EVALUATION AND ANALYSIS OF ALTERNATIVE METHODS TO PROVIDE SAFETY-RELATED TRAINING FOR APPLICATION INTO XYZ SCHOOL DISTRICT

by

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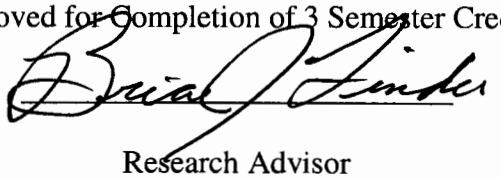

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ABSTRACT

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Evaluation and Analysis of Alternative Methods to Provide Safety-Related Training for Application into the XYZ School District

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This research will present an analysis computer-based training (CBT) versus web-based training (WBT) as they relate to safety for possible integration into the XYZ School District. The objectives of this study will identify the groups of employees that this training would appropriately serve, the extent to which employees possess knowledge of computer operation and Internet usage as well as identify the most probable method by which to provide safety-related training.

A literature review will investigate the importance as well as essential elements of training along with the advantages and disadvantages of CBT and WBT. These methods will be analyzed in order to find an alternative means for providing safety-related training

for the XYZ School Districts' employees because work schedule conflicts are creating a lack of completion and documentation of that training.

In addition, a detailed analysis of a technology and computer usage survey will be given in order to assess which method of safety-related training is most viable for the district. The primary conclusion drawn from that survey, but is not limited to, the gradual integration of a WBT program that will be used to facilitate the safety-related training that is necessary for all employees in the XYZ School District.

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To my parents, without your guidance and encouragement none of this would have been possible. I would also like to acknowledge Mrs. Carrie Hallquist, Dr. Brian Finder, and the students in the class of 2005 in Risk Control for their support.

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CHAPTER I: INTRODUCTION

In today's ever evolving society, it appears that technical improvements and processes are being discovered and utilized everyday. These seem to affect the way society conducts business and as well as the way people are being trained in business. It also appears that today an effective and successful safety-training program is becoming a crucial aspect in all types of businesses. When it comes to the safety of schools, this is no exception. Safety programs in schools should be of high importance because of the increased liability as well as the heightened responsibility for the protection of employees, personnel and for the numerous amounts of students in these buildings.

The XYZ School District is a public entity that consists of fourteen elementary schools, three middle schools, two high schools and one charter school with grades ranging from kindergarten through twelfth, along with a buildings and grounds and administration building. Safety of the students, employees, personnel and property is one of the school district's number one priorities. A key component to the success of the overall safety program's goal is to have knowledgeable, competent and trained employees and personnel.

The safety program that is being used by the XYZ School District uses in-house safety training as well as an emphasis on a hands-on approach regarding specific safety programs. Because of the size of the district, number of buildings and numerous types of employees, it is difficult to organize everyone together to conduct safety training. Work schedule conflicts develop the potential for increased costs for specialized trainers, time away from work, lack of data collection and organization, as well as training material fees. These conflicts can possibly become a loss-producing problem and affect the

success of the safety-training program. A look into the possible uses of other safety training methods needs to be examined in order to determine if there is one that stands out above the rest. Another potential for loss could arise from not expanding the XYZ School District's old methods of employee safety-training to keep in pace with the ever-changing relationship between technology and society. Therefore, the lack of not exploring the possibilities of other training methods needs to be explored. However, it is the work schedule conflicts within the XYZ School District that are causing difficulties in completing and documenting safety-related training.

Purpose of the Study

The purpose of this study is to explore alternative means of providing XYZ School District employees with safety-related training that will better suit their availability and work schedule.

Goals of the Study

There are three goals that are the main objectives of this study. These goals are designed to assist in exploring alternative means of providing safety-related training, as well as determining the extent that employees at the XYZ School District have access to and have basic knowledge of computer operation. The three goals are as follows: Identify the groups of employees that this training would appropriately serve.

1. Identify the groups of employees that this training would appropriately serve.
2. Identify the extent that XYZ School District's employees have access to as well as possess the knowledge to operate computers in their work settings.
3. Identify the most probable method by which to provide the XYZ School District's employees with safety-related training.

Background and Significance

The XYZ School District has, as one of its prime concerns, the safety of students, employees, and other person(s) using programs and facilities. The district has an established program to make school facilities, buildings, and grounds safe and healthful. The XYZ School District's safety program's goal is to reduce hazards and unsafe conditions. Plans, procedures, and equipment are implemented to ensure that each employee and student is doing a necessary part to avoid unsafe practices. Success of the program depends upon a positive, safe attitude and cooperation of all students and employees throughout the system.

The success of the XYZ School District's safety program is dependent on the attendance, amount and quality of safety-related training that is provided. Currently, specific employees that need a certain safety-training course are gathered at an in-house location. An appropriately qualified individual then conducts the training, whether that individual is in-house or sought outside the XYZ School District. Unfortunately, there are recognized problems within this system of training.

For the XYZ School District, the gathering of employees for a safety-training course can be cumbersome. This is in part because of the different work-schedules of the employees. Different employees work at different times and therefore make it difficult to coordinate a time where all employees would be available for the training. A problem arises when some employees are not able to make a training session. Once that course has been taught, it is almost impossible to have the employee trained on what they missed until the next time the course is offered, which usually is not until one to three years later.

This is because additional costs to train such few employees would not be economical for the XYZ School District.

Besides economical costs resulting from lack of attendance, problems could range from legality issues, to an employee not knowing what to do in a certain situation because they did not take the appropriate safety-related training course. This is why complete attendance in training programs such as Blood Born Pathogen Protection (BBP), First Aid, Fire Safety, Lockout Tagout (LOTO), Asbestos Awareness, as well as many other safety programs are necessary to be completed by all affected employees. Documentation of attendance, when the training was completed and any quiz/testing results are difficult to maintain because of the amount of paperwork involved as well as the inconsistency of the documentation. It is also difficult to identify personnel who did not complete the safety-related training because of their scheduling-conflicts. These work-schedule conflicts lead to enough potential problems to explore other means of delivering the types of safety-related training that the XYZ School District needs.

Other methods of delivering training, that reach all of the appropriate personnel, can have a large positive impact on the XYZ School District's safety program. A change from the current in-house style of training to safety-related training being done via a computer could help to eliminate some of the XYZ School District's potential safety problems. Computer-based instructional methods, whether done with media such as Compact Disks (CD's) or directly through the Internet will still require general computer operation and knowledge. Therefore, the extent of that knowledge, as well as to whom this type of training would be most appropriate for within the XYZ School District needs to be assessed.

Lost time, training expenses, unorganized documentation, as well as a possible lack of safety-related training are all potential loss producing situations that are developing from work-schedule conflicts. In order to help protect these assets, it is necessary to explore other options of providing safety-related training, see who these different options of training would appropriately serve, and discover the extent of computer access and knowledge at the XYZ School District.

Limitations of the Study

One of the limitations involved in exploring alternative means of providing the XYZ School District employees with safety-related training that better suits their work schedule was that only two alternative options for safety-related training were explored. Finally, safety-related training programs that could not be taught via the computer and required hands-on training were not discussed.

CHAPTER II: LITERATURE REVIEW

The purpose of this study was to explore alternative means of providing XYZ School District employees with safety-related training that will better suit their availability and work schedule. Two specific methodologies of delivering safety-related training to employees will be assessed to determine their individual advantages and disadvantages.

Training

Training helps employees acquire the knowledge and skills needed to perform their jobs safely. Safety and health training helps them understand standard operating procedures, potential hazards, appropriate protective measures and proper responses to unplanned, undesired events (Jensen, 2005). It is that integration of training with safety and health along with how it is delivered which makes training effective.

A more ambitious approach to safety and health training can reap large rewards in the long term. Health and safety programs are being taught with techniques that make safety training more productive, time efficient and in some cases, more entertaining. Many businesses are now also discovering that how they conduct safety and health education is as important as the material they teach (Safety Education, 2000). It is the material that is being taught along with the method in which it is being taught that must be refined in order to make it an effective training program.

Different authoritative reviews of the general training literature by Goldstein and Buxton (1982), as well as Campbell (1988), and Tannenbaum and Yukl (1992; as cited in Cohen & Colligan, 1998) emphasize the importance of seven certain elements as critical to an effective program. These critical training elements are as follows:

- Conduct a needs assessment to provide the information to establish the objectives of the training program.
- Establish the training objectives.
- Specify training content and media which represents the knowledge or skill the trainee must master to be able to meet the behavioral objectives.
- Account for individual differences. Aside from aptitude differences, literacy, or skill levels, how trainees view the training program in terms of improving their job performance may dictate different approaches.
- Specify learning conditions. The current literature suggests that using learning events that provide appropriate feedback (positive/accurate/credible) and opportunities for practice under conditions that promote transfer to the actual job are ideal.
- Criteria for rating the effects of training are the focus of much discussion in the literature.
- Revise the training. Gaps or variations in knowledge or competencies that result from the training may reflect need to consider more training time, alternative instructional techniques, or more capable instructors.

