The Effect of Employee Computer Self-Efficacy on Transfer of Training Following Computer-Based Training

Amy Lynn Trombley

Follow this and additional works at: https://scholarworks.wmich.edu/masters_theses

Part of the Communication Commons

Recommended Citation

This Masters Thesis-Open Access is brought to you for free and open access by the Graduate College at ScholarWorks at WMU. It has been accepted for inclusion in Master's Theses by an authorized administrator of ScholarWorks at WMU. For more information, please contact wmu-scholarworks@wmich.edu.
THE EFFECT OF EMPLOYEE COMPUTER SELF-EFFICACY ON TRANSFER OF TRAINING FOLLOWING COMPUTER-BASED TRAINING

by

Amy Lynn Trombley

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment for the
Degree of Master of Arts
Department of Communication

Western Michigan University
Kalamazoo, Michigan
April 2004
THE EFFECT OF EMPLOYEE COMPUTER SELF-EFFICACY ON TRANSFER OF TRAINING FOLLOWING COMPUTER-BASED TRAINING

Amy Lynn Trombley, M.A.
Western Michigan University, 2004

This study used the Technology Acceptance Model, prior research of self-efficacy, and transfer of training theory, to examine the relationships between employee computer self-efficacy, perceptions of the ease of use of CBT, perceptions of the usefulness of CBT, behavioral intention, and transfer of training, following computer-based training. Eighty-three employees of a large mid-west retail chain participated in this study. A pre-test, measuring existing computer self-efficacy, employee perceptions of the ease of use of general computer-based training, and prior safety knowledge was given to employees prior to the start of a web-based safety training program. A post-test, measuring developed computer self-efficacy, employee perceptions of the ease of use of general CBT, employee perceptions of the usefulness of CBT, and safety knowledge immediately followed the training. Additionally, a follow-up post-test, measuring computer self-efficacy, safety knowledge, and behavior was given to employees one week after the training. As predicted, the data suggested a positive relationship between employee self-efficacy scores and their perceptions of CBT ease of use. Furthermore, self-efficacy scores and behavioral intentions to use the training material were positively associated. However inconsistent with predictions, the data revealed a negative relationship between computer self-efficacy scores and knowledge change.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>THEORETICAL FRAMEWORK</td>
<td>5</td>
</tr>
<tr>
<td>Technology Acceptance Model</td>
<td>5</td>
</tr>
<tr>
<td>Self-Efficacy and Training</td>
<td>9</td>
</tr>
<tr>
<td>Transfer of Training</td>
<td>12</td>
</tr>
<tr>
<td>Computer-Based Training</td>
<td>15</td>
</tr>
<tr>
<td>Hypotheses</td>
<td>16</td>
</tr>
<tr>
<td>METHOD</td>
<td>22</td>
</tr>
<tr>
<td>Participants</td>
<td>22</td>
</tr>
<tr>
<td>Design</td>
<td>22</td>
</tr>
<tr>
<td>Procedure</td>
<td>23</td>
</tr>
<tr>
<td>Instrumentation and Confirmatory Factor Analysis (CFA)</td>
<td>24</td>
</tr>
<tr>
<td>RESULTS</td>
<td>30</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>34</td>
</tr>
<tr>
<td>Theoretical Implications and Future Research</td>
<td>39</td>
</tr>
<tr>
<td>Limitations</td>
<td>41</td>
</tr>
<tr>
<td>Practical Implications and Future Research</td>
<td>43</td>
</tr>
<tr>
<td>Concluding Comments</td>
<td>44</td>
</tr>
<tr>
<td>FOOTNOTES</td>
<td>46</td>
</tr>
</tbody>
</table>
# Table of Contents – Continued

## TABLES

1. Compeau and Higgins Computer Self-Efficacy Scale Items and Factor Loading .................................................. 47

2. General Computer-Based Training Ease of Use Scale Items and Factor Loading .................................................. 48

3. General Computer-Based Safety Training Usefulness Scale Items and Factor Loading ........................................... 49

4. Retail Supermart Computer-Based Safety Training Usefulness Items and Factor Loading ........................................... 50

5. Behavioral Intention Items and Factor Loading .................................................................................................. 51

6. Safety Knowledge Means and Standard Deviations ........................................................................................... 52

## APPENDICES

A. The Technology Acceptance Model (TAM) ......................................................................................................... 53

B. Time 1 Pre-Test ................................................................................................................................................... 54

C. Time 2 Post-Test ................................................................................................................................................. 60

D. Time 3 Post-Test ................................................................................................................................................. 66

E. HSIRB Approval Letter ......................................................................................................................................... 73

F. HSIRB Extension Approval Letter ....................................................................................................................... 74

G. Consent Form ....................................................................................................................................................... 75

## REFERENCES

........................................................................................................................................................................ 76
Introduction

During the past decade, corporate America has experienced many different transformations. Companies have focused their resources on making quality products, delivering excellent customer service, creating an employee friendly work environment, and many other programs designed to gain a competitive edge (Noe, Hollenbeck, Gerhart, & Wright, 1997). Today however, the intensity of a fast-paced Internet economy has made knowledge a hot commodity, and the evolution of employees continuous and ubiquitous (Berry, 2000). Knowledge and skill comes with experience and challenge. An employee who feels challenged and who functions in an organizational environment that supports application of knowledge, skills, and attitudes, will want to thrive and maintain a position within that organization (Yamnill & McLean, 2001; Elangovan & Karakowsky, 1999). With this in mind, U.S. companies are starting to realize the important role of training, specifically the development of training to improve productivity, quality, and crisis management (Noe, 1986).

Traditionally, training has involved short-term, skill-based information sessions. This traditional design was originally geared toward managers, and often identified and enhanced various leadership styles that were deemed effective by sales professionals (Barkley & Bianco, 2001). The fundamental flaw in traditional training was, and still is, the fact that there is little connection between those who need training and those who receive training (Berry, 2000). Although many companies still use the traditional form of training, identification of this critical flaw is motivating companies to re-evaluate their use of training, and to develop programs to better stimulate both professional and
personal growth in employees. A new type of training program that is increasing in
popularity is computer-based training (CBT) (Brown, 2001; Verespej, 2001). CBT
allows the learner to be in control. Even with a live, learner-centered training program,
the trainer has ultimate control by managing what information the learner receives and
how the learner proceeds through the material (Kiser, 1999). CBT improves the
versatility of training both for trainees and trainers. The flexibility of a computer
interface allows training programs that enable employees to complete customized
modules that cover both needed information and wanted information (Kiser, 1999). CBT
groups include, but are not limited to, courses, books, discussion forums, and news
items on related training topics. On the other hand, training managers can track who
takes courses, which courses are most popular, how much time is being spent on different
modules, how much a trainee knew about a topic before and after completing a module,
and an infinite amount of other important training information (Gallagher, 2001; Kiser,
1999).

In recent years, there has been a dramatic increase in the various forms of
computer-delivered instruction, including computer-based training, web-based training,
and e-learning (Brown, 2001). Although there are some technical distinctions among
these types of training, they all use a computer as the central medium for delivering
training instruction and material to learners (Brown, 2001). In part, the development of
computer-based training has been driven by cost efficiency and increased capabilities of
explained that computer-based training and web-based training programs use a
combination of text, graphics, audio, and video along with links and tools that let the
trainee navigate, interact, create, and communicate during training. More specifically, instruction delivered by computer is often distinguished from more traditional (i.e., instructor-led) training by the trainee's ability to individualize both learning experiences and use of training materials (Brown, 2001).

In addition to the switch from instructors to computers, a more comprehensive change is occurring in the measure of training effectiveness. In the past, companies spent substantial amounts of money on training, however most never actually developed a comprehensive method to assess the success or failure of training programs (Garavaglia, 1993). Even in recent years, organizations tend to be more concerned with reaching a target standard (i.e., number of employees trained, improvement to an organization's bottom line, etc.) than the amount of learning (i.e., employee knowledge gain/change, application of training topics to the job, etc.) that has occurred during training (Goldwasser, 2001; Sackett & Mullen, 1993). There is a broad need to improve the assessment of training in order to achieve greater returns on investment in organizations (Warr, Allan, & Birdi, 1999). According to Noe, Hollenbeck, Gerhart, and Wright (1997), one of the most operative ways to measure a training program's success is to consider the trainee's transfer of training. Transfer of training is the "use of knowledge, skills, and behaviors learned in the training environment on the job" (Noe et al., 1997, p. 357). In other words, the key to the training formula is provoked outcomes, specifically behavior change (Walton, 1989). By examining employee (or trainee) behaviors specifically related to the objective of the training, following completion of training, an organization would be able to identify and measure specific outcomes of the training.
Often times, when organizations implement a training program, they fail to consider the resistance that employees may have toward adopting the training material (Yammill & McLean, 2001). Specifically, companies fail to recognize employee affect on transfer of training. In order for a company to implement a successful training program, it is crucial to identify barriers to training and alternative solutions to these barriers (Christoph, Schoenfeld, & Tansky, 1998). If a company identifies what factors are inhibiting behavior change in their employees, logically a company would then have a basis for developing tools to combat these factors. Although many companies have invested a lot of money in computer-based training (CBT) programs, little empirical research has been conducted to determine the effectiveness and benefits of CBT.

O’Keefe (1990) provided a description of persuasion, which is summarized as the attempt to influence a person’s attitude and/or behavior using communication. Ultimately, this attitude/behavior change is the goal of training. For this reason, persuasion theory, specifically the Technology Acceptance Model (TAM) is a plausible lens through which to consider the area of training. Prior research has explored many dimensions of training, including the relationship between self-efficacy and training effectiveness, however limited research has explored the specific relationship between employee self-efficacy toward computers and computer-based training effectiveness. Thus, by using the TAM, prior research of self-efficacy, and transfer of training theory, this study seeks to examine the relationships between employee computer self-efficacy, perceptions of the ease of use of CBT, perceptions of the usefulness of CBT, behavioral intention, and transfer of training, following computer-based training.
Theoretical Framework

Technology Acceptance Model

Fishbein and Ajzen's (1980; 1975) Theory of Reasoned Action (TRA) is a social psychological model, which has been used to study the determinants of consciously intended human behaviors in a wide variety of contexts (O'Keefe, 1990). According to the TRA, a person's performance of a specified behavior is the product of multiple factors, which ultimately influence one's intention to perform the behavior (Fishbein & Ajzen, 1980; Fishbein & Ajzen, 1975). This more defined comprehension of a person's intention to perform certain behaviors can then help scholars in the creation of strategies to influence those intentions, which often predicts a person's actual behavior.

Understanding the logic behind why some people accept computers, while others reject them has proven to be a rewarding, yet taxing issue in technology systems research (Swanson, 1988). Davis (1989) explained that accepting or rejecting technology is a specific "user behavior," and therefore behavior models form a potentially solid theoretical foundation for research on the determinants of this behavior (p. 320). The TRA, being one of the most researched behavioral intention models, has "proven success in predicting and explaining behavior across a wide variety of domains" (Davis, 1986, p. 1). Building upon the TRA, Davis (1986) constructed a model of technology acceptance in an effort to explain computer usage behavior, and Venkatesh and Davis (1996) further developed the model to include antecedents of key acceptance constructs (See Appendix A).

The technology acceptance model (TAM) prescribes an individual's behavior of using computing technology as the function of that individual's behavioral intention (BI)
to use computing technology and his/her perceptions of the ease of use and usefulness of that technology (Davis, Bagozzi, & Warshaw, 1989). Similar to the TRA, the TAM suggests that computer usage (i.e., behavior) is determined by BI. Whereas the TRA explains BI as a function of a person’s attitude toward the behavior and his/her subjective norms, the TAM explains BI as a function of a person’s perception of the ease of use (EOU) of the computing technology and the prospective user’s subjective opinion about the usefulness (U) of the computing technology. Ease of use is “the user’s perception of the amount of effort needed to use the system”, whereas, usefulness is “the user’s perception of the degree to which using the system will improve his/her performance in the workplace” (Venkatesh and Davis, 1996, p. 452). Computer self-efficacy is a key antecedent of a person’s perceptions of the ease of use of technology (Venkatesh and Davis, 1996). Specifically, “users strongly anchor ease of use perceptions about any system to their computer self-efficacy” (Venkatesh and Davis, 1996, p.454). According to Davis (1989), computer self-efficacy is similar to EOU, and therefore influences EOU, because they are both “judgments” regarding how effectively one can complete actions required to deal with potential computer interaction (p. 321). Hence, the TAM suggests that an employee’s self-efficacy toward computers will influence his/her perceptions of the ease of use of that computer, thus influencing his/her intention to use a computer and therefore affect any behavior change involving a computer.

