for a survey response rate of 38.75%. Two of the participants who responded only completed the demographic data section of the survey. These two participants did not complete the section of the survey regarding the utilization of various training methods. Therefore, there were 91 responses which were completed. The survey response rate accounted for 37.92%.

Utilization of Training Methods. The analysis of the research data concluded that training professionals in business and industrial organizations in West Virginia are

utilizing a variety of training methods. The two most commonly used training methods by professional trainers in West Virginia were on-the-job training and lecturing. On-the-job training was utilized by 87 of the 91 study subjects, for an overall usage rate of 96% by study subjects. The lecture method was utilized by 78 of the 91 study subjects, for an overall usage rate of 86% by study subjects.

There could be various reasons why on-the-job training and lecturing were the two most common training methods utilized by training professionals in business and industrial organizations in the state of West Virginia. Reasons that on-the-job training and lecturing have been utilized so frequently could include that they achieve the best training results for employees, that West Virginia trainers are more comfortable utilizing these two training methods, and that these two methods have been traditionally used and "passed on" to other trainers.

Frequency of Training. Analysis of research data indicates that the majority of employees of business and industrial organizations in West Virginia receive training at least once a month. Training was received at least once monthly by 64% of the research subjects studied. The frequency of training provided to employees in West

Virginia might be influenced by the following factors: new technology being implemented into the workplace, new equipment being used in the workplace, or the turnover rate of employees.

Educational Level of Trainers. There was a significant relationship found between the educational level of professional trainers in West Virginia and the training methods utilized by these trainers. Professional trainers in the state of West Virginia who had at least a bachelor's degree level of education utilized a wider array of training methods than trainers with less than a bachelor's degree. Chi-square analyses revealed significant relationships between trainers who had a bachelor's degree level of education or higher and trainers who utilized computer-based training (CBT), role plays, and self study.

Trainers with a higher level of education might utilize CBT, role plays, and self study on a more frequent basis for a variety of reasons. These trainers might be more comfortable utilizing these types of training methods due to their educational experiences. These trainers may have learned about the positive utilization of these training methods in an educational setting and then "tried

out" these training methods for themselves by implementing them into their companies' training sessions.

Experience of Trainers. There was a significant relationship found between the number of years trainers had spent in their current job position and the training methods utilized by these trainers. Professional trainers in the state of West Virginia who had been in their current job position 10 years or less utilized a wider array of training methods. Chi-square analyses revealed significant relationships between trainers who had been in their current job position 10 years or less and trainers who utilized games and simulations, role plays, and video teleconferencing.

Trainers who had been in their current job position for 10 year or less might utilize games and simulations, role plays, and video teleconferencing frequently due to several factors. These trainers are newer to their current position and, therefore, incorporate newer training methods such as video teleconferencing into their training seminars. These trainers may also have just recently graduated and feel that they should incorporate a variety of training methods into their company's training program. These trainers may also still be "fresh" and do not feel "burned out" in their positions so they spend more time and

energy trying to improve their training sessions by implementing a variety of training methods in their training.

Type of Organization. There was a significant relationship found between the type of organization and the training methods utilized by trainers. Trainers in professional organizations, businesses and industries in the medial or educational field, in the state of West Virginia utilized a wider array of training methods than trainers in other types of business and industrial organizations. Chi-square analyses revealed significant relationships between trainers in professional organizations and trainers who utilized audiotapes, case study, self study, and video conferencing.

Trainers in professional organizations might utilize audiotapes, case study, self study, and video conferencing more frequently due to a few factors. Trainers in professional organizations might utilize training methods such as audiotapes and self study frequently due to the educational level, career field, and career time restrictions of the employees needing training.

Organization Size. There was a significant relationship found between the size of the organization and the training methods utilized by trainers. Professional

trainers in business and industrial organizations in the state of West Virginia who have more than 100 employees utilized a wider array of training methods than professional trainers in business and industrial organizations who have 100 or less employees. Data analysis utilizing chi-squares found positive relationships between trainers in business and industrial organizations in the state of West Virginia who had more than 100 employees and trainers who utilized accelerated learning, CBT, computer conferencing, games and simulations, role plays, self study, and video conferencing.

Professional trainers in business and industrial organizations in the state of West Virginia who have more than 100 employees may have utilized a wider array of training methods for several reasons. With a larger number of employees, training sessions may be needed on a more frequent basis. Therefore, trainers in these business and industrial organizations may have chosen to implement a greater number of training methods to keep their learners stimulated and to meet the needs of all types of learners in their training sessions.

Age and Gender of Trainers. There were no relationships found between training methods utilized by professional trainers in business and industrial

organizations in the state of West Virginia and demographic data referring to age or gender.

Conclusions

The research study was designed to determine the frequency of employee training and to determine the various types of training methods being utilized by professional trainers of business and industrial organizations in the state of West Virginia. The following conclusions can be drawn from the research study:

1. Professional trainers of most business and industrial organizations in the state of West Virginia provided employee training at least once a month.
2. Training professionals in West Virginia utilized on-the-job training and lecturing training methods more frequently than other types of training methods.
3. Professional trainers in the state of West Virginia utilized a wider array of training methods if they had a bachelor's degree or higher level of education or had been in their current position 10 years or less.
4. Professional trainers in the state of West Virginia also utilized a wider array of training

methods if the business or industrial organization they were training at had over 100 employees and was categorized as a professional organization.