It is these criteria that are the main drivers of how training should be carried out, reviewed and if necessary, revised. It seems that for the XYZ School District, it is the revision of training that must be analyzed now that their problem has been identified. These revisions can lead to a complete turn-around in how training is being presented and delivered. How the training is delivered seems to be dependent on the trainer. There are

several guidelines as mentioned by Robotham (2001) to follow when conducting training that makes an effective trainer:

- Keep up to date.
- Follow the session plan.
- Review session plans.
- Review training aids.
- Make testing appropriate.
- Document everything.
- Keep accurate records.
- Avoid dismissing class early.
- Maintain training focus (Robotham, 2001, p. 4).

These are very general guidelines and are not meant to be set standards; however, there may be various methods of delivering safety-related training that will meet these guidelines as well if not better than the traditional face-to-face method. These two methods of delivering safety-related training are computer-based training (CBT) and web-based training (WBT).

Computer-based Training

An approach to safety and health training that is being integrated into schools and businesses across the country is the use of CBT. These computers use media such as Compact Disk – Read Only Memories (CD-ROMs) to share information as well as act as gateways through which people acquire most information today. However, the increased use of computers seems to present an issue with regard to the effectiveness of training without an instructor being physically present. A field experiment was conducted by

Desai (2000) to determine the importance of certain key variables in successful training programs. Hourly and salaried employees of a Fortune 100 corporation who all were novices with computer operation were used as the sample subjects. The variables studied were the training methods and task. The training methods included instructor-based training (IBT) and CBT and the tasks included the operation of Microsoft Word and Microsoft Excel 5.0. The field experiment was voluntary and the subjects could drop out at anytime. Demographic data such as gender, computer experience, education and work experience were used to assess the prior knowledge of the subjects. Four groups total, following similar techniques, were used to compare IBT using Microsoft Word and Microsoft Excel, and CBT using Microsoft Word and Microsoft Excel. IBT incorporated traditional training stand-up lecture and a hands-on method, while CBT group only interacted with the computer and not an instructor. IBT participants were provided a training manual and instructor assistance, whereas the CBT subjects received no training manual and only received assistance that was not training related. Measurements in the form of test questions were taken at the beginning of training, at the end of training, and one month after training to determine performance. The four question categories included menu, icon, control, and exhibit and the subjects' performance also determined the amount of retention between the two different training methodologies. According to the field experiment on IBT vs. CBT conducted by Desai, the overall results from these measurements indicated CBT training to be more effective than IBT. Desai also stated that while CBT was an effective means of training, accepting it as a formal training tool was not favorable amongst employees (Desai, 2000).

In CBT, three things can occur: first, the computer presents the material to the learner; second, there is an opportunity for the learner to apply that material; and third, the computer provides feedback on performance (Kattackal, 1994). These are essential elements that all trainers need to focus on in order to help drive and record employee safety-performance. Improved employee performance because of the use of CBT could possibly be attributed CBT popularity. According to (Forlenza, 1995), more technological reasons for the popularity of CBT are as follows:

- Microcomputers costs are declining rapidly and hardware seems to represent a smaller percentage of that investment as well as the increase of microcomputer capabilities.
- CBT is a technological solution, for organizations that are used to purchasing technology, in order to meet performance-enhancing needs.
- For teaching technical subjects that require graphic illustrations, CBT is one of the best options (Forlenza, 1995).

In addition to the technical reasons for CBT popularity, there are other media delivery formats, such as CD-ROMs, that can be used in conjunction with CBT to enhance the method of training delivery. Trainers are increasingly using CD-ROM technology, which is a more sophisticated form of CBT, for skills development along with training for technical issues. A CD-ROM combines and can utilize video, audio and text capabilities, including animation (Kattackal, 1994). CBT popularity could also possibly be a result of the benefits of CD-ROM use as compared to WBT. The following advantages, as suggested by Perry (2000), favor CD-ROM training over WBT:

- CD-ROM training allows for a wider range of teaching designs.

- CD-ROM training has fewer restrictions on media as result of a lack of bandwidth. Examples of such types of media can include audio and video.
- CD-ROM training possibly allows for more types of interactivity as well as a greater number of test questions and types of exercises (Perry, 2000).

Some safety professionals cite lack of human interaction as a primary disadvantage of computer-based learning. Some also believe that without face-to-face interaction, new employees are not receiving a "warm" or welcoming introduction that comes along with human interaction. As a result, it is possible that these employees may perceive the company as uncaring (Lawson, 1999). While the instructor must be physically present for certain training sessions, safety professionals also need to be aware of the opportunities of possible other methodologies for communicating training and instruction.

There are certain "roadblocks to implementation" of CBT. These include job security and computer literacy. However, once the fear of being replaced by a computer is overcome, the advantages, such as more time to focus on other issues, can be realized and taken advantage of (Lawson, 1999). Computer usage seems to be such a common operation by people today that it would seem only natural to explore all of the advantages that they can offer. These advantages should be embraced and not feared, such as Lawson suggests. While CBT has many advantages to its use, another option of utilizing the Internet for safety-related training must be addressed.

Web-based Training

Today, it appears that WBT is growing in popularity as well as in its usage. According to a 1997 American Society of Training and Development (ASTD) study,

WBT is growing at an annual rate of 80%, followed by interactive classroom training, at 57%; electronic performance support system training at 50%; and computer-based, or CD-ROM training at 22% (FirstNet Learning, 2000). The World Wide Web (WWW), which is a part of the Internet, is bringing rapid change into peoples' lives, either beneficially or with difficulty (U. S. Department of Education, 2000). This rapid change and growth has the potential of leaving the safety and health industry behind, which is why there must be acceptance to this developing technology.

In December 2000, the Web-based Education Commission put out a report titled "The Power of the Internet for Learning: Moving from Promise to Practice" (U. S. Department of Education, 2000). This commission was comprised of numerous Internet experts as well as teachers and senators who developed and eventually submitted a report to the United States President and Congress, which contained a detailed statement of the findings and conclusions of their study. The closing statement of that report is as follows:

> There is no longer a question of if the Internet can be used to transform learning in new and powerful ways. The Commission has found that it can. Nor is the question should we invest the time, the energy, and the money necessary to fulfill its promise in defining and shaping new learning opportunity. We all have a role to play. It is time we collectively move the power of the Internet for learning from promise to practice. (U.S. Department of Education, 2000, p. 134)

As indicated by the above quote, it appears that utilizing the Internet for learning seems to be the equivalent of a training opportunity and should be taken advantage of in conjunction with safety-related instruction.

WBT has been known to save organizations and companies up to hundreds of thousands of dollars as well as countless hours of lost work time (FirstNet Learning, 2000). However, to more specifically meet the needs of the XYZ School District, there are additional benefits that WBT must provide. WBT provides an interactive learning experience that can be designed to meet specific needs and schedules of an organization or company.

There are some safety professionals who see the Internet and WBT as a major opportunity as well as a resource to strengthen existing safety training programs. These opportunities can lead to potential advantages of WBT as compared with CBT. According to Wulf (1996), some of these advantages are as follows:

- The Internet is time and place-independent. It can save on the cost of travel and an employee does not have to be in an office.
- A WBT product has the ability to be developed quickly compared to CBT products.
- Various Internet utilities are available for different training requirements. Examples of these include the use of e-mail, bulletin board, real-time conferencing, and interactive tutorials.
- Learners can apply what they are learning during the course as well as go back online any time for any additional help or clarification.
- It is efficient and easy to update the content of a web page in comparison to updating a CD-ROM training product Wulf (1996).

These advantages can possibly lead to a form of training that in never outdated. Also, according to Wulf, the instructional experience could be as interactive as a classroom

discussion when utilizing Internet-accessible discussion groups and real-time computer conferencing.

One example of the advantages gained through Internet-based instruction was its use by different utilities for the delivery of training. Visual aids, such as blood born pathogen pictures (spills, cleanup, materials, kits, etc.), types of hearing protection, proper lifting and stretching pictures, as well as illustrations on fire safety and personal protective equipment (PPE) are just a very few safety-related programs that could utilize the Internet for video, illustrations and interactive tutorials on equipment and procedures. These different forms of delivery help to alleviate potential questions by providing different ways to present the material to the trainee. On the other hand, some professionals suggest that online courses may leave students with unanswered questions if there are no instructors to consult. However, with the different forms of material delivery along with the increasing pace of the Internet in business, Internet learning's diversity overshadows that possible drawback (Swanson, 2000).

Some professionals believe that the Internet is the key or "gateway" to the future in training (Sorine, Walls & Trinkleback, 2001). This "gateway" could possibly be a source for collecting and providing regulatory compliance information to employees. In addition, through WBT companies can easily track either who has been or not been through instruction. Tracking who has or has not been through safety training has proven to be a big benefit at Ryder System, a Miami-based truck leasing company. "Being in a regulated industry, if there's a problem and we need to prove someone was trained, we have it documented in one place," said Jeff Wright, Ryder's e-learning manager (Wessel & Sentinal, 2003). This is a huge advantage over CBT methods that incorporate the use

of CD-ROMs because of the ability to record and organize easily retrievable information, which happens to be one of the largest problems at the XYZ School District.