Prior research evaluating the predictive ability of the TAM generated the following insight concerning the determinants of computer use. First, it was found that computer use can be predicted relatively well through intention (Davis, Bagozzi, & Warshaw, 1989). A second finding showed that U is a determinant of a person’s
intentions toward computer use. Third, EOU was found to be a secondary determinant of people’s intentions to use computers. Additionally, user intention has been found to predict system use better than competing predictors such as realism of expectations (Ginzberg, 1981), motivational force (DeSanctis, 1983), value (Swanson, 1987), and user satisfaction (Srinivasan, 1985). In summary, Davis, Bagozzi, and Warshaw explained, the “TAM postulated that BI is the major determinant of usage behavior; that behavior should be predictable from measures of BI, and that any other factors that influence user behavior do so indirectly by influencing BI” (p. 997).

Venkatesh and Davis (1996) found that computer self-efficacy significantly influences perceived EOU of microcomputers both prior to and following hands-on experience. Researchers have also tested the TAM's predictive ability in an educational environment (Hong, Thong, Wong, & Tam, 2001). Results from Hong et al. support the utility of the TAM in predicting users’ intention to adopt digital libraries, and the influence of self-efficacy on intention. Moreover, computer self-efficacy was found to have a positive effect on perceived ease of use of a digital library. By examining the effect of computer self-efficacy on the use of new information technology, especially that which is more complex in nature than e-mail or word processing, this study extends prior TAM research by examining computer self-efficacy, user acceptance of various computing technologies (i.e., CBT), and ultimately transfer of training.

The TAM (Davis, Bagozzi & Warshaw, 1989) has received considerable interest and review in research literature. Strengths of the TAM include the following: being based in sound social psychological theory, having a defined concentration on technology use, and instruments that have evidence for being valid and reliable (Mathieson, Peacock,
Self-Efficacy and CBT

The TAM has also demonstrated usefulness for prediction in empirical studies (Davis et al., 1989; Davis, 1989; Adams, Nelson & Todd, 1992). In a review of prior research, Mathieson et al. (2001) concluded that the TAM is more useful than other technology acceptance theories (i.e., the theory of planned behavior and the decomposed theory of planned behavior) because of the model’s simplicity and predictive ability. Davis (1989) used the TAM to look at office use of technology and found that ease of use and usefulness were strongly correlated with use of an office automation package, a text editor, and two graphics packages. The TAM has also been used to predict intention of spreadsheet package use (Mathieson, 1991). Similar relationships were found with electronic mail, voice mail use, and usage of a PC laboratory (Adams et al., 1992; Taylor and Todd, 1995a). Clearly this theory has shown utility for testing relationships between social psychological factors and use of technology. However, the TAM has not been used to predict outcomes of computer-based training. Thus, this study uses the TAM to examine relationships between self-efficacy, employee perceptions of CBT ease of use and usefulness, behavioral intention, and transfer of training.

In sum, the Technology Acceptance Model (TAM), theoretically based on Fishbein and Ajzen’s theory of reasoned action (TRA), was developed to specifically explain computer usage through ease of use, usefulness, and behavioral intention variables. Specifically, the TAM explains behavioral intention as a function of a person’s perceptions of the ease of use of computing technology and the prospective user’s subjective opinion about the usefulness of the computing technology. In addition, the TAM suggests that an employee’s self-efficacy toward computers will influence his/her perception of the ease of use of computer-based training. Finally, the TAM suggests that
behavioral intention predicts the acceptance and use of information technologies. Specifically, behavioral intention is the major determinant of usage behavior. Thus, the TAM would suggest that behavior associated with CBT (i.e., transfer of training) should be predictable from measures of employee behavioral intention.

**Self-Efficacy and Training**

Self-efficacy, as defined by Bandura's Social Cognitive Theory, is the private judgment that a person makes about his/her capability to perform a specific behavior (Bandura, 1986). Self-efficacy is not concerned with a person's actual skill level, but rather with a person's judgments about what he/she can do given their perceived skill level (Bandura, 1986). A great deal of research has looked at the connection between self-efficacy (Bandura, 1986) and human behavior (see Feng-Yang & Meng-Hsiang, 2001, for a brief review) in a variety of contexts. Self-efficacy perceptions have been found to influence decisions on what behaviors to undertake (Bandura & Wood, 1989), the level of commitment and persistence in attempting those behaviors (Hollenbeck & Brief, 1987), and the actual performance accomplishments of the individual with respect to the behavior (Collins, 1985; Locke, Lee, & Bobko, 1994).

Cheng and Ho (2001) wrote a conceptual essay that posits employees with higher levels of confidence in their ability to perform anticipated tasks and make the modeled behavior changes after training, will be more likely to utilize the new training information in their jobs (Cheng & Ho, 2001). Furthermore, the extent to which an employee feels that he/she can successfully learn the content of a training program is crucial to employee performance both during and after training (Noe, Hollenbeck, Gerhart, & Wright, 1997). Empirically, self-efficacy has been shown to relate to many training dimensions.
Quinones (1995) found that employee self-efficacy is positively related to pre-training motivation. Employee self-efficacy has also been found to have a positive relationship with training performance in a wide variety of training programs such as lecture, cognitive modeling, post-training intervention, and socialization-type training (Gist, 1989; Gist, Stevens, & Bavetta, 1991; Tannenbaum, Mathieu, Salas, & Cannon-Bowers, 1991). Specifically, several researchers (e.g., Gist, Schwoerer, & Rosen, 1989; Martocchio & Weber, 1992) found that pre-training self-efficacy measures positively predicted learning. In addition, Seyler, Holton, Bates, Burnett, and Carvalho (1998) and Ford, Smith, Weissbein, Gully, and Salas (1998) both found a relationship between self-efficacy and transfer of training (i.e., skill transfer) following face-to-face training.

Building on prior research, this study will look specifically at computer-based training to examine the relationship between computer self-efficacy and transfer of performance following computer-based training.

The training environment is potentially intimidating to employees for various reasons (Noe, Hollenbeck, Gerhart, & Wright, 1997). As computer-based training programs become more prevalent, some employees may feel uncomfortable with this new training format. Employees can lack the confidence in their ability to use a computer, and even those employees who are more computer savvy may be intimidated by new technology and new programs (Noe et al.). Christoph, Schoenfeld, and Tansky (1998) examined specific outcomes of prior multimedia exposure (i.e., computer-based presentation) on trainee self-efficacy and trainee perception of training effectiveness. The study defined “multimedia-based instruction” as the use of computers to deliver training and their findings are important to future research in this area. Christoph et al.
explained three key findings in their study. First, trainees experience two kinds of multimedia self-efficacy, existing and developed. Existing self-efficacy is present in a trainee both prior to and at the beginning of multimedia-based training. This type of self-efficacy is based on past experience. Throughout the course of training however, existing self-efficacy changes based on the added experience of the training. This change results in developed self-efficacy. The second key finding in the study is that self-efficacy levels increase as experience with training methodology (i.e., computers) increases. Thus, prior exposure to computers is very important. Third, self-efficacy levels influence trainee perception of multimedia instructional effectiveness. Specifically, the higher the pre-training self-efficacy level of the trainee, the more effective the instruction is perceived to be by the trainee. These findings suggest examining an additional dimension of trainee computer self-efficacy. Instead of evaluating computer self-efficacy as a static trainee characteristic, the evolution of computer self-efficacy needs to be measured and taken into consideration. Thus, this study will measure both existing and developed self-efficacy to gain a more accurate representation of computer self-efficacy of trainees.

In sum, self-efficacy is the private judgment that a person makes about his/her capability to perform a specific behavior (Bandura, 1986). Self-efficacy perceptions in a variety of contexts have been found to influence decisions on what behaviors to undertake (Bandura & Wood, 1989), the level of commitment and persistence in attempting those behaviors (Hollenbeck & Brief, 1987), and the actual performance accomplishments of the individual with respect to the behavior (Collins, 1985; Locke, Lee, & Bobko, 1994). In addition relationships have been found between self-efficacy and many training dimensions and training outcomes (Quinones, 1995; Gist, 1989; Gist,
Self-Efficacy and CBT

Stevens, & Bavetta, 1991, Tannenbaum, Mathieu, Salas, & Cannon-Bowers, 1991, Gist, Schwoerer, & Rosen, 1989; Martocchio & Weber, 1992). Specifically, a positive relationship was found between self-efficacy and transfer of training (i.e., skill transfer) following face-to-face training (Seyler, Holton, Bates, Burnett, and Carvalho, 1998; Ford, Smith, Weissbein, Gully, and Salas, 1998). As computer-based training programs become more prevalent, some employees may feel uncomfortable with this new training format. Employees can lack the confidence in their ability to use a computer, and even more computer savvy employees may be intimidated by new technology and new programs (Noe et al.). This study seeks to explore the relationship between computer self-efficacy and transfer of training following computer-based training.

Transfer of Training

There is a compelling consensus amongst professionals that training employees to increase their knowledge and skills, and/or to change behaviors and attitudes is of little value if these new characteristics are not transferred to the job setting and retained over time (Kozlowski & Salas, 1997). Post-training job performance is fundamental to training, and is commonly deemed transfer of training. Baldwin and Ford (1988) categorized three specific factors that affect transfer of training: training inputs, training outputs, and conditions of transfer. Training inputs consist of employee/trainee characteristics, training design, and work environment (Baldwin & Ford, 1988). Training outputs include learning and retention (Baldwin & Ford, 1988). Conditions of transfer are composed of generalization (i.e., application of the training material to the job context), and training maintenance (i.e., longevity of the learned material over time) (Baldwin & Ford, 1988). Both employee characteristics and training design are noted as
being important to successful transfer of training (Baldwin & Ford). If employee attitude is not conducive to post-training performance, transfer of training will not occur (Baldwin & Ford). Equally, if the training design hinders an employee’s ability to transfer skills successfully, transfer of training will not occur (Baldwin & Ford). According to these guidelines, both employee self-efficacy and computer-based training are important factors that need to be considered to better understand training program effectiveness and individual performance change (i.e., transfer of training).

Training theory has many applications, however Kirkpatrick (1996) has used it to better assess the success of training programs. Benchmarks for recognizing target outcomes have been established by Kirkpatrick’s framework (1996). The framework identifies four measures or levels of training evaluation. The first level is reaction to the training. Reaction can be broken down into three forms: reported enjoyment of the training, its perceived usefulness, and its perceived difficulty (Warr, Catriona, & Birdi, 1999). Although a positive reaction may not ensure learning, a negative reaction undoubtedly moderates the likelihood of it occurring (Kirkpatrick, 1996). The second level is learning. Learning according to Kirkpatrick is defined as attitude change, knowledge increase, and/or skill improvement. A training program should result in changes in behavior that can be measured, and therefore the third level of evaluation is behavior. For behavior change to occur, the person “must have a desire to change, know what to do, work in the right climate, and be rewarded for change” (Kirkpatrick, 1996). Finally, any company that invests in training does so to achieve a specific result. Increased production, improved quality, lower costs, fewer accidents, and higher profits
are just a few ideal results. All four of these levels are measures of training success, or more specifically training outcomes.

Warr, Catriona, and Birdi (1999) empirically tested and evaluated three of Kirkpatrick’s four levels of training evaluation. Warr et al. (1999) did not evaluate the fourth level of Kirkpatrick’s framework (results) because they found it very difficult to develop sound measures that would accurately identify whether or not a single training activity would be the sole cause of observed changes in the entire organization’s sales, productivity, costs, turnover, etc. In summary, Warr et al.’s analysis of Kirkpatrick’s first three levels of training evaluation found that trainee learning scores (i.e., cognitive learning) were strongly predicted by trainees’ reactions to the training, but those reactions were not associated with later job behavior. Additionally, behavior outcomes were better predicted by other variables such as trainee characteristics, learning strategies, and aspects of transfer climate (Warr et al., 1999). In looking at the relationship between work environment and transfer of training, Brinkerhoff and Montesino (1995) found that employees who received management support interventions both before and after training perceived positive forces encouraging transfer of training and also demonstrated significantly higher training usage than those employees who did not receive management support. As suggested by Kirkpatrick’s framework, and supported by studies mentioned above, outcomes are typically the result of something. Limited research however, has specifically looked at training inputs, or factors that influence training success.
Computer-Based Training

The term computer-based training (CBT) has referred to a variety of technologies. CBT may include the use of CD-ROM or disk-based courses (Ouellette, 1999). Terms such as e-training and e-learning break CBT down into both software programs and web-based programs (Sauer, 2001). The use of training via an intranet system has also been considered a CBT program. In sum, CBT is any training instruction delivered through a computer.

Research in the area of computer-based training has traditionally focused on features of the technology, such as the interface, rather than on learner characteristics and the learning process (Brown, 2001). Although it is important to evaluate the equipment and programs, it is equally important to understand the characteristics of trainees that impact the effectiveness of training. A company can develop the best, most comprehensive training program, however if there are existing barriers to training amongst the employees, training effectiveness will never reach its potential. Additional research is needed to identify factors that help and hinder the success of training provided via technology (Christoph, Schoenfeld, & Tansky, 1998; Russ-Eft & McGlahlin, 1983).