Recommendations

The following recommendations are proposed:

1. The study should be replicated with efforts to obtain a larger sample size which would contain data on subjects from bordering states such as Kentucky, Ohio, Virginia, and Pennsylvania.
2. The study should be replicated with efforts made to obtain demographic data concerning the participant's degree major, which might help the trainer utilize various training methods.
3. The data obtained from the research study should be provided to professional trainers in the state of West Virginia to be utilized in the development of training programs for business and industry.
4. The data obtained from the research study should be provided to the American Society for Training and Development (ASTD) to be utilized in the development of train the trainer programs for current trainers.

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Appendix A

Letter for Training Leader

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MARSHALL
UNIVERSITY

«DATA Macintosh HD:Mayes:Training Methods:Survey Data»

COLLEGE OF EDUCATION AND HUMAN SERVICES

Division of Human Development and Allied Technology

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- Adult and
Technical
Education

April 27, 1998

- Counseling

«name»

- Family and
Consumer
Services

«address»

- Safety
Technology

Dear «salutation»:

You have been selected to participate in a survey I am doing as part of my graduate research work. If you are not the person responsible for training and development in your organization, please pass this survey along to the person who is responsible for your organization's training and development needs.

I am enrolled in the Adult and Technical Education Graduate Program at Marshall University. The study I am performing looks at the various training methods used by organizations. This survey should provide some valuable information about training methods. This information is going to be used to provide direction to Train the Trainer Programs in the state of West Virginia.

If you participate, confidentiality is guaranteed. No organization will be identified in this study. This survey should take you less than 10 minutes to complete. So sit back, relax, have a piece of refreshing gum, and fill out the attached survey. Please return the survey in the envelope provided by May 15, 1998. Thank you for taking the time to fill out the survey.

Thanks again,

Kelli R. Mayes
ATE Graduate Student

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Appendix B

Training Methods Survey

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Which of the following training methods does your organization or department utilize in providing training activities? If yes, please circle how often this training method is utilized. (Explanations of each method are included on the attached sheet.)

		5	4	3	2	1
		Always	Frequently	Sometimes	Seldom	Never
a)	Accelerated Learning					
	_____ No _____ Yes	5	4	3	2	1
b)	Audiotapes					
	_____ No _____ Yes	5	4	3	2	1
c)	Case Study Methods					
	_____ No _____ Yes	5	4	3	2	1
d)	Computer-Based Training/CBT (i.e. tutorials)					
	_____ No _____ Yes	5	4	3	2	1
e)	Computer Conferencing (i.e. Internet used)					
	_____ No _____ Yes	5	4	3	2	1
f)	Games & Simulations					
	_____ No _____ Yes	5	4	3	2	1
g)	Lectures					
	_____ No _____ Yes	5	4	3	2	1
h)	On-the Job Training (OJT)/Mentoring					
	_____ No _____ Yes	5	4	3	2	1
i)	Role Plays					
	_____ No _____ Yes	5	4	3	2	1
j)	Self Study (without computer usage)					
	_____ No _____ Yes	5	4	3	2	1
k)	Videotapes					
	_____ No _____ Yes	5	4	3	2	1
l)	Video Teleconferencing (Distance Learning)					
	_____ No _____ Yes	5	4	3	2	1

Appendix C

Explanation of Training Methods

The following information is provided to explain the training methods used in this study. The information is organized into sections that correspond to the different training methods used. The information is provided to help the reader understand the methods used and to help the reader evaluate the results of the study.

The first section describes the methods used for data collection. The second section describes the methods used for data analysis. The third section describes the methods used for data interpretation. The fourth section describes the methods used for data presentation. The fifth section describes the methods used for data storage. The sixth section describes the methods used for data backup. The seventh section describes the methods used for data recovery. The eighth section describes the methods used for data security. The ninth section describes the methods used for data archiving. The tenth section describes the methods used for data migration. The eleventh section describes the methods used for data replication. The twelfth section describes the methods used for data synchronization. The thirteenth section describes the methods used for data backup and recovery. The fourteenth section describes the methods used for data security and access control. The fifteenth section describes the methods used for data archiving and migration. The sixteenth section describes the methods used for data replication and synchronization. The seventeenth section describes the methods used for data backup and recovery. The eighteenth section describes the methods used for data security and access control. The nineteenth section describes the methods used for data archiving and migration. The twentieth section describes the methods used for data replication and synchronization.

Accelerated Learning is a combinations of physical relaxation, mental concentration, guided imagery, suggestive principles, music, comfortable surroundings, mnemonics, games, stories, poetry, background posters, peripherals, and group interaction.

Audiotapes consists of using audiocassette tapes for instructional or training purposes.

Case Study Methods involve reporting an actual or make-believe situation, having the learners think about and analyze the case, and discussing the case with other people.

Computer-Based Training (CBT) consists of interactive tutorials and simulations containing text and possibly graphics that provide training by means of a main frame computer or personal computer without the use of the Internet.

Computer Conferencing consists of using the Internet or similar computer networks to conduct training sessions.

Games & Simulations are games or situations where individuals or focus groups consisting of employees and/or supervisors interact to simulate real-world conditions.

Lectures consist of traditional, stand-up oral presentations by an instructor as a training method.

On-the-Job Training (OJT)/Mentoring is having one worker train another worker, usually while on-the-job and performing the actual work.

Self Study is any teaching situation where students take responsibility for their own learning, make decisions about the topic of study, objectives, resources, schedule, type and sequence of activities, environment, media, etc.

Role Plays consist of assigning roles to class participants and having the participants play out the roles usually in pairs or larger groups to illustrate an instructional concept or to reinforce learning.

Videotapes consists of training delivered by the use of VHS videotapes either in classroom settings or in self-study settings.

Video Teleconferencing (Distance Learning) is training (audio and visual) delivered across hundreds of miles via satellite or over short distances via local area networks.