Internet flexibility has grown and is changing the way people are viewing electronic learning at many different levels (Sorine, Walls, & Trinkleback 2001). However, some safety professionals view the Internet and WBT as a threat as compared to traditional classroom training. According to Wulf (1996), some disadvantages of Internet-based instruction can include:

- Limited bandwidth, which results in slower performance than is possible with CBT. This is also especially true if the instructional provider is incorporating sound, video, and graphics into the training.
- Current authoring systems for the web can be less sophisticated than CBT systems.
- Possible unreliable Internet links. It is said that there are now more "places to go" on the Internet, however there are also now more dead ends.
- Employees may not have the computer skills or Internet knowledge to use Internet-based training.
- The learner has the responsibility in choosing when and to what extent to participate (Wulf, 1996).

While the literature has shown that there seem to be greater advantages of WBT as compared to its disadvantages, there are also other considerations to take in account.

The learning style as well as the capabilities of the learners or target audience should be determined before committing to WBT (Elliott, 1999). The teacher should be sensitive to any literacy demands that might be placed on students by the technology. It

must be clear as to whether the Internet is being used for information retrieval or for communication, such as teaching, purposes (Mike, 1996). In this case the term "teacher" could be replaced with that of "trainer" and "students" could be replaced with "employees." Therefore, it seems important to gain an assessment of the computer knowledge of the employees before attempting to train by using this particular methodology.

Summary

According to the IBT versus CBT field experiments conducted by Desai (2000), the overall results indicated CBT to be more effective than IBT. Desai also stated that CBT was an effective means of training; however, accepting it as a formal training tool was not favorable amongst employees. Moving away from IBT, the literature reviewed some of the advantages of CBT over WBT, such as a wider range of teaching designs and fewer restrictions on media (audio/video) as result of a lack of bandwidth as stated by Perry (2000). However, WBT meets the criteria stated by Robotham (2001) for covering what it takes to be an effective trainer. In addition, an annual increase in WBT of 80% as compared to and annual increase of 20% in CD-ROM training, according to the 1997 ASTD study, would seem to indicate the further advances and advantages of WBT over CBT. It was also shown that, according to Wulf (1996), WBT could save employees time if away from the office as well as the use of various utilities such as e-mail, bulletin board format, real-time conferencing, interactive tutorial, and so forth. Wulf also suggested that it is efficient and easy to update the content of a web page in comparison to updating a CD-ROM training product. According to Elliott (1999), it was also stated

that the learning style as well as the capabilities of the learners or target audience should be determined before committing to web-based instruction.

Literature has shown that WBT can offer all of the benefits of CBT with little disadvantages. Determining which method for delivering safety-related training to employees should depend on the particular needs of that business. School systems need to recognize the benefits and convenience of IBT. It seems that not being up-to-speed and to not taking into consideration these trends would put a company, or in this case a school, at a distinct disadvantage from a safety-related training standpoint. This is why it is necessary for the XYZ School District to first assess the computer literacy of its employees and then, based on the data, identify the viability/benefits of utilizing a WBT system.

CHAPTER III: METHODOLOGY

The purpose of this study was to explore alternative means of providing XYZ School District employees with safety-related training that will better suit their availability and work schedule.

There were three goals of this study that were designed to assist in exploring alternative means of providing safety-related training, as well as to determine the extent that employees at the XYZ School District have access to and have basic knowledge of computer operation. The three goals were as follows:

1. Identify the groups of employees that this training would appropriately serve.
2. Identify the extent that XYZ School District employees have access to as well as possess the knowledge to operate computers in their work settings.
3. Identify the most probable method by which to provide the XYZ School District's employees with safety-related training.

This chapter focuses on the methodology and research instrument used in order to meet the goals above.

Subject Selection and Description

Subjects were selected for the research based on the five main full time employee groups in the XYZ School District. These groups included teachers, clerical/administration personnel, support staff, buildings and grounds staff, as well as food service employees. This sample population was selected in order to get data from all of the different positions in the district to adequately represent their general group computer knowledge and technology usage. This sample population of about 600 out of 1200 was taken from nine out of the twenty schools in the district in order to provide the

highest amount of responses from the schools with the largest amount of employees. Schools were also selected based on geographic location in order to cover any possible variations in demographics between the schools.

The subjects selected for the research were all over the age of 18 because the XYZ School District does not employee any worker under those five job descriptions as a minor. In conjunction to the protection of subjects under the age of 18, the research also did not include any identifying information about the participants' age, gender or race, and participation in the research was completely on a voluntary basis. Lastly, the XYZ School District's student population was not used in the research.

Instrumentation

The data collection instrument was a 12 question survey that focused on subject computer knowledge and technology usage. The researcher, the safety department, and the technology department developed the questions that were incorporated in the survey. The collaboration of the three areas was to not only meet the needs of the research, but also to provide information for the XYZ School District's Technology Department and thus determine which type of safety-related training method would most appropriate for the XYZ School District. The data that was collected from the questions in the survey adequately provided the necessary information for all three areas. Following is the 12 question computer usage and technology survey that was used for instrumentation in the XYZ School District.

1. Which best describes your computer use?

    A. I don't use it. No need or no time.

    B. I read and send email. I can word process simple documents.

C. I send attachments and organize email. I make pretty nice Word documents.

D. I regularly use Outlook, Word and many other programs.

E. I use a lot of programs and can learn new programs on my own. I often help others.

2. How often do you use the Internet?

A. Every day

B. Weekly

C. Monthly

D. Once in a while

E. Never

3. At home I have:

A. No computer

B. Computer

C. Computer and Internet access

D. Computer, Internet and lots of other electronic gadgets

4. Do you think you have the skills needed to complete a web-based training course?

A. No

B. Yes, if it was a short class (less than an hour)

C. Yes, I could complete it regardless of time

5. How willing are you to being taught through an online tutorial/course?

A. Not at all willing. I prefer other methods

B. Somewhat willing, only if it saves time

C. Willing, if other people find it beneficial

D. Very willing. I don't mind using computers to learn

E. Absolutely willing. I prefer to use computers for learning

6. What is your preferred method for learning?

A. Trial and error

B. Self-paced with a workbook

C. One-on-one tutoring

D. Traditional classroom environment with a group of people

E. Online tutorial or class

7. How often do you use the computer and/or web to analyzing data and conduct research?

A. Every day

B. Weekly

C. Monthly

D. Once in a while

E. Never

8. What do you think is the largest barrier to improving your computer skills?

A. I have no barriers

B. Access to staff development

C. Time

D. Not having the appropriate software programs

E. I think computers often take more time than they save

9. What do you think is the largest barrier to students benefiting more from computers?
    A. Access to the hardware
    B. Access to quality software programs
    C. Teacher knowledge
    D. Hardware, software and network problems
    E. Safety and security restrictions or concerns
10. Would you like to do more with technology, but feel limited because of other initiatives?
    A. Yes
    B. No
11. Do you feel you have enough access to technology to do your job the way you want to?
    A. Yes
    B. No
12. If you could have more of one of the hardware items below, which would it be?
    A. More and/or better software
    B. More computers in my room or work area
    C. More computer labs
    D. More data projectors or a projector mounted in my room

The survey was designed to take approximately two minutes for each subject to complete. This was in order to keep the response rate higher by supplying a short survey as well as keeping it focused by only incorporating 12 specific questions. The answers to

the questions were designed to most closely reflect the participants' true responses by including specific answers for each question. Only the first seven questions were used to help answer the three goals of this research while eight through twelve were used to assist the XYZ School District's technology department by assessing more personalized employee opinions in relation to technology preferences and limitations.

Data Collection Procedures

One survey instrument was used in the research; however there were two methods of data collection. One survey uploaded onto a private intranet web page that was only available to the subject participants in the XYZ School District. This web-based survey was sent to all five employee groups in order to help reach a larger sample population. The survey was removed off the district's private intranet after four days of availability. The results from that survey were then automatically collected into a database and left for analysis of the results.

A hard copy of the same survey was physically delivered to each of the nine schools in the XYZ School District and then picked up personally by the researcher four days later. The web survey and the hard-copy survey included the same questions in order to maintain the validity of results. The hard copy survey was, however only provided for the support staff, buildings and grounds and food service participants. These three groups were to disregard the hard copy survey if they had already completed the web survey. This was done in order to increase the amount of responses from these employee groups. A consent form indicating voluntary participation was provided at the top of the survey in order to maintain research integrity.

Three days before the web-based survey and the hard copy version were made available to the participants, an e-mail was sent out by the researcher to the supervisor of each of the groups in each of the nine buildings in order to raise awareness of the importance of the upcoming survey. An additional e-mail was sent to the school secretaries mentioning the hard-copy drop-off and collection dates. A reminder e-mail was sent to the group supervisors and school secretaries the day before collection to help increase a last day response rate. Finally, on the fourth day of both surveys being available to the participants, the web-based survey was taken off of the XYZ School District's private intranet and the hard-copy surveys were collected from all of the nine schools by the researcher.