Prior research in the area of computer technology has demonstrated a relationship between self-efficacy and individual responses to computing technology, both in terms of acceptance and use of computers (Compeau, Higgins, & Huff, 1999). In fact, Compeau, et al. (1999) confirmed the “significant predictive capability of self-efficacy” (p. 151). For this reason, it is crucial to understand the relationship between self-efficacy, CBT, and transfer of training. An employee’s belief about his/her ability to use a computer is
related to that employee’s decisions about if and how much to use technology and the extent to which he/she is able to learn to use a computer via training (Compeau et al., 1999).

In sum, the Technology Acceptance Model (TAM), theoretically based on Fishbein and Ajzen’s theory of reasoned action (TRA), was developed to specifically explain computer usage through ease of use, usefulness, and behavioral intention variables. Scholars, such as Compeau, Higgins, & Huff (1999), have explored the importance of self-efficacy as it relates to the acceptance and use of computers. Prior self-efficacy research found a relationship between trainee self-efficacy and transfer of training (i.e., skill transfer) following face-to-face training (Seyler, Holton, Bates, Burnett, and Carvalho, 1998; Ford, Smith, Weissbein, Gully, and Salas, 1998). In addition, prior computer technology research has demonstrated a relationship between self-efficacy and individual responses to computing technology. Given that computer-based training (CBT) relies on computers, employee self-efficacy toward computers may influence the degree to which an employee will gain knowledge from a computer and hence be able to apply that knowledge after training is complete.

Hypotheses

This study defines existing self-efficacy as a person’s judgment of his or her ability to use a computer (Hong, Thong, Wong, & Tam, 2001). The TAM suggests that an employee’s existing self-efficacy toward computers will influence his/her perception of the ease of use of computer-based training. For example, an employee that feels highly efficacious toward computers may view computer-based training as easy to use because they feel confident in their abilities to perform the training and obtain the
information needed to succeed in their job. Alternately, an employee who questions their ability to use a computer may view computer-based training as difficult to use and thus doubt their ability to perform the training and gain the knowledge needed to perform their job. This study defines ease of use as the degree to which a person believes that using computer-based training would be free of effort. In addition to the theoretical basis, “there also appears to be intuitive and practical bases to surmise that self-efficacy and ease of use perceptions might be closely linked” (Venkatesh and Davis, 1996, p.452). As discussed before, reliance on technology is becoming more and more universal in corporate America. Thus, it is likely that the majority of employees have used some form of computer/information technology at one time or another. However, an individual’s perceptions of his or her ability to effectively use computer technology may vary. This in turn may influence an individual’s perceptions of how easy it is to use or complete computer-based training. Thus, the following hypothesis is posited:

**H1**: There will be a positive relationship between existing employee computer self-efficacy and employee perceived ease of use toward computer-based training.

The TAM predicts that a person’s perceptions of the usefulness of the computing technology will influence their behavioral intention. This study defines employee behavioral intention as the strength of an employee’s intention to perform (or not to perform) behaviors instructed by training material. Usefulness is the employee’s perception of the degree to which using the computer-based training material will improve his/her job performance. Thus, according to the TAM, if an employee perceives the computer-based training (i.e., training material) to be useful, the employee will be more likely to intend to use the material learned during training on their job. Conversely,
if an employee does not perceive the computer-based training to be useful, the employee may be less likely to intend to use the training material on the job. Specifically, the TAM suggests that an employee’s perceptions of the usefulness of computer-based training will influence the employee’s intention to use training material delivered during computer-based training. Therefore the following hypothesis is surmised:

**H2: There will be a positive relationship between employee perceptions of computer-based safety training usefulness and employee behavioral intention to transfer the material learned during computer-based training to their job.**

According to the TAM, an employee’s intention to use a computer will affect behavior change involving a computer. Moreover, according to Davis (1986), a person’s behavioral intent is the best determinant of a person’s actual behavior. Looking at behavioral intention in terms of this study, if an employee does not intend to use the material learned during computer-based training on the job, it is unlikely that he/she will actually use the material on the job. This study defines transfer of training as the use of knowledge and behaviors learned in the training environment on the job (Noe, Hollenbeck, Gerhart, & Wright 1997). Specifically, transfer of training following computer-based training transpires if the employee exhibits a prolonged gain in training content knowledge and/or performs behaviors prescribed by the training. For the purposes of this study, transfer of training is operationalized as a gain in safety knowledge and/or performance of safety behaviors on the job. Thus, the following hypotheses are offered:
**H3a:** There will be a positive relationship between employee behavioral intention to transfer the material learned during computer-based training to their job and employee knowledge change (i.e., transfer of training) following computer-based training.

**H3b:** There will be a positive relationship between employee behavioral intention to transfer the material learned during computer-based training to their job and employee behavior (i.e., transfer of training) following computer-based training.

Christoph, Schoenfeld, and Tansky (1998) found that trainees experience two kinds of multimedia self-efficacy, existing and developed. Existing self-efficacy is present in a trainee both prior to and at the beginning of multimedia-based training. This type of self-efficacy is based on past experience. Throughout the course of training however, self-efficacy changes based on the added experience of the training. This change results in *developed* self-efficacy. An employee’s pre-training computer self-efficacy should have the most significant impact on his/her transfer of training because if an employee does not believe in his/her ability to use a computer, then this lack of confidence may disrupt the employee’s focus on the training and hence hinder the learning process. In other words, employee focus may shift from *learning* the material to simply *getting through* the training. However, if an employee develops higher computer self-efficacy during the training, he/she may also develop a more positive attitude toward the computer-based training because of the increase in self-efficacy. Thus, the following hypothesis will be tested:

**H4:** Employee computer self-efficacy scores will be significantly higher after computer-based training than existing employee self-efficacy scores.
Self-efficacy perceptions in a variety of contexts have been found to influence decisions on what behaviors to undertake (Bandura & Wood, 1989), the level of commitment and persistence in attempting those behaviors (Hollenbeck & Brief, 1987), and the actual performance accomplishments of the individual with respect to the behavior (Collins, 1985; Locke, Lee, & Bobko, 1994). In addition, significant relationships have been found between self-efficacy and many training dimensions and training outcomes. Quinones (1995) found that employee self-efficacy is positively related to pre-training motivation. Employee self-efficacy has also been found to have a positive relationship with training performance in a wide variety of training programs such as lecture, cognitive modeling, post-training intervention, and socialization-type training (Gist, 1989; Gist, Stevens, & Bavetta, 1991, Tannenbaum, Mathieu, Salas, & Cannon-Bowers, 1991). Researchers (Gist, Schwoerer, & Rosen, 1989; Martocchio & Weber, 1992) found that pre-training self-efficacy measures positively predicted learning. Furthermore, Seyler, Holton, Bates, Burnett, and Carvalho (1998) and Ford, Smith, Weissbein, Gully, and Salas (1998) both found a relationship between self-efficacy and transfer of training (i.e., skill transfer) following face-to-face training. The current study further tests the relationships between self-efficacy and transfer of training by examining existing and developed computer self-efficacy and transfer of training following computer-based training. Thus, the following hypotheses are posited:

**H5a:** There is a positive relationship between existing employee computer self-efficacy and employee knowledge change (i.e., transfer of training) following computer-based training.
**H5b:** There is a positive relationship between existing employee computer self-efficacy and employee behavior (i.e., transfer of training) following computer-based training.

**H5c:** There is a positive relationship between developed employee computer self-efficacy and employee knowledge change (i.e., transfer of training) following computer-based training.

**H5d:** There is a positive relationship between developed employee computer self-efficacy and employee behavior (i.e., transfer of training) following computer-based training.
Method

Participants

Participants in this study were employees from three branches of a large Midwestern retail chain, hereafter known as Retail Supermart. Access was gained to this organization by initially meeting with the store director and store trainer of one of the local retail stores. Full approval to collect data in this organization was gained at all levels (i.e., store trainer, store director, and regional manager). Safety training delivered via computers is conducted during the orientation of all newly hired employees at this organization. Data was collected during the months of August, September, October, November, and December. A total of 83 employees volunteered to participate (83 completed the first (T1) questionnaire, 77 completed the second (T2) questionnaire, and 62 completed the third (T3) questionnaire). Of the participants who reported their sex, 50.8% were male and 49.2% were female. Participants ranged in age from 16-55 (M = 24.5, SD = 12.6).

Design

To test the relationships between employee self-efficacy, employee perceptions of CBT ease of use and usefulness, behavioral intentions, and transfer of training, a pre-test/post-test design was used. The pre-test questionnaire (T1) measured existing self-efficacy, perceptions of general CBT ease of use, and prior knowledge of the safety training material. Post-tests were given at two points in time following the computer-based orientation training. The first post-test (T2) was given immediately following the training, and again measured self-efficacy, which would account for any change in self-efficacy (i.e., developed self-efficacy) following computer-based training itself. In
addition, T2 measured each employee's perceptions of general CBT ease of use, perceptions of general CBT usefulness, perceptions of the Retail Supermart CBT usefulness, intention to use the information gained during the training in their job, and knowledge of the safety training material. The second post-test (T3) was given one week after the computer-based training session, during a follow-up training, which was required by the organization. The second post-test measured computer self-efficacy, perceptions of general CBT ease of use, perceptions of general CBT usefulness, perceptions of the Retail Supermart CBT usefulness, intention to use the information gained during the training in their job, evaluation of the employee's work environment (i.e., does it support the application of the training material), the employee's comfort level in application of the training material, the employee's knowledge of the safety training material, and actual employee behavior (i.e., use of the training material on the job).

Procedure

The basic premise of this study was explained to employees attending the orientation training, and a consent form with further information was distributed. Those employees who chose to participate in the study were assigned random participant identification numbers. Preceding the start of the computer-based safety training, T1 surveys were distributed to the participants, and time was allowed for participants to complete the survey. Once completed, the surveys were collected and the computer-based safety training session began. Training modules were completed individually and took participants an average of one hour to complete. After the training session was entirely finished, employees were asked to complete the T2 survey. The T2 survey was
distributed to those employees who opted to participate, and time was given to complete the survey. One week following the computer-based safety training, employees were contacted to complete the T3 survey. This survey was distributed during a follow-up guest services (non-computer-based) training session organized and required as part of the store orientation program. In the same format as the previous data collection, the T3 survey was distributed to those employees who opted to participate, and time was given to complete the survey.

*Instrumentation and Confirmatory Factor Analysis (CFA)*

Construct validity represents the interplay between the conceptual definition of a variable and the operational procedure to measure that construct (Frey, Botan, and Kreps, 2000). With this in mind, Hunter and Gerbing (1982) suggested that construct validation of a variable operationalized with multiple indicators can be “accomplished by the analysis of the measurement model” (p. 273). Hunter and Gerbing (1982) argued that, although exploratory factor analysis (EFA) is typically used to evaluate the parameters of a measurement model, EFA often produces fewer factors than there are underlying variables in the data. Specifically, EFA tends to group all highly correlated variables into the same factor. Additionally, EFA does not allow a place for bad items (i.e., error cluster), thus researchers may continue to include items that ultimately hurt the reliability and validity of a measure. In order to more effectively estimate the parameters of a measurement model, Hunter and Gerbing (1982) suggested conducting confirmatory factor analysis (CFA). CFA is not sufficient for construct validation, however, it is an informative first step, which allows the researcher to evaluate the measurement model for
unidimensionality. Specifically, items of a unidimensional cluster must pass statistical tests for internal consistency and parallelism (Hunter & Gerbing, 1982).

**Internal Consistency.** By examining individual scale items for deviation from a particular factor, CFA provides a way to test internal consistency (i.e., item homogeneity). It is hypothesized that the items from a single construct will cluster together in a linear fashion as indicators of the specified underlying construct. Due to the fact that "most instruments are composed of items measuring the same general concept," researchers can examine whether there is sufficient consistency between how participants answer the related items (Frey, Botan, and Kreps, 2000, p. 113).

**Parallelism.** The parallelism test is designed to evaluate external consistency. Parallelism evaluates the relationship between measurement items for one factor versus outside factors. In other words, do scale items appear to measure a single construct given how the construct relates to outside factors? Parallelism tests are rigorous and assess deviations between the observed and predicted correlation matrices. Using parallelism, a researcher can identify scale items that may demonstrate a significantly varied pattern of correlation with other measures.

This study used four criteria to determine the quality and dimensionality of each instrument: face validity, internal consistency, parallelism, and reliability. Furthermore items that did not pass tests of internal consistency and parallelism were deleted from the scale. Specifically, items producing errors greater than 0.15 were carefully reviewed.

**Existing Computer Self-efficacy.** Existing employee self-efficacy was measured using a 10-item instrument developed by Compeau and Higgins (1995). Compeau and Higgins have demonstrated that their self-efficacy measure exhibits high construct
validity, internal consistency (i.e., reliability), and discriminant validity (Compeau & Higgins, 1995). Specifically, internal consistency reliability (ICR) was .95 and discriminant validity was .81. Compeau et al. (1999) performed a follow-up study using the self-efficacy measure and found no significant change in the measure’s ICR or discriminant validity over time.