Data Analysis

Question one from the computer usage and technology survey was "Please select your employee group." This question was the basis on how the data from the survey instrument was analyzed as well as provided the means to identify the groups of employees that either CBT or WBT would appropriately serve in regards to safety. The five different employee groups that were selected in the research were teachers, clerical/administration personnel, support staff, buildings and grounds as well as food service employees. The data collected from questions two through seven helped to analyze the extent that XYZ School District's employees have access to as well as possess the knowledge to operate computers in their work settings. These questions also provided a means to help identify the most probable method by which to provide the district's employees with safety-related training. The district's technology department used the last five questions in the survey for personal analysis. The data collected from

the survey instrument was recorded in raw numbers as well as in percentages. These figures were based upon the number of participant responses to each question under each employee group.

Limitations of the Study

A limitation to the study was that only one method of analyzing the data was used. Additional information may have been collected if other statistical analysis methods were used. Another limitation in the study was that only a sample of the total population was selected. There would have been a better representation of the population if the entire population of the XYZ School District was selected to complete the survey.

CHAPTER IV: RESULTS

The purpose of this study was to explore alternative means of providing the XYZ School District employees with safety-related training that will better suit their availability and work schedule. The goals were designed to assist in exploring alternative means of providing safety-related training, as well as to determine the extent that employees at the XYZ School District have access to and have basic knowledge of computer operation. The three goals were as follows:

1. Identify the groups of employees that this training would appropriately serve.
2. Identify the extent to which XYZ School District's employees have access to as well as possess the knowledge to operate computers in their work settings.
3. Identify the most probable method by which to provide the XYZ School District's employees with safety related training.

The above goals will be addressed in this chapter and discussed in further detail in Chapter IV.

Computer-based training (CBT) and web-based training (WBT) were assessed through the literature to determine their individual advantages and disadvantages. In order to help ascertain which methodology would be more appropriate to provide safety-related training to the XYZ School District, a computer usage and technology survey was distributed the district's five employee groups. These groups included teachers, clerical/administration personnel, support staff, buildings and grounds as well as food service employees. A sample population was taken of about 600 out of 1200 employees and provided an incredible response rate of approximately 50%. The data that was

collected from the survey provided the necessary information to adequately research the three goals of the study.

Presentation of Collected Data

The first part from the computer usage and technology survey was "Please select your employee group." This question provided the basis as to how the data from the survey instrument was analyzed as well as provided the means to identify the groups of employees that either CBT or WBT would appropriately serve in regards to safety training. In addition, this question also helped to answer the first goal, which was to identify the groups of employees that the training would appropriately serve. The data collected from the survey was separated into the five employee groups to help answer the first goal. These particular employee groups (teachers, clerical/administration personnel, support staff, buildings and grounds as well as food service employees) represent the people in the XYZ School District who would be required to have safety related training. Determining whether to deliver safety related training to each group though either CBT or WBT will be discussed later in Chapter IV.

The second goal was to identify the extent that XYZ School District's employees have access to as well as possess the knowledge to operate computers in their work settings. The analysis of collected data presented in Tables 1 through 6 help to answer that objective. The total percentage for each question answered was 100% +/- 1% because of the responses being rounded to the nearest whole number. The following table represents the results of the data collected from the XYZ School District's computer usage and technology survey. Only questions two through seven were used for the

purpose of the research. Table 1 represents the teachers' responses only. A total of 345 teachers were sampled (see Appendix A).

Table 1

Teachers' responses to questions regarding computer usage and technology.

#	Question	A %	B %	C %	D %	E %	None
1	Which best describes your computer use?	0	7	10	45	37	1
2	How often do you use the Internet?	67	17	2	5	0	9
3	At home I have:	4	6	61	26	X	4
4	Do you think you have the skills needed to complete a web-based training course?	19	41	38	X	X	2
5	How willing are you to being taught through an online tutorial/course?	13	39	20	23	3	1
6	What is your preferred method for learning?	10	12	22	41	9	6
7	How often do you use the computer and/or web to analyze data and conduct research?	13	39	20	23	3	1

The teacher responses to questions one through seven are presented in detail in Appendix A. Based on question one, almost half (45%) of the teachers in the XYZ School District regularly use Microsoft Outlook, Microsoft Word and many other software programs. The second highest response (37%) of teachers stated that they use a lot of programs and can learn new programs on their own and often help others. Seventeen percent of the teachers could use e-mail as well as word processing documents. One percent of the teachers did not respond to question one. Eighty-four

percent of the teachers in the district use the Internet at least weekly and 9% percent did not answer how often they use the Internet. Eighty-seven percent of the teachers have at least a computer and Internet access at home. Only 4% did not have a computer at home and 4% did not answer. Seventy-nine percent of the district's teachers felt that they have the skills needed to complete a WBT course and only 13% were not at all willing to be taught through an online/tutorial course. The preferred method for learning was spread more evenly than the first five questions with the majority (41%) of the teachers preferring a traditional classroom environment with a group of people. Twenty two percent preferred one-on-one tutoring, 12% would rater learn self-paced with a workbook and 10% by trial and error. Only 9% of teachers preferred to learn through an online tutorial or class. Lastly, 82% of the teachers in the district use a computer and/or web to analyze data and conduct research while 14% of the teachers responded that they never use a computer.

Table 2 represents only the clerical/administration personnel response data from the XYZ School District's computer usage and technology survey. Only questions two through seven were used for the purpose of the research. A total of 45 clerical/administration personnel were sampled (see Appendix B).

Table 2

Clerical/Administration Personnel's responses to questions regarding computer usage and technology.

#	Question	A %	B %	C %	D %	E %	None
1	Which best describes your computer use?	0	2	4	53	40	0
2	How often do you use the Internet?	87	11	0	20	0	0
3	At home I have:	4	4	60	29	X	2
4	Do you think you have the skills needed to complete a web-based training course?	13	24	60	X	X	2
5	How willing are you to being taught through an online tutorial/course?	22	22	11	44	0	0
6	What is your preferred method for learning?	11	11	18	40	16	4
7	How often do you use the computer and/or web to analyze data and conduct research?	22	27	16	31	4	0

The clerical/administration personnel responses to questions one through seven are presented in greater detail in Appendix B. Over half (53%) of the clerical/administration personnel in the XYZ School District regularly use Microsoft Outlook, Microsoft Word and many other programs. The second highest response (40%) of the clerical/administration personnel use and can learn new programs on their own. Almost 100% of the clerical/administration personnel in the district use the Internet at least weekly. Based on question three, 89% of the clerical/administration personnel have at least a computer and Internet access at home. Four percent of the personnel have a

computer at home but do not have Internet access. Only 13% of the district's clerical/administration personnel felt that they do not have the skills needed to complete a WBT course while 84% felt that they did. Based on question five, 77% of the clerical/administration personnel sampled were at least willing to be taught through an online/tutorial class and only 22% were not at all willing. Forty percent of the subjects responded that they prefer learning in a traditional classroom environment with a group of people. Eighteen percent preferred one-on-one tutoring, 11% would rather learn self-paced with a workbook and 11% by trial and error. Sixteen percent preferred to learn through an online tutorial or class. Of the 45 clerical/administration personnel surveyed, 96% use a computer and/or web to analyze data and conduct research at least once in a while.

Table 3 represents only the support staff response data from the XYZ School District's computer usage and technology survey. Only questions two through seven were used for the purpose of the research. A total of 133 support staff was sampled (see Appendix C).

Table 3

Support staff's responses to questions regarding computer usage and technology.

#	Question	A %	B %	C %	D %	E %	None
1	Which best describes your computer use?	2	26	10	40	21	1
2	How often do you use the Internet?	59	20	5	14	1	2
3	At home I have:	4	6	65	24	X	1
4	Do you think you have the skills needed to complete a web-based training course?	26	23	48	X	X	3
5	How willing are you to being taught through an online tutorial/course?	12	23	21	37	6	2
6	What is your preferred method for learning?	7	14	26	38	14	2
7	How often do you use the computer and/or web to analyze data and conduct research?	17	20	10	33	19	2

The support staff responses to questions one through seven are presented in greater detail in Appendix C. Based on question one, the majority (40%) of the support staff in the XYZ School District regularly use Outlook, Word, and many other programs. A large percentage (36%) of the support staff could use e-mail as well as word processing documents. Almost 100% of the support staff in the district uses the Internet at least once in a while. Based on question three, 89% of the support staff have at least a computer and Internet access at home. Six percent have a computer at home without Internet access and 4% do not have a computer. Seventy one percent of the district's support staff felt that they have the skills needed to complete a WBT course while 26% did not.

Eighty seven percent of the support staff was at least willing to be taught through an online/tutorial class and only 12% were not at all willing. As with the first two groups, the support staffs' preferred method for learning was spread more evenly than the first five questions with the majority (38%) preferring a traditional classroom environment with a group of people. Twenty six percent preferred one-on-one tutoring, 14% would rather learn self-paced with a workbook and 7% by trial and error. Fourteen percent preferred to learn through an online tutorial or class. As with the teachers and clerical/administration personnel, a large percentage (80 %) of the support staff use a computer and/or web to analyze data and conduct research once in a while.