Ten items developed by Compeau and Higgins (1995) were designed to evaluate a person’s self-efficacy toward computers, focusing specifically on software use. This questionnaire was given prior (T1) to the start of computer-based training (Appendix B, items 1-10). Each question first asks respondents to answer yes or no to an action involving a hypothetical scenario about completing a job using a software package. For those questions that the respondent answers “yes,” the survey asks the respondent to rate their confidence in their action. A summary of the confidence scale responses, with 0 equaling a “no” response, encompasses “both self-efficacy magnitude and strength” (Compeau & Higgins, 1995).

The first test of the factor structure (i.e., analyses of item loadings) indicated that each of the 10 items loaded highest in comparison with the other 5 computer-based training factors. Factor loadings ranged from .69 to .84 for all of the items (See Table 1 for scale descriptive statistics and factor loadings). The second test of the factor structure (i.e., internal consistency) confirmed that all of the Compeau and Higgins self-efficacy items were internally consistent (i.e., errors ranged from .01 to .27), however items 4 and 10 were dropped due to failure of the parallelism test (errors ranged from .00 to .26). Overall, application of the Compeau and Higgins self-efficacy scale demonstrated strong reliability, with an alpha of .90 for the pre-test (T1).
Developed Self-efficacy. Compeau and Higgins computer self-efficacy items were also included in the questionnaires given immediately following (T2) the training (Appendix C, items 1-10), and one week following (T3) the training (Appendix D, items 1-10). Again, the scale demonstrated strong reliability with an alpha of .95 for both T2 and T3 (See Table 1 for scale means and standard deviations).³ To calculate developed self-efficacy, a difference score was computed for each participant by subtracting their self-efficacy score at T1 from their self-efficacy score at T2. This measure resulted in positive values for individuals whose T2 score surpassed their T1 computer self-efficacy score.

Ease of use. Employee perceptions of general computer-based training programs ease of use (EOU) was measured prior to the start of the CBT by asking participants to rate how much they agreed or disagreed with statements referring to how easy general CBT was to use (Appendix B, items 33-36). Item loadings for the general computer-based training ease of use factor indicated that 3 of the 4 items loaded highest in comparison with the other 5 computer-based training factors (See Table 2 for scale descriptive statistics and factor loadings). All items passed tests for internal consistency (errors ranged from .04 to .27), parallelism (errors ranged from .00 to .33), and reliability except item 35 (failed internal consistency), thus the item was dropped (α = .79).

Usefulness. The perceived usefulness (U) of general safety training was measured prior to the start of the CBT by asking participants to rate how much they agreed or disagreed with statements referring to the usefulness of general safety training (Appendix B, items 37-43; Appendix C, items 37-43; Appendix D, items 37-43). In addition, the usefulness of the Retail Supermart safety training was measured
immediately following and one week following CBT, by asking participants to rate how much they agreed or disagreed with statements referring to the usefulness of Retail Supermart's safety training (Appendix C, items 47-51; Appendix D, items 47-51).

Item loadings for 6 of the 7 general computer-based safety training usefulness items also loaded higher than the 5 other computer-based training factors. Factor loadings ranged from .16 to .96, yet 5 of the 7 items loaded higher than .60 (See Table 3 for scale descriptive statistics and factor loadings). All items were internally consistent (errors ranged from .00 to .22), however items 37, 39, and 43 were dropped due to failure of the parallelism test (errors ranged from .00 to .33). The general computer-based safety training usefulness items demonstrated strong reliability, with an alpha of .93 for the pre-test (T1), .88 for the first post-test (T2), and .96 for the second post-test (T3).

In addition, item loadings for the 5 specific (i.e. Retail Supermart) computer-based training usefulness items (T2) also loaded highest on the predicted factor, and the factor loadings ranged from .69 to .94 for all items (see Table 4 for scale descriptive statistics and factor loadings). Again, all items were internally consistency (errors ranged from .00 to .05), however item 47 and 48 were dropped due to problems with parallelism (errors ranged from .00 to .33). After dropping these items the scale demonstrated strong reliability at T2 ($\alpha = .91$) and T3 ($\alpha = .95$).

**Employee Behavioral Intention.** Employee behavioral intention (BI) was measured using survey items that specifically asked the respondent to indicate how much he/she agrees or disagrees with different statements about their intention to use the safety training material in their job. The BI items were given immediately following the computer-based safety training (Appendix C, items 52-55). Analysis of item loadings
indicated that each of the 4 items loaded highest in comparison with the other 5 computer-based training factors (see Table 5 for scale descriptive statistics and factor loadings), and each item loaded .80 or higher. All of the items passed tests for internal consistency (errors ranged from .01 to .07) and parallelism (errors ranged from .00 to .25) and therefore no items were dropped. Application of the employee behavioral intention scale demonstrated solid reliability, with an alpha of .85.

*Transfer of training.* In light of the fact that specific target behaviors with which to identify transfer of training depends on the training topic, a measurement tool for transfer of training was created in reflection of the safety training content, and in conjunction with one of the retailer’s store trainers. Measurement items included the three essential transfer of training outcomes outlined by Kirkpatrick’s framework (1996), and supported by Warr, Allan, and Birdi (1999). These outcomes included trainee reaction, learning (i.e., knowledge of specific outcomes directed by the safety training content), and job behavior (i.e., application of the training material to the job following the training). Knowledge change was measured using survey items that assessed each participant’s knowledge of the safety issues addressed in the computer-based training prior to the training (Appendix B, items 44-52), immediately following the training (Appendix C, items 56-64), and one week following the training (Appendix D, items 63-71; See Table 6 for means and standard deviations). Actual job behavior (i.e., whether or not the trainee applied the training content to his/her job) was assessed by asking participants to fill in the number of times they had addressed specific safety concerns during the week following the training (Appendix D, items 72-75).
Results

To test whether there is a positive relationship between existing employee computer self-efficacy and employee perceived ease of use toward computer-based training (i.e., Hypothesis 1) employee self-efficacy scores (i.e., T1 pre-test self-efficacy scores) were correlated with employee perceptions of ease of use toward computer-based training. Consistent with Hypothesis 1, self-efficacy scores were significantly and positively correlated with employee perceptions of ease of use toward computer-based training, $r(83) = .56, p<.0001$. Hypothesis 2 states there will be a positive relationship between employee perceptions of general computer-based safety training usefulness and employee behavioral intention to transfer the material learned during computer-based training to their job. The data were also consistent with support for the relationship between employee perceptions of general computer-based safety training usefulness and employee behavioral intention to transfer the material learned during computer-based training to their job. Specifically, employee perceptions of general computer-based safety training usefulness (i.e., T1 pre-test general computer-based safety training usefulness scores) were significantly and positively correlated with employee behavioral intention to transfer the material learned during computer-based training to their job, $r(77) = .47, p<.0001$. Furthermore, employee perceptions of general computer-based safety training usefulness following the computer-based training session (i.e., T2 post-test general CBT usefulness scores) were significantly and positively correlated with employee behavioral intention to transfer the training material, $r(77) = .52, p<.0001$. The data also revealed a significant and positive relationship between employee perceptions of the Retail Supermart’s computer-based safety training usefulness (i.e., T2 post-test
Retail Supermart’s computer-based safety training usefulness scores) and employee behavioral intention to transfer the material learned during computer-based training to their job, \( r(77) = .69, p < .0001 \).

Hypothesis 3a predicted that employee behavioral intentions to transfer the computer-based training material to their job would be positively associated with employee knowledge change following CBT. To test this, a knowledge change difference score was computed for each participant by subtracting their knowledge pre-test score (T1) from their knowledge post-test score (T2). This measure resulted in positive values for individuals whose post-test score surpassed their pre-test score. Hypothesis 3b also predicted that there would be a positive relationship between employee behavioral intention to transfer the material learned during computer-based training to their job and employee behavior following CBT. However, the data was not consistent with Hypotheses 3a or 3b. Specifically, there was no relationship between employee behavioral intentions to transfer the material learned during computer-based training to their job and knowledge change following computer-based training, \( r(73) = .05, \) ns. Furthermore, there was no relationship between employee behavioral intention to transfer the material learned during computer-based training to their job and employee behavior following computer-based training, \( r(60) = -.07, \) ns. A partial correlation controlling for knowledge at T1 also revealed no significant relationship between behavioral intention and knowledge change, \( r(70) = .05, \) ns.

Hypothesis 4 tested the prediction that employee computer self-efficacy scores will be significantly higher after computer-based training than employee self-efficacy scores prior to computer-based training. The data suggest that employee pre-test scores
Self-Efficacy and CBT

(T1) for self-efficacy or existing self-efficacy (M=6.8, SD=2.02) differed significantly from employee self-efficacy post-test scores (T2, M=8.0, SD=1.99), t(1,76) = -7.35, p<.0001. Thus, as predicted, employee computer self-efficacy scores increased after completing the computer-based training at Retail Supermart.

Hypothesis 5a predicted there would be a positive relationship between existing employee computer self-efficacy scores and knowledge change following computer-based training. However, the data revealed a statistically significant negative relationship between existing employee computer self-efficacy scores and knowledge change following computer-based training, r(73) = -.31, p<.007. Therefore, employees with lower computer self-efficacy were more likely to experience greater increases in knowledge from the computer-based training than employees with higher computer self-efficacy. Hypothesis 5b predicted there would be a positive relationship between existing employee computer self-efficacy and employee behavior (i.e., number of times an employee addressed specific safety concerns during the week following the training), yet the data did not support this prediction, r(62) = .06, ns.

Developed self-efficacy was calculated by using a difference score. Each participant’s self-efficacy score at T1 was subtracted from their self-efficacy score at T2. This measure resulted in positive values for individuals whose T2 score surpassed their T1 computer self-efficacy score. Hypotheses 5c predicted that there would be a positive relationship between developed employee computer self-efficacy and knowledge change following computer-based training, yet the data revealed no statistically significant relationship between developed computer self-efficacy and knowledge change, r(73) = .12, ns. Finally, Hypothesis 5d predicted that developed employee computer self-efficacy
would be positively associated with behavior following computer-based training, yet the
data revealed no support for Hypothesis 5d, \( r(60) = -0.10, \text{ ns.} \)
Discussion

This study integrates past literature on self-efficacy, transfer of training and the Technology Acceptance Model to explore relationships between computer self-efficacy, perceived ease of use of computer-based training, perceived usefulness of computer-based safety training, behavioral intention, and transfer of training. Hypothesis 1 proposed a positive relationship between an employee’s existing computer self-efficacy and his/her perceptions of the ease of use of computer-based training. This relationship is supported by the findings of this study. Specifically, participants of the study who scored higher on the computer self-efficacy measures also rated general computer-based training as easy to use. These results support the suggestion of the TAM that an employee’s self-efficacy toward computers will influence his or her perceptions of computer-based training ease of use. Understanding the theoretical determinants of perceived ease of use is an important step toward understanding employee behavior in regards to technology use (Venkatesh & Davis, 1996). These findings further augment the utility of the TAM and draw attention to the importance of computer self-efficacy as an external variable that is connected to employee perceptions of ease of use.

Another important external variable highlighted by the TAM is perceived usefulness. Results of this study support the proposed hypothesis (H2) that there is a positive relationship between employee perceptions of computer-based safety training usefulness and employee behavioral intention to transfer the material learned during computer-based training to their job. In other words, participants who rated general computer-based safety training as useful also reported a strong intention to use the skills learned during training in their jobs. More importantly, there was an even stronger
relationship between participant perceptions of the usefulness of the computer-based safety training (i.e., Retail Supermart’s CBT on safety) offered during their orientation and participant behavioral intention to transfer the safety material learned during CBT to their job. These findings support the idea that perceived usefulness of computer-based training is a key factor in determining whether or not an employee will intend to transfer the training material to his/her job. Thus the data support the idea suggested by the TAM that behavioral intention is associated with the prospective user’s perceptions of the usefulness of the computing technology.

According to Davis (1989), the best determinant of a person’s actual behavior is the person’s intention to perform that behavior. Behavior change promoted in a training setting is identified as transfer of training. This study operationalized transfer of training as both learning (i.e., knowledge change) and application of the safety training material to the job (i.e., employee behavior). However, results of this study do not support the relationship between behavioral intention and transfer of training. Hypothesis 3a stated there would be a positive relationship between employee behavioral intention to transfer the material learned during computer-based training to their job and employee knowledge change following computer-based training. Hypothesis 3b posited that employee behavioral intention to transfer the training material learned during computer-based training would be positively associated with employee behavior following computer-based training. However, there was no relationship found between a participant’s intention to use the training material in their job and that participant’s knowledge change or behavior following the computer-based safety training. One explanation for this finding is that participants were given the behavior measure one week from the time that
they received the computer-based training. This may not have been a long enough period of time for them to experience the safety scenarios addressed in the training. The safety training discussed issues such as spills, proper lifting technique, lost children, and minor customer emergencies. It is unlikely that many of these scenarios occur on a daily basis, therefore a very limited number of incidents may have occurred during a one-week time frame. Although there was some variance in the safety behavior reported, the mean number of times participants reported addressing safety concerns was 2.03 (SD=3.74). Although this mean was significantly different from zero, $t(1,61) = 4.3$, $p< .0001$, the one week period between CBT and the follow-up post-test may not have been long enough for participants to engage in very many safety practices. Additionally, when examining the data, the mode for safety behaviors addressed was 0.00 suggesting that the majority of participants did not address safety scenarios the first week on the job. Thus, future research should seek to allow more time between CBT and follow-up post-tests to maximize the variance of the behavior variable.

Consistent with prior research we did find that trainees experience two kinds of multimedia self-efficacy during computer-based training (Christoph, Schoenfeld, & Tansky, 1998). Existing self-efficacy is based on the trainee's past experience with computers, whereas developed self-efficacy evolves based on the added experience of the current training. This study measured each participant’s computer self-efficacy at three points in time; prior to training, immediately following training, and one week after the training. Results support the idea that computer self-efficacy scores at T1 were significantly different from computer self-efficacy scores at T2. Specifically, employee computer self-efficacy scores were significantly higher at T2 than existing employee self-
efficacy scores at T1. This is important for CBT programs to be aware of because trainees are likely to feel more confident in their abilities to engage in CBT over the course of a CBT program.

Previous research has indicated a positive relationship between employee self-efficacy and transfer of training, including both learning and skill transfer, following face-to-face training. Hypothesis 5a predicted a positive relationship between existing employee computer self-efficacy and employee knowledge change (i.e., transfer of training) following computer-based training. Interestingly, results of this study found support for the opposite scenario for computer-based training. Those participants who scored lower on the computer self-efficacy measure learned more from the computer-based safety training than those who scored higher. One reason for these finding may be the setting of this study. Given that a retail business offers a unique and dynamic work environment, the setting of the study itself may have produced results uncharacteristic of a more traditional computer-based training program. Retail is known for its high turnover and fast-paced work ethic, thus those people hired into a retail environment may exhibit similar erratic qualities. Those participants who received high computer self-efficacy scores may have had the knowledge to quickly skip through the computer-based safety training to simply fulfill the requirements of the new-hire orientation. These employees may have viewed the retail job as temporary instead of a job that would lead to a long-term career. Thus, the safety information or any information delivered via computer-based training during orientation may have been viewed as provisional. Alternately, those employees who received low computer self-efficacy scores may still have viewed the job as temporary, however could not skip through the computer-based...
training because they lacked the skill to do so. They may have paid closer attention to the content by carefully reading the directions to help them get through the training and navigate the computer program, thus obtaining more knowledge about safety. Future research should take the setting of the study into consideration and expand replications to additional business contexts. Furthermore, the findings from this study would suggest that increased computer self-efficacy is not necessarily a good thing because trainees may be more apt to quickly skim through the material as their computer skills increase. CBT programs should consider including more knowledge checks throughout the training program in an effort to discourage quickly skimming the training material and improve transfer of training.

Hypothesis 5b predicted there would be a positive relationship between existing employee computer self-efficacy and employee behavior (i.e., number of times an employee addressed specific safety concerns during the week following the training), yet the data did not support this prediction, \( r(62) = .06, \) ns. With this in mind, although prior research indicated a positive relationship between employee self-efficacy and skill transfer (i.e., transfer of training) following face-to-face training, results of this study do not support a relationship between employee computer self-efficacy and employee behavior (i.e., transfer of training) following computer-based training.

Hypotheses 5c predicted a positive relationship between developed employee computer self-efficacy and employee knowledge change (i.e., transfer of training) following computer-based training. Developed self-efficacy was calculated by using a difference score. Self-efficacy scores for each participant at T1 were subtracted from their self-efficacy score at T2. This measure resulted in positive values for individuals
whose T2 score surpassed their T1 computer self-efficacy score. However, the data revealed no statistically significant relationship between developed computer self-efficacy and knowledge change, $r(73) = .12$, ns. Finally, Hypothesis 5d predicted that developed employee computer self-efficacy would be positively associated with behavior following computer-based training, yet the data revealed no support for Hypothesis 5d, $r(60) = -.10$, ns.

Theoretical Implications and Future Research

This study and its findings present an interesting direction for future research. Although several previous studies found support for the TAM, this study found mixed support. In the traditional and most simple application of the TAM, behavior in the form of technology use has been shown to be a direct function of behavioral intention, and behavioral intention is proposed to be associated with perceived ease of use (i.e., the degree to which the user expects the target system to be free of effort) and perceived usefulness (i.e., the belief that using technology will enhance performance). In this study however, although a relationship between perceptions of computer-based safety training usefulness and behavioral intention was found, the data revealed no relationship between behavioral intention and behavior. Suggestions from Kim and Hunter’s (1993) meta-analysis may provide an explanation for the findings. Kim and Hunter (1993) outlined that behavior must be “toward the volitional side of the continuum”(p. 131) in order for a reliable prediction to be made. In terms of this study, it’s possible that some employees may view safety behaviors learned through CBT (during orientation) as behaviors that are required instead of optional. Future research should examine the role of voluntary actions when seeking to predict behavior. In addition this study’s assessment of safety
behaviors did not elicit much variance and more time should have been given between T2 and T3. This may explain why no relationship was found between behavioral intention and behavior.

Furthermore, this study predicted a relationship between employee computer self-efficacy, employee knowledge change, and post-training behavior. Yet the results of this study do not support these predictions. Kim and Hunter (1993) also discussed the importance of evaluating the relevance of attitude scales to behavioral elements. For example, computer self-efficacy may not be conceptually relevant to safety behavior. A more relevant connection may be between safety self-efficacy (i.e., employee judgments about their ability to perform the suggested safety behaviors) and safety behavior or between computer self-efficacy and CBT behaviors. Although it was found that computer self-efficacy is related to transfer of training (i.e., knowledge change), future research should take a closer look at additional variables that may better predict transfer of training following CBT.

The primary goal in the traditional application of the TAM is to develop diagnostic tools to predict information systems acceptance (i.e., behavior) and thus facilitate design changes to improve the system's effectiveness (Taylor & Todd, 1995b). This study however applied the TAM to a learning environment to predict transfer of training instead of technology acceptance. Although past studies (e.g., Davis, 1989; Davis, et al. 1989; Mathieson, 1991; Taylor and Todd, 1995a) have shown the TAM's success in predicting technology behaviors in a voluntary setting (i.e., whether or not a person will choose to use technology if given the chance), results of this study suggest that the TAM is not as predictive in an involuntary behavior setting (i.e., required
training). Specifically, there appears to be a difference in the prediction of the behavior of technology use versus the prediction of behaviors resulting from technology use.

**Limitations**

The predominate limitation of this study is the inadequacy of the behavior measure. Allowing only one week between the T2 and T3 measures was not a long enough period of time to realistically maximize the variance of the behavior variable. During the data collection process, it was rationalized that giving the third (T3) questionnaire during the required Retail Supermart follow-up training (which was one week following the computer-based safety training) would decrease the attrition rate (i.e., drop-out rate) of participants. It was believed that the benefits of increased internal validity would outweigh the costs associated with the short follow-up time frame. In reality, this may not be true. Although the average number of reported employee safety behaviors was 2.03, the mode of the behavior variable was 0.00. In other words, participants most often reported performing no safety behaviors during their first week on the job.

The fact that data was collected during new-hire orientation is also a potential limitation of the study. Employees newly hired into an organization typically want to represent themselves in the best light possible to start their job on the right foot. This new-hire nostalgia may influence the participants of the study to provide answers to survey questions that they think the organization would want to hear instead of answering the questions honestly. For example, a set of the study’s questions asked participants to rate their intention to use the safety material learned during the computer-based training during their job. Participants most likely assume that the organization would want them
to intend to use the material, and therefore may respond favorably even if it does not represent their own intention. In addition, safety is an issue that most participants likely viewed as important to their own health and well-being. With this in mind answering negatively would not make sense, yet may have nothing to do with whether or not they actually intend to utilize the safety information. Thus, future research should carefully consider issues of social desirability when investigating new employee training programs.

Given the unique and dynamic work environment of a retail business, the setting of the study itself may also be a limiting factor. As stated before, retail is known for its high turnover and fast-paced work ethic, requiring employees with more erratic qualities. The characteristics of retail employees may be atypical of the characteristic of employees in a more traditional work environment (i.e., blue collar or white collar). Retail employees may have viewed their retail job as temporary instead of a job that would lead to a long-term career. Thus, the safety information or any information delivered via computer-based training during orientation may have been viewed as provisional. With this in mind, expanding the concepts of this study to different business disciplines and organizations may lead to different findings.

A final limitation of the study may be the attrition rate of the participants between T1, T2, and T3. Approximately 6 participants dropped out of the study between T1 and T2, and approximately 18 participants dropped out of the study from T1 to T3. To maximize the significance and strength of the relationships between study variables, loss of participants should be minimized throughout any study. Although significant relationships were still found, future research should seek to employ methods for retaining higher percentages of participants across the 3 points in time.
Practical Implications and Future Research

The results of this study have significant practical implications in addition to the theoretical implications. It seems logical that organizations that want to improve the effectiveness of their computer-based training should target those people with low computer self-efficacy. However, according to the results of this study, those individuals with high computer self-efficacy should actually be the ones that organizations with CBT programs target to improve training effectiveness. As stated before, just because an individual may not feel confident in their ability to use a computer, or may not like using a computer, does not mean that they cannot or will not learn from a computer. In reality, those individuals with low computer self-efficacy may take their time advancing through the training program so as not to miss a step and/or critical directions. As a result, they may have more time to absorb the training material, and may pay more careful attention to the material itself. On the other hand, those individuals with high computer self-efficacy may feel overly confident in their ability to not only use a computer but also to get through the training itself. Therefore they may not pay as close attention to the training material and rush through the program because they have the skills to do so.

Future computer-based training research should consider the influence that various computer-based training settings may have on the relationship between computer self-efficacy and transfer of training. Given that a retail business offers a unique and dynamic work environment, the setting of the study itself may have produced results uncharacteristic of a more traditional computer-based training program. Expanding the concepts of this study to different business disciplines and organizations may lead to different findings. Additionally, a more diverse sample should be included in future
implementations of this study. This study’s sample was predominately Caucasian and relatively young with a mean age of 24.5. Post-hoc analysis revealed a negative relationship between age and computer self-efficacy, \( r(63) = -0.40, p < 0.001 \). Thus, the data suggests that lower self-efficacy scores were associated with older trainees, while higher self-efficacy scores were associated with younger trainees. As our society becomes more and more computer literate, the results of the present study will become even more important for individuals to consider as they develop CBT programs. Specifically, individuals will need to be aware of the possibility that trainees may skim through the computer-based training material and never really learn the material. Thus, computer-based training programs should consider including more knowledge checks throughout the training in an effort to increase transfer of training.

**Concluding Comments**

The findings of this study, although mixed, offer valuable information for future research in the areas of self-efficacy and transfer of training, particularly following computer-based training. Although some support for the relationships predicted by the TAM was found, results also uncovered several questions for future research to address. In addition to the support found for the positive relationship between employee computer self-efficacy and employee perceived ease of use toward CBT, support was also found for the positive relationship between employee perceptions of computer-based safety training usefulness and employee behavioral intention to transfer material learned during CBT. However, although the TAM claims that the primary determinant of behavior is behavioral intention, there was no relationship found between behavioral intention and transfer of training. This may have been a result of the study’s poor behavior measure.
On the other hand, in accordance with the finding of Christoph, Schoenfeld, and Tansky (1998), the findings of this study support the idea that employees experience two dimensions of computer self-efficacy; existing and developed. With this in mind, future research can more reliably treat computer self-efficacy as multi-dimensional, instead of a static employee trait. In addition, although several scholars found a positive relationship between trainee self-efficacy and transfer of training (both in terms of learning and skill transfer), results of this study found that computer self-efficacy was negatively associated with knowledge change following CBT. This finding suggests that trainee variables may be different in computer-based training than in other forms of training. Thus future research should consider the unique context of computer-based training and explore ways to maximize its effectiveness.
Footnotes

1 One-way ANOVAs revealed no significant difference between the three store branches for all study variables.

2 Twenty participants did not report their age or sex. Furthermore, we were unable to collect data on participant race.

3 No statistically significant difference was found between T2 and T3 computer self-efficacy scores.
Table 1

Compeau and Higgins Computer Self-Efficacy Scale Items and Factor Loading

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>I COULD COMPLETE THE JOB USING THE SOFTWARE PACKAGE...</td>
<td></td>
</tr>
<tr>
<td>T1: N = 83, M = 6.72, SD = 2.04, α = .90</td>
<td></td>
</tr>
<tr>
<td>T2: N = 77, M = 7.98, SD = 1.99, α = .95</td>
<td></td>
</tr>
<tr>
<td>T3: N = 65, M = 7.95, SD = 2.03, α = .95</td>
<td></td>
</tr>
<tr>
<td>1a. ...if there was no one around to tell me what to do as I go.</td>
<td>.72</td>
</tr>
<tr>
<td>2a. ...if I had never used a package like it before.</td>
<td>.77</td>
</tr>
<tr>
<td>3a. ...if I had only the software manuals for reference.</td>
<td>.71</td>
</tr>
<tr>
<td>4a.** ...if I had seen someone else using it before trying it myself.</td>
<td>.79</td>
</tr>
<tr>
<td>5a. ...if I could call someone for help if I got stuck.</td>
<td>.69</td>
</tr>
<tr>
<td>6a. ...if someone else had helped me get started.</td>
<td>.72</td>
</tr>
<tr>
<td>7a. ...if I had a lot of time to complete the job for which the software was provided.</td>
<td>.84</td>
</tr>
<tr>
<td>8a. ...if I had only the built-in help facility for assistance.</td>
<td>.79</td>
</tr>
<tr>
<td>9a. ...if someone showed me how to do it first.</td>
<td>.75</td>
</tr>
<tr>
<td>10a.** ...if I had used similar packages before this one to do the same job.</td>
<td>.70</td>
</tr>
</tbody>
</table>

* Item dropped because of a problem with internal consistency.