Table 4 represents only the buildings and grounds employee response data from the XYZ School District's computer usage and technology survey. Only questions two through seven were used for the purpose of the research. A total of 56 buildings and grounds employees were sampled (see Appendix D).

Table 4

Buildings and grounds employees' responses to questions regarding computer usage and technology.

#	Question	A %	B %	C %	D %	E %	None
1	Which best describes your computer use?	5	54	7	9	23	2
2	How often do you use the Internet?	52	18	4	21	5	0
3	At home I have:	11	11	54	23	X	2
4	Do you think you have the skills needed to complete a web-based training course?	34	34	30	X	X	2
5	How willing are you to being taught through an online tutorial/course?	11	27	23	30	7	2
6	What is your preferred method for learning?	11	5	21	39	21	5
7	How often do you use the computer and/or web to analyze data and conduct research?	21	16	9	36	18	0

The buildings and grounds employee responses to questions one through seven are presented in further detail in Appendix D. Only 5% of the buildings and grounds employees do not use computers. A large percentage (61%) of the buildings and grounds employees can use e-mail as well as word processing documents and 23% stated they use a lot of programs and can learn new programs on their own. Seventy percent of these employees use the Internet at least weekly and 5% responded that they never use the Internet at all. Based on question three, 77% of the buildings and grounds employees have at least a computer and Internet access at home while 11% do not have a computer

at home. A moderate percentage (34%) of the district's buildings and grounds employees felt that they did not have the skills needed to complete a WBT course while 64% did. Eighty seven percent of these employees were at least willing to be taught through an online/tutorial class. The majority (39%) of the buildings and grounds employees prefer a traditional classroom environment with a group of people. Twenty one percent preferred one-on-one tutoring, 5% would rather learn self-paced with a workbook and 11% by trial and error. Compared to the other four employee groups, the buildings and grounds employees provided the highest response (21%) that they preferred to learn through an online tutorial or class. However, the buildings and grounds employees were the third highest (18%) in answering that they never use a computer and/or web to analyze data and conduct research.

Table 5 represents only the food service employee response data from the XYZ School District's computer usage and technology survey. Only questions two through seven were used for the purpose of the research. A total of 43 food service employees were sampled (see Appendix E).

Table 5

Food service employees' responses to questions regarding computer usage and technology.

#	Question	A %	B %	C %	D %	E %	None
1	Which best describes your computer use?	16	56	5	12	12	0
2	How often do you use the Internet?	35	26	7	9	23	0
3	At home I have:	2	2	67	28	X	0
4	Do you think you have the skills needed to complete a web-based training course?	14	51	33	X	X	2
5	How willing are you to being taught through an online tutorial/course?	23	28	19	28	2	0
6	What is your preferred method for learning?	7	7	30	40	14	2
7	How often do you use the computer and/or web to analyze data and conduct research?	9	21	2	47	21	0

The food service employee responses to questions one through seven are presented in greater detail in Appendix E. Compared to the other four employee groups, the largest percentage (16%) of the food service employees does not use computers. Of the 43 food service employees surveyed, 61% can use e-mail as well as word processing documents and 12% stated they use a lot of programs. Sixty one percent of these employees use the Internet at least weekly however, 23% responded that they never use the Internet at all. Based on question three, almost 100% of the food service employees have at least a computer and Internet access at home. A large percentage (84%) of the district's food service employees felt that they have the skills needed to complete a WBT

course while 14% did not. Seventy seven percent of these employees were at least willing to be taught through an online/tutorial class and only 23% were not at all willing. The majority (40%) of the food service employees prefer a traditional classroom environment with a group of people. Thirty percent preferred one-on-one tutoring, 7% would rather learn self-paced with a workbook and seven percent by trial and error. Fourteen percent preferred to learn through an online tutorial or class. Lastly, of the employee groups surveyed, the largest percentage (21%) of the of the food service employees in the district stated that they never use a computer and/or web to analyze data.

Table 6 represents the total response data from the five groups, teachers, clerical/administration, support staff personnel, buildings and grounds employees, and food service employees from the XYZ School District's computer usage and technology survey. Only questions two through seven were used for the purpose of the research. A total of 622 employees were sampled overall (see Appendix F).

Table 6

Total district responses to questions regarding computer usage and technology.

#	Question	A %	B %	C %	D %	E %	None
1	Which best describes your computer use?	2	18	9	39	31	1
2	How often do you use the Internet?	63	18	3	8	2	5
3	At home I have:	4	6	61	25	X	3
4	Do you think you have the skills needed to complete a web-based training course?	21	36	41	X	X	2
5	How willing are you to being taught through an online tutorial/course?	14	33	20	29	4	1
6	What is your preferred method for learning?	9	11	23	40	12	5
7	How often do you use the computer and/or web to analyze data and conduct research?	12	22	11	36	15	3

The total responses to questions one through seven are presented in detail in Appendix F. Based on question one, a substantial percentage (39%) of the total subjects surveyed regularly use Microsoft Outlook, Microsoft Word and many other programs. Twenty seven percent of the total employees surveyed can use e-mail as well as word process documents and 31% stated they use a lot of programs and can learn new programs on their own. Eighty one percent of the subjects use the Internet at least weekly, 13% less frequently, and 5% of the total did not respond. Based on question three, 86% of the surveyed employees have at least a computer and Internet access at home. Twenty-one percent of the subjects felt that they do not have the skills needed to

complete a WBT course while 77% felt they did. Eighty six percent of the employees were at least willing to be taught through an online/tutorial class and only 14% were not at all willing. The majority (40%) of the total surveyed employees prefer a traditional classroom environment with a group of people. Twenty three percent preferred one-on-one tutoring, 11% would rather learn self-paced with a workbook, 9% chose trial and error, and 14% preferred to learn through an online tutorial or class. Of the total surveyed employees in the district, 15% never use a computer and/or web to analyze data and conduct research while 81% does at least once in a while.

Discussion

According to a 1997 American Society of Training and Development (ASTD) study, WBT is growing at an annual rate of 80% (FirstNet Learning, 2000). This growth can possibly be correlated with the data collected from the computer usage and technology survey. Of the total subjects surveyed, 77% felt that they have the skills needed to complete a WBT course and 86% of the employees were at least willing to be taught through an online/tutorial class. These high percentages (81.5%) average just over the 1997 WBT annual growth rate and seem to reflect a positive attitude towards WBT as well as competence in completing such a course.

The Web-Based Education Commission's 2000 report "The Power of the Internet for Learning: Moving from Promise to Practice" included the opinions of Internet experts as well as teachers. It was stated that people should collectively move the power of the Internet from promise to practice (U.S. Department of Education, 2000). The views of the commission's Internet experts and teachers reflect the teacher computer and Internet usage at the XYZ School District. Of the 345 teachers surveyed (Appendix A),

none responded that they did not have the need or time for the use of a computer. Almost half (45%) of the teachers in the district regularly use Microsoft Outlook, Microsoft Word and many other programs. Eighty four percent of the teachers in the district use the Internet at least weekly and 87% of the teachers have at least a computer and Internet access at home (Appendix A), which supports the Commission's statement of moving the power of the Internet from promise to practice.

One of the advantages of WBT discussed in the literature review was that the Internet is time and place-independent. It can save on the cost of travel and an employee does not have to be in an office (Wulf, 1996). This can open the door up to possibly completing any safety related WBT at home if time is does not permit at work. Eighty-six percent of the 622 employees surveyed (Appendix F) responded that they have at least a computer and Internet access at home. This high percentage helps to indicate the level of Internet access the employees have outside of work.

Wulf (1996) also stated that another advantage of WBT is that various Internet utilities are available for different training requirements such as the use of e-mail, bulletin board, real-time conferencing, and interactive tutorials. According to the total subjects surveyed, 27% of can use e-mail and word process documents and 39% regularly use Microsoft Outlook, Microsoft Word and many other programs. In addition, 31% stated they use a lot of programs and can learn new programs on their own. These high percentages project a certain reflection how capable the district's employees could be with using/operating various Internet utilities.

In the literature, it was said that the learning style as well as the capabilities of the learners or target audience should be determined before committing to WBT (Elliott,

1999). It was also mentioned that the teacher should be sensitive to any literacy demands that might be placed on students by the technology (Mike, 1996). The computer usage and technology survey helps to assess those potential literacy demands. According to the total results (Appendix F), 4% of the subjects surveyed did not have a computer at home, 2% do not use computers, and 2% never use the Internet at all. Also, 21% responded that they did not think they had the skills to complete a WBT course and 14% were not willing to be taught through an online tutorial/course (Appendix F). These results help to show the percentages of any potential literacy demands that might be placed employees by the technology used with WBT.