** Item dropped because of problem with parallelism.
Table 2

General Computer-Based Training Ease of Use Scale Items and Factor Loading

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>33a. I feel that computer-based training would be easy to complete.</td>
<td>.82</td>
</tr>
<tr>
<td>34a. I believe training done on a computer would make learning difficult.</td>
<td>.69</td>
</tr>
<tr>
<td>35a.* I feel I would learn more from a person training me than from a computer.</td>
<td>.30</td>
</tr>
<tr>
<td>36a. I think that training done on a computer would be simple to complete.</td>
<td>.73</td>
</tr>
</tbody>
</table>

* Item dropped because of a problem with internal consistency.

** Item dropped because of problem with parallelism.
Table 3

General Computer-Based Safety Training Usefulness Scale Items and Factor Loading

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>37a.** I believe that employees should be aware of safety issues.</td>
<td>.53</td>
</tr>
<tr>
<td>38a. I believe that general safety training is <em>useful</em> for employees.</td>
<td>.96</td>
</tr>
<tr>
<td>39a.** I believe that general safety training is <em>practical</em> for employees.</td>
<td>.61</td>
</tr>
<tr>
<td>40a. I believe that general safety training is <em>helpful</em> for employees.</td>
<td>.86</td>
</tr>
<tr>
<td>41a. I believe that general safety training is <em>important</em> for employees.</td>
<td>.90</td>
</tr>
<tr>
<td>42a. I believe that general safety training is <em>beneficial</em> for employees.</td>
<td>.78</td>
</tr>
<tr>
<td>43a.** I believe that employees should not be allowed to start their new job prior to safety training.</td>
<td>.16</td>
</tr>
</tbody>
</table>

* Item dropped because of a problem with internal consistency.

** Item dropped because of problem with parallelism.
## Table 4

Retail Supermart Computer-Based Safety Training Usefulness Items and Factor Loading

<table>
<thead>
<tr>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>.92</td>
</tr>
<tr>
<td>.69</td>
</tr>
<tr>
<td>.94</td>
</tr>
<tr>
<td>.77</td>
</tr>
<tr>
<td>.94</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>47b.** I believe that the Retail Supermart training is <em>useful</em> for employees.</td>
<td>.92</td>
</tr>
<tr>
<td>48b.** I believe that the Retail Supermart training is <em>practical</em> for employees.</td>
<td>.69</td>
</tr>
<tr>
<td>49b. I believe that the Retail Supermart training is <em>helpful</em> for employees.</td>
<td>.94</td>
</tr>
<tr>
<td>50b. I believe that the Retail Supermart training is <em>important</em> for employees.</td>
<td>.77</td>
</tr>
<tr>
<td>51b. I believe that the Retail Supermart training is <em>beneficial</em> for employees.</td>
<td>.94</td>
</tr>
</tbody>
</table>

* Item dropped because of a problem with internal consistency.

** Item dropped because of problem with parallelism.
<table>
<thead>
<tr>
<th>Items</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>52b. I intend to use the safety information in my job.</td>
<td>.80</td>
</tr>
<tr>
<td>53b. I intent to warn my co-workers when they are acting unsafe.</td>
<td>.84</td>
</tr>
<tr>
<td>54b. I intend to warn customers when they are acting unsafe.</td>
<td>.77</td>
</tr>
<tr>
<td>55b. I intend to make safety my highest priority at work.</td>
<td>.72</td>
</tr>
</tbody>
</table>

* Item dropped because of a problem with internal consistency.

** Item dropped because of problem with parallelism.
Table 6

Safety Knowledge Means and Standard Deviations

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>81</td>
<td>5.56</td>
<td>1.52</td>
</tr>
<tr>
<td>T2</td>
<td>75</td>
<td>7.68</td>
<td>1.13</td>
</tr>
<tr>
<td>T3</td>
<td>65</td>
<td>7.75</td>
<td>3.43</td>
</tr>
</tbody>
</table>
Appendix A

The Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) With Study Variables
Appendix B

Time 1 Pre-Test

For the following questions, imagine that you were given a new software package for some aspect of your work. It doesn’t matter specifically what this software package does, only that it is intended to make your job easier and that you have never used it before.

The following questions ask you to indicate whether you could use this unfamiliar software package under a variety of conditions. For each of the conditions, please indicate whether you think you would be able to complete the job using the software package. Then for each condition that you answered “yes,” please rate your confidence about your first judgment, by circling a number from 1 to 10, where 1 indicates “Not at all confident”, 5 indicates “Moderately confident”, and 10 indicates “Totally confident.”

For example, consider the following same item:

I COULD COMPLETE THE JOB USING THE SOFTWARE PACKAGE...

<table>
<thead>
<tr>
<th></th>
<th>Not at All Confident</th>
<th>Moderately Confident</th>
<th>Totally Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>...if there was someone giving me step by step instructions.</td>
<td>YES 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The sample response shows that the individual felt he or she could complete the job using the software with step-by-step instructions (YES is circled), and was moderately confident that he or she could do so (5 is circled).

Please answer the following 10 questions. Thank you 😊
I COULD COMPLETE THE JOB USING THE SOFTWARE PACKAGE...

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at All Confident</th>
<th>Moderately Confident</th>
<th>Totally Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>①...if there was no one around to tell me what to do as I go.</td>
<td>YES</td>
<td>8 9 10</td>
<td></td>
</tr>
<tr>
<td>②...if I had never used a package like it before.</td>
<td>YES</td>
<td>8 9 10</td>
<td></td>
</tr>
<tr>
<td>③...if I had only the software manuals for reference.</td>
<td>YES</td>
<td>8 9 10</td>
<td></td>
</tr>
<tr>
<td>④...if I had seen someone else using it before trying it myself.</td>
<td>YES</td>
<td>8 9 10</td>
<td></td>
</tr>
<tr>
<td>⑤...if I could call someone for help if I got stuck.</td>
<td>YES</td>
<td>8 9 10</td>
<td></td>
</tr>
<tr>
<td>⑥...if someone else had helped me get started.</td>
<td>YES</td>
<td>8 9 10</td>
<td></td>
</tr>
<tr>
<td>⑦...if I had a lot of time to complete the job for which the software was provided.</td>
<td>YES</td>
<td>8 9 10</td>
<td></td>
</tr>
<tr>
<td>⑧...if I had only the built-in help facility for assistance.</td>
<td>YES</td>
<td>8 9 10</td>
<td></td>
</tr>
<tr>
<td>⑨...if someone showed me how to do it first.</td>
<td>YES</td>
<td>8 9 10</td>
<td></td>
</tr>
<tr>
<td>⑩...if I had used similar packages before this one to do the same job.</td>
<td>YES</td>
<td>8 9 10</td>
<td></td>
</tr>
</tbody>
</table>
Indicate how much you agree or disagree with each of the following statements…

<table>
<thead>
<tr>
<th></th>
<th>strongly disagree</th>
<th>neither agree/disagree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please respond to survey items 11 through 30 by circling ONE answer choice using the following scale:

11. I feel confident in my ability to use a computer. 1 2 3 4 5 6 7
12. I like computers. 1 2 3 4 5 6 7
13. I feel capable of using a computer and all that it involves. 1 2 3 4 5 6 7
14. I become nervous when I find out that I have to use a computer to complete a task. 1 2 3 4 5 6 7
15. Having to learn new technologies makes me anxious. 1 2 3 4 5 6 7
16. I feel confident in my ability to restart a computer. 1 2 3 4 5 6 7
17. I feel comfortable beginning a new document. 1 2 3 4 5 6 7
18. I feel capable of opening a previously saved file. 1 2 3 4 5 6 7
19. I feel confident in my ability to print a document. 1 2 3 4 5 6 7
20. I feel confident in my ability to use an e-mail program. 1 2 3 4 5 6 7
21. While using e-mail, I am comfortable opening messages. 1 2 3 4 5 6 7
22. While using e-mail, I am comfortable sending a message. 1 2 3 4 5 6 7
23. While using e-mail, I am comfortable deleting old messages. 1 2 3 4 5 6 7
24. I am confident in my ability to use a web browser (such as Netscape or Internet Explorer). 1 2 3 4 5 6 7
25. When using a web browser, I feel comfortable using the “back” and “forward” buttons to move between pages. 1 2 3 4 5 6 7
26. I feel confident in my ability to use web search engines (such as Google, Yahoo, or Alta Vista) to search for topics. 1 2 3 4 5 6 7
27. I feel confident in my ability to turn a computer on. 1 2 3 4 5 6 7
28. I feel comfortable using a computer mouse. 1 2 3 4 5 6 7
29. I feel capable of typing a letter using a computer. 1 2 3 4 5 6 7
30. I feel confident in my ability to surf the World Wide Web. 1 2 3 4 5 6 7
31. I feel confident in my ability to use a computer to keep financial records. 1 2 3 4 5 6 7
32. I don’t feel very comfortable using a computer. 1 2 3 4 5 6 7
33. I feel that computer-based training would be easy to complete. 1 2 3 4 5 6 7
34. I believe training done on a computer would make learning difficult. 1 2 3 4 5 6 7
35. I feel I would learn more from a person training me than from a computer.  

1 2 3 4 5 6 7

36. I think that training done on a computer would be simple to complete.  

1 2 3 4 5 6 7

37. I believe that employees should be aware of safety issues.  

1 2 3 4 5 6 7

38. I believe that general safety training is useful for employees.  

1 2 3 4 5 6 7

39. I believe that general safety training is practical for employees.  

1 2 3 4 5 6 7

40. I believe that general safety training is helpful for employees.  

1 2 3 4 5 6 7

41. I believe that general safety training is important for employees.  

1 2 3 4 5 6 7

42. I believe that general safety training is beneficial to employees.  

1 2 3 4 5 6 7

43. I believe that employees should not be allowed to start their new job prior to safety training.  

1 2 3 4 5 6 7

Please respond to items 44 through 52 by choosing the ONE option (A-D) that best answers the question.

44. What OSHA regulations describe an employees “right to know” about chemical hazards on the job AND how an employee should properly use the chemicals and protect themselves against the chemicals?  

A) Lockout/tag out  
B) MSDS  
C) Chemical Hazard Communication Standard  
D) The Chemical Information Guide

45. What does Meijer “personal protection equipment” refer to?  

A) Eye goggles, cut resistant gloves, or any other equipment designed to protect an employee while they are using chemicals, cleaning supplies, or cutters.  

B) Fork lifts, carts, or any other equipment designed to help employees when they are moving large or heavy stock items from the back to the sales floor.  

C) Ladders, step stools, or platforms that are designed to help employees reach merchandise or perform work at higher levels.  

D) An employee’s personal belongings that he/she brings to work to help perform the job more efficiently.

46. What are the FOUR steps to fire extinguisher use (PASS)?  

A) Pull the pin, Avoid the flames, Secure the area, Suppress the fire.  

B) Pull the pin, Aim the nozzle, Squeeze the handle, Sweep side to side.  

C) Pick up the extinguisher, Ask for help, Secure the area, Squeeze the handle.  

D) Don’t Panic, Announce evacuation directions, Secure the area, Sweep the extinguisher from side to side.
47. You are walking toward your department when you notice a puddle of water in the aisle ahead of you. Following Meijer safety guidelines, what are the first two things that you should do in this situation?

A) Call for help and then guard the spill from customers.
B) Secure the area by placing caution signs around the spill and then go get clean-up equipment.
C) Notify your manager and then put safety cones around the area until someone from the clean-up crew can take care of the spill.
D) Ignore the spill and notify a manager.

48. Which of the following is the proper way to lift an object to prevent injury?

A) Stand close to the object, use a diagonal grip, and use your legs to lift.
B) Bend over the object and use your arm muscles to lift straight up.
C) Stand at least 3 feet away from the object, bend over the object, and use a combination of your back and legs to lift.
D) Keep your head up to protect your upper back and neck, and use your arm muscles to lift straight up.

49. During your shift you find a lost child wandering in the men's department. Following the Meijer lost child procedure, how should you handle the situation?

A) Find a phone to say “department 10 please call mens.”
B) Escort the child to guest services.
C) Find a phone to say “department 75 to mens, department 75 to mens, department 75 to mens.”
D) Search the store with the child until you can locate the parent(s).

50. A guest approaches you and explains that he has sliced his finger open on a box and asks for a bandaid. You notice that the cut is a large gash, and the guest is bleeding very badly. Following the Meijer safety procedure, how should you handle the situation?

A) Tell the guest to sit down while you go to guest services to get a first aid kit.
B) Find a phone or co-worker to announce “department 50” three times to the area that you are located.
C) Cover the cut with a paper towel or tissue and take the guest to the guest services desk.
D) Find a phone or co-worker to announce “department 100” to call your extension.

51. What are the rules about operating Meijer power equipment (compactors, balers, etc.)?

A) You must be over 16 and operate the machine with a supervisor.
B) You must be 18 or older and have received proper training/certification.
C) You must have received proper training/certification and operate the machine with a supervisor.
D) You must be a full-time employee.
52. You notice a “tag out” tag on a piece of equipment that you need to use. What should you do?

A) Remove the tag because there is no one around and there is obviously nothing wrong with the equipment (someone must have forgotten to remove the tag).

B) Use the equipment, but make sure that you replace the “tag out” tag when you are done using it.

C) Call department 10 to your area to find out why the tag has been placed on the equipment.

D) Leave the tag in place, knowing that the tag must mean the equipment is being cleaned or is out of order for some reason.

THANK YOU FOR YOUR PARTICIPATION!!
For the following questions, imagine that you were given a new software package for some aspect of your work. It doesn’t matter specifically what this software package does, only that it is intended to make your job easier and that you have never used it before.

The following questions ask you to indicate whether you could use this unfamiliar software package under a variety of conditions. For each of the conditions, please indicate whether you think you would be able to complete the job using the software package. Then for each condition that you answered “yes,” please rate your confidence about your first judgment, by circling a number from 1 to 10, where 1 indicates “Not at all confident”, 5 indicates “Moderately confident”, and 10 indicates “Totally confident.”

For example, consider the following same item:

I COULD COMPLETE THE JOB USING THE SOFTWARE PACKAGE...

<table>
<thead>
<tr>
<th>Not at All Confident</th>
<th>Moderately Confident</th>
<th>Totally Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

...if there was someone giving me step by step instructions.

The sample response shows that the individual felt he or she could complete the job using the software with step-by-step instructions (YES is circled), and was moderately confident that he or she could do so (5 is circled).

Please answer the following 10 questions. Thank you 😊
I COULD COMPLETE THE JOB USING THE SOFTWARE PACKAGE...

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Not at All Confident</th>
<th>Moderately Confident</th>
<th>Totally Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑️...if there was no one around to tell me what to do as I go.</td>
<td>YES 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑️...if I had never used a package like it before.</td>
<td>YES 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑️...if I had only the software manuals for reference.</td>
<td>YES 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑️...if I had seen someone else using it before trying it myself.</td>
<td>YES 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑️...if I could call someone for help if I got stuck.</td>
<td>YES 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑️...if someone else had helped me get started.</td>
<td>YES 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑️...if I had a lot of time to complete the job for which the software was provided.</td>
<td>YES 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑️...if I had only the built-in help facility for assistance.</td>
<td>YES 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑️...if someone showed me how to do it first.</td>
<td>YES 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☑️...if I had used similar packages before this one to do the same job.</td>
<td>YES 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Indicate how much you agree or disagree with each of the following statements...

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly disagree</td>
<td>neither agree/disagree</td>
<td>strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please respond to survey items 11 through 37 by circling ONE answer choice using the following scale:

11. I feel confident in my ability to use a computer.  
   1 2 3 4 5 6 7

12. I like computers.  
   1 2 3 4 5 6 7

13. I feel capable of using a computer and all that it involves.  
   1 2 3 4 5 6 7

14. I become nervous when I find out that I have to use a computer to complete a task.  
   1 2 3 4 5 6 7

15. Having to learn new technologies makes me anxious.  
   1 2 3 4 5 6 7

16. I feel confident in my ability to restart a computer.  
   1 2 3 4 5 6 7

17. I feel comfortable beginning a new document.  
   1 2 3 4 5 6 7

18. I feel capable of opening a previously saved file.  
   1 2 3 4 5 6 7

19. I feel confident in my ability to print a document.  
   1 2 3 4 5 6 7

20. I feel confident in my ability to use an e-mail program.  
   1 2 3 4 5 6 7

21. While using e-mail, I am comfortable opening messages.  
   1 2 3 4 5 6 7

22. While using e-mail, I am comfortable sending a message.  
   1 2 3 4 5 6 7

23. While using e-mail, I am comfortable deleting old messages.  
   1 2 3 4 5 6 7

24. I am confident in my ability to use a web browser (such as Netscape or Internet Explorer).  
   1 2 3 4 5 6 7

25. When using a web browser, I feel comfortable using the “back” and “forward” buttons to move between pages.  
   1 2 3 4 5 6 7

26. I feel confident in my ability to use web search engines (such as Google, Yahoo, or Alta Vista) to search for topics.  
   1 2 3 4 5 6 7

27. I feel confident in my ability to turn a computer on.  
   1 2 3 4 5 6 7

28. I feel comfortable using a computer mouse.  
   1 2 3 4 5 6 7

29. I feel capable of typing a letter using a computer.  
   1 2 3 4 5 6 7

30. I feel confident in my ability to surf the World Wide Web.  
   1 2 3 4 5 6 7

31. I feel confident in my ability to use a computer to keep financial records.  
   1 2 3 4 5 6 7

32. I don’t feel very comfortable using a computer.  
   1 2 3 4 5 6 7

33. Computer-based training is easy to complete.  
   1 2 3 4 5 6 7

34. Training done on a computer makes learning difficult.  
   1 2 3 4 5 6 7
35. I would learn more from a person training me than from a computer.

36. Training done on a computer is simple to complete.

37. I believe that employees should be aware of safety issues.

38. I believe that general safety training is useful for employees.

39. I believe that general safety training is practical for employees.

40. I believe that general safety training is helpful for employees.

41. I believe that general safety training is important for employees.

42. I believe that general safety training is beneficial to employees.

43. I believe that employees should not be allowed to start their new job prior to completing safety training.

44. The Computer-based Safety Training was easy to complete.

45. The fact that the safety training was on a computer made learning difficult.

46. I would have learned more from a person training me one-on-one.

47. I believe the Meijer safety training is useful for employees.

48. I believe the Meijer safety training is practical for employees.

49. I believe the Meijer safety training is helpful for employees.

50. I believe the Meijer safety training is important for employees.

51. I believe the Meijer safety training is beneficial for employees.

52. I intend to use the safety information in my job.

53. I intend to warn my co-workers when they are acting unsafe.

54. I intend to warn customers when they are acting unsafe.

55. I intend to make safety my highest priority at work.

Please respond to items 56 through 64 by choosing the ONE option (A-D) that best answers the question.

56. What OSHA regulations describe an employees “right to know” about chemical hazards on the job AND how an employee should properly use the chemicals and protect themselves against the chemicals?

E) Lockout/tag out

F) MSDS

G) Chemical Hazard Communication Standard

H) The Chemical Information Guide

57. What does Meijer “personal protection equipment” refer to?

E) Eye goggles, cut resistant gloves, or any other equipment designed to protect an employee while they are using chemicals, cleaning supplies, or cutters.
F) Fork lifts, carts, or any other equipment designed to help employees when they are moving large or heavy stock items from the back to the sales floor.

G) Ladders, step stools, or platforms that are designed to help employees reach merchandise or perform work at higher levels.

H) An employee’s personal belongings that he/she brings to work to help perform the job more efficiently.

58. What are the FOUR steps to fire extinguisher use (PASS)?

E) Pull the pin, Avoid the flames, Secure the area, Suppress the fire.

F) Pull the pin, Aim the nozzle, Squeeze the handle, Sweep side to side.

G) Pick up the extinguisher, Ask for help, Secure the area, Squeeze the handle.

H) Don’t Panic, Announce evacuation directions, Secure the area, Sweep the extinguisher from side to side.

59. You are walking toward your department when you notice a puddle of water in the aisle ahead of you. According to your Meijer training, what are the first two things that you should do in this situation?

E) Call for help and then guard the spill from customers.

F) Secure the area by placing caution signs around the spill and then go get clean-up equipment.

G) Notify your manager and then put safety cones around the area until someone from the clean-up crew can take care of the spill.

H) Ignore the spill and notify a manager.

60. Which of the following is the proper way to lift an object to prevent injury?

E) Stand close to the object, use a diagonal grip, and use your legs to lift.

F) Bend over the object and use your arm muscles to lift straight up.

G) Stand at least 3 feet away from the object, bend over the object, and use a combination of your back and legs to lift.

H) Keep your head up to protect your upper back and neck, and use your arm muscles to lift straight up.

61. During your shift you find a lost child wandering in the men’s department. Following the Meijer lost child procedure, how should you handle the situation?

E) Find a phone to say “department 10 please call mens.”

F) Escort the child to guest services.

G) Find a phone to say “department 75 to mens, department 75 to mens, department 75 to mens.”

H) Search the store with the child until you can locate the parent(s).

62. A guest approaches you and explains that he has sliced his finger open on a box and asks for a bandaid. You notice that the cut is a large gash, and the guest is bleeding very badly. Following the Meijer safety procedure, how should you handle the situation?

E) Tell the guest to sit down while you go to guest services to get a first aid kit.

F) Find a phone or co-worker to announce “department 50” three times to the area that you are located.
G) Cover the cut with a paper towel or tissue and take the guest to the guest services desk.

H) Find a phone or co-worker to announce “department 100” to call your extension.

63. **What are the rules about operating Meijer power equipment (compactors, balers, etc.)?**

E) You must be over 16 and operate the machine with a supervisor.

F) You must be 18 or older and have received proper training/certification.

G) You must have received proper training/certification and operate the machine with a supervisor.

H) You must be a full-time employee.

64. **You notice a “tag out” tag on a piece of equipment that you need to use. What should you do?**

E) Remove the tag because there is no one around and there is obviously nothing wrong with the equipment (someone must have forgotten to remove the tag).

F) Use the equipment, but make sure that you replace the “tag out” tag when you are done using it

G) Call department 10 to your area to find out why the tag has been placed on the equipment.

H) Leave the tag in place, knowing that the tag must mean the equipment is being cleaned or is out of order for some reason.

*Please remember, all responses given in this survey will remain completely anonymous*

65. How many times did it take you to pass the “final quiz” during the personal safety training? _______

66. What was your score (percentage correct) for the “final quiz”? _______

THANK YOU FOR YOUR PARTICIPATION!!
Appendix D

Time 3 Post-test

For the following questions, imagine that you were given a new software package for some aspect of your work. It doesn’t matter specifically what this software package does, only that it is intended to make your job easier and that you have never used it before.

The following questions ask you to indicate whether you could use this unfamiliar software package under a variety of conditions. For each of the conditions, please indicate whether you think you would be able to complete the job using the software package. Then for each condition that you answered “yes,” please rate your confidence about your first judgment, by circling a number from 1 to 10, where 1 indicates “Not at all confident,” 5 indicates “Moderately confident,” and 10 indicates “Totally confident.”

For example, consider the following same item:

I COULD COMPLETE THE JOB USING THE SOFTWARE PACKAGE...

<table>
<thead>
<tr>
<th>Totally</th>
<th>Not at All</th>
<th>Moderately</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Confident</td>
<td>Confident</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Confident</td>
</tr>
<tr>
<td>...if there was someone giving me step by step instructions.</td>
<td>YES</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
</tbody>
</table>

The sample response shows that the individual felt he or she could complete the job using the software with step-by-step instructions (YES is circled), and was moderately confident that he or she could do so (5 is circled).

Please answer the following 10 questions. Thank you ☺
I COULD COMPLETE THE JOB USING THE SOFTWARE PACKAGE...