The third goal of the research was to identify the most probable method by which to provide the XYZ School District's employees with safety related training. According to the survey information in comparison to the review of literature, the seemingly most viable method of delivering this training seems to be favoring the use of the Internet. This objective will be discussed in Chapter V based on the data and results of the computer usage and technology survey that was collected (Appendices A – F) from the XYZ School District.

CHAPTER V: CONCLUSIONS AND RECOMMENDATIONS

The purpose of the study was to explore alternative means of providing the XYZ School District employees with safety-related training that will better suit their availability and work schedule. The goals of the study were designed to assist in exploring alternative means of providing safety-related training, as well as to determine the extent to which employees at the XYZ School District have access to the Internet and have basic knowledge of computer operation. The three goals were as follows:

1. Identify the groups of employees that this training would appropriately serve.
2. Identify the extent that XYZ School District's employees have access to as well as possess the knowledge to operate computers in their work settings.
3. Identify the most probable method by which to provide the XYZ School District's employees with safety related training. A review of relevant topics including training, computer-based training (CBT) and web-based training (WBT) were assessed through the literature review to determine their individual advantages and disadvantages. A computer usage and technology survey was distributed the district's five employee groups to support the research goals. A response rate of 622 employees, approximately 50% (Appendix A) was achieved.

This final chapter provides a summary of the conclusions, limitations, and recommendations based on the literature review, and the computer usage and technology survey results as well as identify additional areas of further research for the XYZ School District.

Conclusions

This study resulted in numerous conclusions, which follow:

- The groups of employees that safety-related training would appropriately serve include the XYZ School District's teachers, cleric/administrative staff, support staff personnel, buildings and grounds employees, and food service employees. These five employee groups cover all of the employees in the district who should view safety-related training as a necessary function. This is supported through Jenson (2005), stating that safety and health training helps employees understand standard operating procedures, potential hazards, appropriate protective measures and proper responses to unplanned, undesired events.
- Of the total results (Appendix F), only 4% surveyed did not have a computer at home, which might indicate a potential possibility of extending a WBT program outside of the work environment. According to Wulf (1996), WBT can save on the cost of travel and an employee does not have to be in an office. This result indicates the option of possibly his opening up the door to completing any safety related WBT at home if time does not permit at work. However, this would more than likely only be possible if there were a compensation program for this type of activity. This could help the XYZ School District's problem of a lack of safety-related training due to employee work schedule conflicts.
- Based on the total results of the survey (Appendix F), WBT would be a more probable method by which to provide the XYZ School District's employees with safety related training as compared to CBT. This is a result of the surveyed responses indicating that there is an overwhelming majority of the

five groups having high computer and Internet usage as well as knowledge of computer programs and functions (Appendix F). Based on the literature review as well as the survey results, a WBT program would help to reduce any lost time, training expenses, unorganized documentation, as well as a possible lack of safety-related training which are all potential loss producing situations that are developing from work-schedule conflicts.

- Based on question five of the survey, the order of groups that thought they had the skills needed to complete a WBT course were food service employees at 84% (Appendix E), clerical/administrative personnel at 84% (Appendix B), teachers at 79% (Appendix A), support staff employees at 71% (Appendix C) and buildings and grounds employees at 64% (Appendix D). These results indicate the order that could be taken if administering a WBT program as well as the group that could possibly have a more difficult time adjusting to such methods of training.
- Based on question six of the survey, the order of groups that were not at all willing to be taught through an online tutorial/course were food service employees at 23% (Appendix E), clerical/administrative personnel at 22% (Appendix B), teachers at 13% (Appendix A), support staff employees at 12% (Appendix C) and buildings and grounds employees at 11% (Appendix D). These results, coupled along with the results of survey question five, help to indicate the order that could be taken if administering a WBT program as well as which groups could possibly be more resistant of a change to a WBT program.

- It can also be concluded from question six that the groups who did not mind using computers for learning and were absolutely willing to be taught were through online tutorial/course were: clerical/administrative personnel at 44% (Appendix B), teachers at 43% (Appendix A), buildings and grounds employees at 37% (Appendix D), food service employees at 30% (Appendix E) and support staff employees at 12% (Appendix C). These results indicate which groups who would be the most accepting to a new WBT program.

Limitations

- The survey responses for each of the five employee groups varied considerably, which is not shown in proportion to the percentages of results.
- The survey instrument did not allow for open-ended comments on any of the thirteen questions.
- Only four days were given for completion of the survey.
- The survey data was only analyzed from raw numbers to percentages.
- Not all employees answered every question.
- The survey instrument only separated the employees into five broad employee groups.

Administrative Recommendations

The following administrative recommendations are made based on the research conducted.

- Analyze different WBT safety training providers to determine which would be the most conducive to the needs of the XYZ School District.

- Determine the return on investment (ROI) for the district that includes small, medium and large WBT programs.
- Allocate available funds from the safety and technology departments, as well as any others that are applicable, to provide the basis for obtaining/constructing a WBT program. These funds should be at a minimum in the beginning to obtain only what is essential for the test employee group in case the WBT program either is found not to be in the best interest of the district or results in failure.
- Create a basic computer operation and Internet navigation course that would be directed to the employees who do not possess those skills to be able to sufficiently complete a WBT program.
- Administer a safety-related WBT program that begins first with the clerical/administrative personnel. This employee group was selected based on their survey results as compared to the other groups (Appendix B). They fall within the middle of the five groups, in terms of computer and Internet capabilities, and would provide the feedback necessary to gauge the acceptance as well as resistance levels to the new program.
- The WBT program should only be on one subject, such as blood borne pathogens to gain a focused idea of how the employees react to the new method of training.
- For employees who are hesitant or resistive to participating in the new WBT courses, depending on the percentages of those employees, a program of assistance and support should be developed to help incorporate, familiarize

and create a feeling of comfort for the employees with the system. If those percentages are very minimal, there should possibly be an accountability system in place to assist with employee participation and completion of the safety-training courses. However, if those percentages are substantial, then the WBT program should be re-assessed to determine if it is the most viable method to deliver safety-training as well as other methods to integrate it into the XYZ School District.

- If there are positive results from the first subject administered, convert a block (approximately 5 – 10) of safety training programs that are currently being used by the district to the WBT format. The positive results include more efficient use of training time, reduction in lost work time and employee successful completion of tests/quizzes to increase safety training retention.
- Incorporate the support staff into the new WBT program if there are continued positive results from the clerical/administrative personnel.
- If the new WBT program is successful with these two employee groups, reallocate funding to transfer all applicable safety training programs to the WBT format.
- These recommendations are meant to be a long-term and continuous process, taking approximately one to seven years, from the beginning to the final customized WBT safety program for the XYZ School District.

Areas of Further Research

Areas of further research could include, but are not limited to the following:

- Employee retention levels are important when it comes to understanding and acting appropriately in case of an emergency situation. Test scores from the current classroom training should be analyzed and used to compare with the potential future WBT tests to help provide an idea of the effectiveness of that WBT.
- Currently, the district's written safety policies are not up-to-date and need to be revised. It is important that they be reviewed and updated because potential loss to the district based on possible legal ramifications. In addition, these written policies need to be analyzed to identify if what is written is actually being followed by the employees to help ensure safe work practices and help avoid any potential losses due to injuries/illnesses.
- There are risks involved in any fleet operation for any type of business. The XYZ School District does not currently have a fleet-safety program for their private vehicles, which opens up the opportunities for much potential for loss such as injuries, accidents, liabilities and violations. A private fleet-safety program should be developed and eventually incorporated into the district's current overall safety program.

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Appendix A: Teacher Results

The XYZ School District Survey Results Teachers		
Survey Question	**Teacher**	
	# Answered	**% Answered**
Which best describes your computer use?	345	100%
A. I don't use it. No need or no time.	1	0%
B. I read and send email. I can word process simple documents.	24	7%
C. I send attachments and organize email. I make pretty nice Word documents.	36	10%
D. I regularly use Outlook, Word and many other programs. I can use digital cameras.	156	45%
E. I use a lot of programs and can learn new programs on my own. I often help others.	126	37%
No answer	2	1%
How often do you use the Internet?	345	100%
A. Every day	232	67%
B. Weekly	60	17%
C. Monthly	7	2%
D. Once in a while	16	5%
E. Never	0	0%
No answer	30	9%
At home I have:	345	100%
A. No computer	13	4%
B. Computer	21	6%
C. Computer and Internet access	209	61%
D. Computer, Internet and lots of other electronic gadgets	88	26%
No answer	14	4%
Do you think you have the skills needed to complete a web-based training course?	345	100%
A. No	65	19%

B. Yes, if it was a short class (less than an hour)	141	41%
C. Yes, I could complete it regardless of time	131	38%
No answer	8	2%
How willing are you to being taught through an online tutorial/course?	345	100%
A. Not at all willing. I prefer other methods	44	13%
B. Somewhat willing, only if it saves time	136	39%
C. Willing, if other people find it beneficial	70	20%
D. Very willing. I don't mind using computers to learn	81	23%
E. Absolutely willing. I prefer to use computers for learning	10	3%
No answer	4	1%
What is your preferred method for learning?	345	100%
A. Trial and error	34	10%
B. Self-paced with a workbook	40	12%
C. One-on-one tutoring	77	22%
D. Traditional classroom environment with a group of people	142	41%
E. Online tutorial or class	30	9%
No answer	22	6%
How often do you use the computer and/or web to analyzing data and conduct research?	345	100%
A. Every day	29	8%
B. Weekly	82	24%
C. Monthly	45	13%
D. Once in a while	127	37%
E. Never	49	14%
No answer	13	4%
What do you think is the largest barrier to improving your computer skills?	345	100%
A. I have no barriers	27	8%
B. Access to staff development	9	3%
C. Time	282	82%
D. Not having the appropriate software programs	12	3%
E. I think computers often take more time than they save	9	3%

No answer	6	2%
What do you think is the largest barrier to students benefiting more from computers?	345	100%
A. Access to the hardware	93	27%
B. Access to quality software programs	50	14%
C. Teacher knowledge	112	32%
D. Hardware, software and network problems	51	15%
E. Safety and security restrictions or concerns	19	6%
No answer	20	6%
Would you like to do more with technology, but feel limited because of other initiatives?	345	100%
A. Yes	245	71%
B. No	87	25%
No answer	13	4%
Do you feel you have enough access to technology to do your job the way you want to?	345	100%
A. Yes	227	66%
B. No	112	32%
No answer	6	2%
If you could have more of one of the hardware items below, which would it be?	345	100%
A. More and/or better software	50	14%
B. More computers in my room or work area	94	27%
C. More computer labs	45	13%
D. More data projectors or a projector mounted in my room	104	30%
E. More digital still cameras, digital video systems and scanners	43	12%
No answer	9	3%

Appendix B: Clerical/Administration Personnel Results

The XYZ School District Survey Results Clerical/Administration		
Survey Question	**Clerical/Administration**	
	# Answered	**% Answered**
Which best describes your computer use?	45	100%
A. I don't use it. No need or no time.	0	0%
B. I read and send email. I can word process simple documents.	1	2%
C. I send attachments and organize email. I make pretty nice Word documents.	2	4%
D. I regularly use Outlook, Word and many other programs. I can use digital cameras.	24	53%
E. I use a lot of programs and can learn new programs on my own. I often help others.	18	40%
No answer	0	0%
How often do you use the Internet?	45	100%
A. Every day	39	87%
B. Weekly	5	11%
C. Monthly	0	0%
D. Once in a while	1	2%
E. Never	0	0%
No answer	0	0%
At home I have:	45	100%
A. No computer	2	4%
B. Computer	2	4%
C. Computer and Internet access	27	60%
D. Computer, Internet and lots of other electronic gadgets	13	29%
No answer	1	2%
Do you think you have the skills needed to complete a web-based training course?	45	100%
A. No	6	13%
B. Yes, if it was a short class (less than an hour)	11	24%
C. Yes, I could complete it regardless of time	27	60%
No answer	1	2%

How willing are you to being taught through an online tutorial/course?	45	100%
A. Not at all willing. I prefer other methods	10	22%
B. Somewhat willing, only if it saves time	10	22%
C. Willing, if other people find it beneficial	5	11%
D. Very willing. I don't mind using computers to learn	20	44%
E. Absolutely willing. I prefer to use computers for learning	0	0%
No answer	0	0%
What is your preferred method for learning?	45	100%
A. Trial and error	5	11%
B. Self-paced with a workbook	5	11%
C. One-on-one tutoring	8	18%
D. Traditional classroom environment with a group of people	18	40%
E. Online tutorial or class	7	16%
No answer	2	4%
How often do you use the computer and/or web to analyzing data and conduct research?	45	100%
A. Every day	10	22%
B. Weekly	12	27%
C. Monthly	7	16%
D. Once in a while	14	31%
E. Never	2	4%
No answer	0	0%
What do you think is the largest barrier to improving your computer skills?	45	100%
A. I have no barriers	8	18%
B. Access to staff development	1	2%
C. Time	34	76%
D. Not having the appropriate software programs	0	0%
E. I think computers often take more time than they save	1	2%
No answer	1	2%
What do you think is the largest barrier to students benefiting more from computers?	45	100%

A. Access to the hardware	1	2%
B. Access to quality software programs	5	11%
C. Teacher knowledge	23	51%
D. Hardware, software and network problems	4	9%
E. Safety and security restrictions or concerns	3	7%
No answer	9	20%
Would you like to do more with technology, but feel limited because of other initiatives?	45	100%
A. Yes	22	49%
B. No	21	47%
No answer	2	4%
Do you feel you have enough access to technology to do your job the way you want to?	45	100%
A. Yes	40	89%
B. No	5	11%
No answer	0	0%
If you could have more of one of the hardware items below, which would it be?	45	100%
A. More and/or better software	15	33%
B. More computers in my room or work area	3	7%
C. More computer labs	4	9%
D. More data projectors or a projector mounted in my room	6	13%
E. More digital still cameras, digital video systems and scanners	7	16%
No answer	10	22%

Appendix C: Support Staff Employee Results

The XYZ School District Survey Results Support Staff		
Survey Question	**Support Staff**	
	# Answered	**% Answered**
Which best describes your computer use?	133	100%
A. I don't use it. No need or no time.	3	2%
B. I read and send email. I can word process simple documents.	35	26%
C. I send attachments and organize email. I make pretty nice Word documents.	13	10%
D. I regularly use Outlook, Word and many other programs. I can use digital cameras.	53	40%
E. I use a lot of programs and can learn new programs on my own. I often help others.	28	21%
No answer	1	1%
How often do you use the Internet?	133	100%
A. Every day	78	59%
B. Weekly	26	20%
C. Monthly	7	5%
D. Once in a while	19	14%
E. Never	1	1%
No answer	2	2%
At home I have:	133	100%
A. No computer	5	4%
B. Computer	8	6%
C. Computer and Internet access	87	65%
D. Computer, Internet and lots of other electronic gadgets	32	24%
No answer	1	1%
Do you think you have the skills needed to complete a web-based training course?	133	100%
A. No	35	26%
B. Yes, if it was a short class (less than an hour)	30	23%
C. Yes, I could complete it regardless of time	64	48%
No answer	4	3%

How willing are you to being taught through an online tutorial/course?	133	100%
A. Not at all willing. I prefer other methods	16	12%
B. Somewhat willing, only if it saves time	30	23%
C. Willing, if other people find it beneficial	28	21%
D. Very willing. I don't mind using computers to learn	49	37%
E. Absolutely willing. I prefer to use computers for learning	8	6%
No answer	2	2%
What is your preferred method for learning?	133	100%
A. Trial and error	9	7%
B. Self-paced with a workbook	18	14%
C. One-on-one tutoring	35	26%
D. Traditional classroom environment with a group of people	50	38%
E. Online tutorial or class	19	14%
No answer	2	2%
How often do you use the computer and/or web to analyzing data and conduct research?	133	100%
A. Every day	22	17%
B. Weekly	26	20%
C. Monthly	13	10%
D. Once in a while	44	33%
E. Never	25	19%
No answer	3	2%
What do you think is the largest barrier to improving your computer skills?	133	100%
A. I have no barriers	11	8%
B. Access to staff development	13	10%
C. Time	93	70%
D. Not having the appropriate software programs	11	8%
E. I think computers often take more time than they save	4	3%
No answer	1	1%
What do you think is the largest barrier to students benefiting more from computers?	133	100%
A. Access to the hardware	32	24%

B. Access to quality software programs	12	9%
C. Teacher knowledge	44	33%
D. Hardware, software and network problems	15	11%
E. Safety and security restrictions or concerns	14	11%
No answer	16	12%
Would you like to do more with technology, but feel limited because of other initiatives?	133	100%
A. Yes	73	55%
B. No	54	41%
No answer	6	5%
Do you feel you have enough access to technology to do your job the way you want to?	133	100%
A. Yes	103	77%
B. No	30	23%
No answer	0	0%
If you could have more of one of the hardware items below, which would it be?	133	100%
A. More and/or better software	38	29%
B. More computers in my room or work area	27	20%
C. More computer labs	9	7%
D. More data projectors or a projector mounted in my room	5	4%
E. More digital still cameras, digital video systems and scanners	19	14%
No answer	35	26%

Appendix D: Buildings and Grounds Employee Results

The XYZ School District Survey Results Buildings & Grounds		
Survey Question	**Buildings & Grounds**	
	# Answered	**% Answered**
Which best describes your computer use?	56	100%
A. I don't use it. No need or no time.	3	5%
B. I read and send email. I can word process simple documents.	30	54%
C. I send attachments and organize email. I make pretty nice Word documents.	4	7%
D. I regularly use Outlook, Word and many other programs. I can use digital cameras.	5	9%
E. I use a lot of programs and can learn new programs on my own. I often help others.	13	23%
No answer	1	2%
How often do you use the Internet?	56	100%
A. Every day	29	52%
B. Weekly	10	18%
C. Monthly	2	4%
D. Once in a while	12	21%
E. Never	3	5%
No answer	0	0%
At home I have:	56	100%
A. No computer	6	11%
B. Computer	6	11%
C. Computer and Internet access	30	54%
D. Computer, Internet and lots of other electronic gadgets	13	23%
No answer	1	2%
Do you think you have the skills needed to complete a web-based training course?	56	100%
A. No	19	34%
B. Yes, if it was a short class (less than an hour)	19	34%
C. Yes, I could complete it regardless of time	17	30%
No answer	1	2%