<table>
<thead>
<tr>
<th>Totally</th>
<th>Not at All</th>
<th>Moderately</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Confident</td>
<td>Confident</td>
</tr>
<tr>
<td>2</td>
<td>¥</td>
<td>¥</td>
</tr>
</tbody>
</table>

- (0) if there was no one around to tell me what to do as I go. YES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10  
  NO

- (2) if I had never used a package like it before. YES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10  
  NO

- (3) if I had only the software manuals for reference. YES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10  
  NO

- (4) if I had seen someone else using it before trying it myself. YES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10  
  NO

- (5) if I could call someone for help if I got stuck. YES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10  
  NO

- (6) if someone else had helped me get started. YES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10  
  NO

- (7) if I had a lot of time to complete the job for which the software was provided. YES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10  
  NO

- (8) if I had only the built-in help facility for assistance. YES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10  
  NO

- (9) if someone showed me how to do it first. YES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10  
  NO

- (0) if I had used similar packages before this one to do the same job. YES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10  
  NO
Please respond to survey items 11 through 49 by circling ONE answer choice using the following scale:

<table>
<thead>
<tr>
<th>Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>strongly disagree</td>
</tr>
<tr>
<td>2</td>
<td>disagree/conciliatory</td>
</tr>
<tr>
<td>3</td>
<td>neither agree/disagree</td>
</tr>
<tr>
<td>4</td>
<td>agree/conciliatory</td>
</tr>
<tr>
<td>5</td>
<td>agree</td>
</tr>
<tr>
<td>6</td>
<td>strongly agree</td>
</tr>
</tbody>
</table>

Indicate how much you agree or disagree with each of the following statements...

<table>
<thead>
<tr>
<th>Item</th>
<th>Statement</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>I feel confident in my ability to use a computer.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>12</td>
<td>I like computers.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>13</td>
<td>I feel capable of using a computer and all that it involves.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>14</td>
<td>I become nervous when I find out that I have to use a computer to complete a task.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>15</td>
<td>Having to learn new technologies makes me anxious.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>16</td>
<td>I feel confident in my ability to restart a computer.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>17</td>
<td>I feel comfortable beginning a new document.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>18</td>
<td>I feel capable of opening a previously saved file.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>19</td>
<td>I feel confident in my ability to print a document.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>20</td>
<td>I feel confident in my ability to use an e-mail program.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>21</td>
<td>While using e-mail, I am comfortable opening messages.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>22</td>
<td>While using e-mail, I am comfortable sending a message.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>23</td>
<td>While using e-mail, I am comfortable deleting old messages.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>24</td>
<td>I am confident in my ability to use a web browser (such as Netscape or Internet Explorer).</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>25</td>
<td>When using a web browser, I feel comfortable using the “back” and “forward” buttons to move between pages.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>26</td>
<td>I feel confident in my ability to use web search engines (such as Google, Yahoo, or Alta Vista) to search for topics.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>27</td>
<td>I feel confident in my ability to turn a computer on.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>28</td>
<td>I feel comfortable using a computer mouse.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>29</td>
<td>I feel capable of typing a letter using a computer.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>30</td>
<td>I feel confident in my ability to surf the World Wide Web.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>31</td>
<td>I feel confident in my ability to use a computer to keep financial records.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>32</td>
<td>I don’t feel very comfortable using a computer.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>33</td>
<td>Computer-based training is easy to complete.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>34</td>
<td>Training done on a computer makes learning difficult.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>35</td>
<td>I would learn more from a person training me than from a computer.</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>
36. Training done on a computer is simple to complete.

37. I believe that employees should be aware of safety issues.

38. I believe that general safety training is *useful* for employees.

39. I believe that general safety training is *practical* for employees.

40. I believe that general safety training is *helpful* for employees.

41. I believe that general safety training is *important* for employees.

42. I believe that general safety training is *beneficial* to employees.

43. I believe that employees should not be allowed to start their new job prior to completing safety training.

44. The Computer-based Safety Training was easy to complete.

45. The fact that the safety training was on a computer made learning difficult.

46. I would have learned more from a person training me one-on-one.

47. I believe the Meijer safety training is *useful* for employees.

48. I believe the Meijer safety training is *practical* for employees.

49. I believe the Meijer safety training is *helpful* for employees.

50. I believe the Meijer safety training is *important* for employees.

51. I believe the Meijer safety training is *beneficial* for employees.

52. I intend to use the safety information in my job.

53. I intend to warn my co-workers when they are acting unsafe.

54. I intend to warn customers when they are acting unsafe.

55. I intend to make safety my highest priority at work.

56. My work environment supports the application of the safety training information.

57. My co-workers support the application of the safety training information.

58. My manager supports the application of the safety training information.

59. I feel comfortable addressing safety concerns with my co-workers.

60. I feel comfortable addressing safety concerns with customers.

61. I feel comfortable addressing safety concerns with my manager.

62. I feel that addressing safety concerns is an important aspect of my job.
Please respond to items 63 through 71 by choosing the ONE option (A-D) that best answers the question.

63. What OSHA regulations describe an employee's "right to know" about chemical hazards on the job AND how an employee should properly use the chemicals and protect themselves against the chemicals?
   A) Lockout/tag out
   B) MSDS
   C) Chemical Hazard Communication Standard
   D) The Chemical Information Guide

64. What does Meijer "personal protection equipment" refer to?
   A) Eye goggles, cut resistant gloves, or any other equipment designed to protect an employee while they are using chemicals, cleaning supplies, or cutters.
   B) Fork lifts, carts, or any other equipment designed to help employees when they are moving large or heavy stock items from the back to the sales floor.
   C) Ladders, step stools, or platforms that are designed to help employees reach merchandise or perform work at higher levels.
   D) An employee’s personal belongings that he/she brings to work to help perform the job more efficiently.

65. What are the FOUR steps to fire extinguisher use (PASS)?
   A) Pull the pin, Avoid the flames, Secure the area, Suppress the fire.
   B) Pull the pin, Aim the nozzle, Squeeze the handle, Sweep side to side.
   C) Pick up the extinguisher, Ask for help, Secure the area, Squeeze the handle.
   D) Don’t Panic, Announce evacuation directions, Secure the area, Sweep the extinguisher from side to side.

66. You are walking toward your department when you notice a puddle of water in the aisle ahead of you. According to your Meijer training, what are the first two things that you should do in this situation?
   A) Call for help and then guard the spill from customers.
   B) Secure the area by placing caution signs around the spill and then go get clean-up equipment.
   C) Notify your manager and then put safety cones around the area until someone from the clean-up crew can take care of the spill.
   D) Ignore the spill and notify a manager.

67. Which of the following is the proper way to lift an object to prevent injury?
   A) Stand close to the object, use a diagonal grip, and use your legs to lift.
   B) Bend over the object and use your arm muscles to lift straight up.
   C) Stand at least 3 feet away from the object, bend over the object, and use a combination of your back and legs to lift.
   D) Keep your head up to protect your upper back and neck, and use your arm muscles to lift straight up.
68. During your shift you find a lost child wandering in the men’s department. Following the Meijer lost child procedure, how should you handle the situation?
   
   I) Find a phone to say “department 10 please call mens.”
   
   J) Escort the child to guest services.
   
   K) Find a phone to say “department 75 to mens, department 75 to mens, department 75 to mens.”
   
   L) Search the store with the child until you can locate the parent(s).

69. A guest approaches you and explains that he has sliced his finger open on a box and asks for a bandaid. You notice that the cut is a large gash, and the guest is bleeding very badly. Following the Meijer safety procedure, how should you handle the situation?
   
   I) Tell the guest to sit down while you go to guest services to get a first aid kit.
   
   J) Find a phone or co-worker to announce “department 50” three times to the area that you are located.
   
   K) Cover the cut with a paper towel or tissue and take the guest to the guest services desk.
   
   L) Find a phone or co-worker to announce “department 100” to call your extension.

70. What are the rules about operating Meijer power equipment (compactors, balers, etc.)?
   
   I) You must be over 16 and operate the machine with a supervisor.
   
   J) You must be 18 or older and have received proper training/certification.
   
   K) You must have received proper training/certification and operate the machine with a supervisor.
   
   L) You must be a full-time employee.

71. You notice a “tag out” tag on a piece of equipment that you need to use. What should you do?
   
   I) Remove the tag because there is no one around and there is obviously nothing wrong with the equipment (someone must have forgotten to remove the tag).
   
   J) Use the equipment, but make sure that you replace the “tag out” tag when you are done using it.
   
   K) Call department 10 to your area to find out why the tag has been placed on the equipment.
   
   L) Leave the tag in place, knowing that the tag must mean the equipment is being cleaned or is out of order for some reason.
Please respond to items 72 through 75 by filling in the blank space provided.

72. During the past two weeks, how many times have you addressed a safety concern with a co-worker? (This would be a concern that you have about the safety of a co-worker. *Example:* You see a co-worker doing something unsafe, and talk to that co-worker about his/her behavior.)

I have addressed a safety concern with a co-worker ________ times in the past two weeks.

73. During the past two weeks, how many times have you addressed a safety concern with a Meijer guest/customer? (This would be a concern that you have about the safety of a Meijer guest. *Example:* You see a guest/customer doing something unsafe, and talk to that customer about his/her behavior.)

I have addressed a safety concern with a customer ________ times in the past two weeks.

74. During the past two weeks how many times have you addressed a personal safety concern? (In other words, this would be a concern that you have about your own safety. *Example:* You realize that you are doing something unsafe, and change your behavior.)

I have addressed a personal safety concern ________ times in the past two weeks.

75. During the past two weeks, how many times have you addressed a safety concern with a manager? (*Example:* You discuss a question, comment, or concern about safety at Meijer with a manager.)

I have addressed a safety concern with my manager ________ times in the past two weeks.

76. Please indicate in which of the following areas you currently work.

A) Sales floor  
B) Cashier  
C) Cart Attendant  
D) Food Court  
E) Stock  
F) Trailer unload  
G) Clerical  
H) Pharmacy  
I) Asset Protection  
J) Manager  
K) Other ________

77. Sex: _____ Male _____ Female

78. Age: ________ years old.

79. Have you previously been employed at a Meijer store? _____ Yes _____ No

THANK YOU FOR COMPLETING THIS STUDY! YOUR SUPPORT IS GREATLY APPRECIATED ☺
Appendix E

HSIRB Approval Letter

Date: December 4, 2002

To: Jennifer Ellis, Principal Investigator
    Amy Jackson, Student Investigator for thesis

From: Mary Lagerwey, Chair

Re: HSIRB Project Number 02-11-19

This letter will serve as confirmation that your research project entitled “The Effect of Employee Computer Self-Efficacy on Transfer of Training Following Computer-Based Training” has been approved under the exempt category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: December 4, 2003
Date: May 29, 2003

To: Jennifer Butler Ellis, Principal Investigator
Amy Jackson, Student Investigator for thesis

From: Mary Lagerwey, Chair

Re: Extension and Changes to HSIRB Project Number 02-11-19

This letter will serve as confirmation that the extension and changes to your research project “The Effect of Employee Computer Self-Efficacy on Transfer of Training Following Computer-Based Training” requested in your memo received on May 23, 2003, have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: May 29, 2004
Appendix G

Consent Form

You have been invited to participate in a research project conducted on behalf of Meijer Corporation and the Communication Department at Western Michigan University. This study is seeking to better understand the effectiveness of computer-based training programs, and is Amy Jackson's Master's thesis project. Participation includes completing 3 questionnaires that will ask questions concerning your feelings toward computers and the training material presented during your orientation. All of the information that you provide will be kept completely confidential. Once the confidential data has been collected and processed, the original questionnaires will be destroyed. Again, ALL responses given throughout this study will remain strictly confidential and Meijer will not have access to any of your individual surveys or responses. Meijer will only be given a report of the final results in aggregate form.

If you choose to participate in this study, it will take a total of about 45 minutes. The first two questionnaires will take approximately 20 minutes during your initial orientation session and the third questionnaire will take approximately 25 minutes during a follow-up session that will occur two weeks following your orientation. After completing each of the questionnaires, Amy Jackson will collect them. If you choose not to participate you may opt not to take a survey in the first place, OR return a blank survey to Amy Jackson. Although participation in this study is not expected to produce discomfort or stress, please note that you may refuse to answer any question at any time. Once this study has been completed, you may request to see the final results in a summary report. Again, your privacy will be protected and the summary report will be in aggregate form. Individual answers will not be available. You can ask Amy any questions during this study. If you have any questions about your role as a participant for this research, please feel free to contact the chair of the WMU Human Subjects Institutional Review Board at 269-387-8298, the Vice President for Research at 269-387-8298, and/or Dr. Jennifer Ellis at 269-387-3143 (or jennifer.ellis@wmich.edu).

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and signature of the board chair in the upper right corner of this form. Do not participate if the stamped date is more than one year old.

Thank you.

Dr. Jennifer Ellis
Principal Investigator

Your Signature

Today's Date

Print Your Name

Sprout Tower, Kalamazoo, MI 49008-3318
References


Elangovan, A.R., & Karakowsky, L. (1999). The role of trainee and environmental


Francisco, CA: Berret-Koehler


Swanson, E. B. (1988). *Information system implementation: Bridging the gap between*
design and utilization. Homewood, IL: Irwin.