How willing are you to being taught through an online tutorial/course?	56	100%
A. Not at all willing. I prefer other methods	6	11%
B. Somewhat willing, only if it saves time	15	27%
C. Willing, if other people find it beneficial	13	23%
D. Very willing. I don't mind using computers to learn	17	30%
E. Absolutely willing. I prefer to use computers for learning	4	7%
No answer	1	2%
What is your preferred method for learning?	56	100%
A. Trial and error	6	11%
B. Self-paced with a workbook	3	5%
C. One-on-one tutoring	12	21%
D. Traditional classroom environment with a group of people	22	39%
E. Online tutorial or class	12	21%
No answer	1	2%
How often do you use the computer and/or web to analyzing data and conduct research?	56	100%
A. Every day	12	21%
B. Weekly	9	16%
C. Monthly	5	9%
D. Once in a while	20	36%
E. Never	10	18%
No answer	0	0%
What do you think is the largest barrier to improving your computer skills?	56	100%
A. I have no barriers	4	7%
B. Access to staff development	10	18%
C. Time	31	55%
D. Not having the appropriate software programs	6	11%
E. I think computers often take more time than they save	4	7%
No answer	1	2%
What do you think is the largest barrier to students benefiting more from computers?	56	100%

A. Access to the hardware	7	13%
B. Access to quality software programs	10	18%
C. Teacher knowledge	10	18%
D. Hardware, software and network problems	6	11%
E. Safety and security restrictions or concerns	8	14%
No answer	15	27%
Would you like to do more with technology, but feel limited because of other initiatives?	56	100%
A. Yes	39	70%
B. No	15	27%
No answer	2	4%
Do you feel you have enough access to technology to do your job the way you want to?	56	100%
A. Yes	35	63%
B. No	19	34%
No answer	2	4%
If you could have more of one of the hardware items below, which would it be?	56	100%
A. More and/or better software	22	39%
B. More computers in my room or work area	10	18%
C. More computer labs	5	9%
D. More data projectors or a projector mounted in my room	0	0%
E. More digital still cameras, digital video systems and scanners	2	4%
No answer	17	30%

Appendix E: Food Service Employee Results

The XYZ School District Survey Results Food Service		
Survey Question	**Food Service**	
	# Answered	**% Answered**
Which best describes your computer use?	43	100%
A. I don't use it. No need or no time.	7	16%
B. I read and send email. I can word process simple documents.	24	56%
C. I send attachments and organize email. I make pretty nice Word documents.	2	5%
D. I regularly use Outlook, Word and many other programs. I can use digital cameras.	5	12%
E. I use a lot of programs and can learn new programs on my own. I often help others.	5	12%
No answer	0	0%
How often do you use the Internet?	43	100%
A. Every day	15	35%
B. Weekly	11	26%
C. Monthly	3	7%
D. Once in a while	4	9%
E. Never	10	23%
No answer	0	0%
At home I have:	43	100%
A. No computer	1	2%
B. Computer	1	2%
C. Computer and Internet access	29	67%
D. Computer, Internet and lots of other electronic gadgets	12	28%
No answer	0	0%
Do you think you have the skills needed to complete a web-based training course?	43	100%
A. No	6	14%
B. Yes, if it was a short class (less than an hour)	22	51%
C. Yes, I could complete it regardless of time	14	33%
No answer	1	2%

How willing are you to being taught through an online tutorial/course?	43	100%
A. Not at all willing. I prefer other methods	10	23%
B. Somewhat willing, only if it saves time	12	28%
C. Willing, if other people find it beneficial	8	19%
D. Very willing. I don't mind using computers to learn	12	28%
E. Absolutely willing. I prefer to use computers for learning	1	2%
No answer		0%
What is your preferred method for learning?	43	100%
A. Trial and error	3	7%
B. Self-paced with a workbook	3	7%
C. One-on-one tutoring	13	30%
D. Traditional classroom environment with a group of people	17	40%
E. Online tutorial or class	6	14%
No answer	1	2%
How often do you use the computer and/or web to analyzing data and conduct research?	43	100%
A. Every day	4	9%
B. Weekly	9	21%
C. Monthly	1	2%
D. Once in a while	20	47%
E. Never	9	21%
No answer	0	0%
What do you think is the largest barrier to improving your computer skills?	43	100%
A. I have no barriers	4	9%
B. Access to staff development	2	5%
C. Time	23	53%
D. Not having the appropriate software programs	5	12%
E. I think computers often take more time than they save	9	21%
No answer	0	0%
What do you think is the largest barrier to students benefiting more from computers?	43	100%

A. Access to the hardware	9	21%
B. Access to quality software programs	5	12%
C. Teacher knowledge	7	16%
D. Hardware, software and network problems	8	19%
E. Safety and security restrictions or concerns	4	9%
No answer	10	23%
Would you like to do more with technology, but feel limited because of other initiatives?	43	100%
A. Yes	23	53%
B. No	18	42%
No answer	2	5%
Do you feel you have enough access to technology to do your job the way you want to?	43	100%
A. Yes	34	79%
B. No	8	19%
No answer	1	2%
If you could have more of one of the hardware items below, which would it be?	43	100%
A. More and/or better software	15	35%
B. More computers in my room or work area	12	28%
C. More computer labs	2	5%
D. More data projectors or a projector mounted in my room	0	0%
E. More digital still cameras, digital video systems and scanners	2	5%
No answer	12	28%

Appendix F: Total Employee Results

The XYZ School District Survey Results Total Results		
Survey Question	**Total Results**	
	# Answered	**% Answered**
Which best describes your computer use?	622	100%
A. I don't use it. No need or no time.	14	2%
B. I read and send email. I can word process simple documents.	114	18%
C. I send attachments and organize email. I make pretty nice Word documents.	57	9%
D. I regularly use Outlook, Word and many other programs. I can use digital cameras.	243	39%
E. I use a lot of programs and can learn new programs on my own. I often help others.	190	31%
No answer	4	1%
How often do you use the Internet?	622	100%
A. Every day	393	63%
B. Weekly	112	18%
C. Monthly	19	3%
D. Once in a while	52	8%
E. Never	14	2%
No answer	32	5%
At home I have:	622	100%
A. No computer	27	4%
B. Computer	38	6%
C. Computer and Internet access	382	61%
D. Computer, Internet and lots of other electronic gadgets	158	25%
No answer	17	3%
Do you think you have the skills needed to complete a web-based training course?	622	100%
A. No	131	21%
B. Yes, if it was a short class (less than an hour)	223	36%
C. Yes, I could complete it regardless of time	253	41%
No answer	15	2%

How willing are you to being taught through an online tutorial/course?	622	100%
A. Not at all willing. I prefer other methods	86	14%
B. Somewhat willing, only if it saves time	203	33%
C. Willing, if other people find it beneficial	124	20%
D. Very willing. I don't mind using computers to learn	179	29%
E. Absolutely willing. I prefer to use computers for learning	23	4%
No answer	7	1%
What is your preferred method for learning?	622	100%
A. Trial and error	57	9%
B. Self-paced with a workbook	69	11%
C. One-on-one tutoring	145	23%
D. Traditional classroom environment with a group of people	249	40%
E. Online tutorial or class	74	12%
No answer	28	5%
How often do you use the computer and/or web to analyzing data and conduct research?	622	100%
A. Every day	77	12%
B. Weekly	138	22%
C. Monthly	71	11%
D. Once in a while	225	36%
E. Never	95	15%
No answer	16	3%
What do you think is the largest barrier to improving your computer skills?	622	100%
A. I have no barriers	54	9%
B. Access to staff development	35	6%
C. Time	463	74%
D. Not having the appropriate software programs	34	5%
E. I think computers often take more time than they save	27	4%
No answer	9	1%
What do you think is the largest barrier to students benefiting more from computers?	622	100%
A. Access to the hardware	142	23%

B. Access to quality software programs	82	13%
C. Teacher knowledge	196	32%
D. Hardware, software and network problems	84	14%
E. Safety and security restrictions or concerns	48	8%
No answer	70	11%
Would you like to do more with technology, but feel limited because of other initiatives?	622	100%
A. Yes	402	65%
B. No	125	20%
No answer	95	15%
Do you feel you have enough access to technology to do your job the way you want to?	622	100%
A. Yes	439	71%
B. No	174	28%
No answer	9	1%
If you could have more of one of the hardware items below, which would it be?	622	100%
A. More and/or better software	140	23%
B. More computers in my room or work area	146	23%
C. More computer labs	65	10%
D. More data projectors or a projector mounted in my room	115	18%
E. More digital still cameras, digital video systems and scanners	73	12%
No answer	83	13%