January 2014

The Effectiveness of Risk Assessment Training on Self-Reported Safe Behaviors of Employees of a Manufacturing Organization

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By

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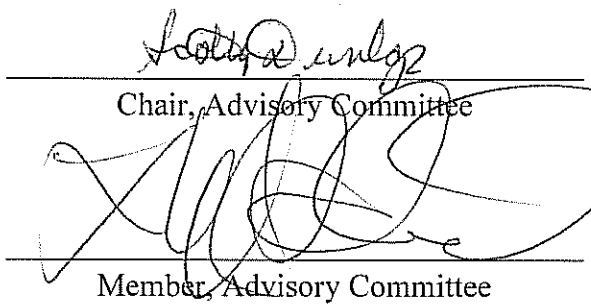

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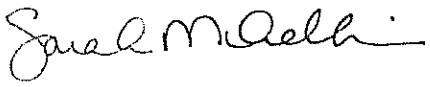

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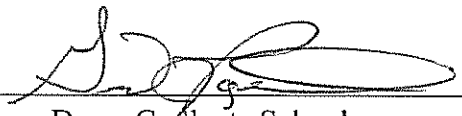

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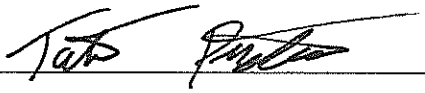
Signature 

Date 4/9/2014

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Bachelor of Science

Eastern Kentucky University

Richmond, Kentucky

2012

Submitted to the Faculty of the Graduate School of

Eastern Kentucky University

in partial fulfillment of the requirements

for the degree of

MASTER OF SCIENCE

May, 2014

ACKNOWLEDGMENTS

I would first like to thank all those who were involved in helping me develop and conduct the study and analysis of the resulting data. I would like to extend a very special thank you to the members of my thesis committee Dr. Scotty Dunlap, Sarah Adkins, and Tom Schneid. I also want to thank Brandon Hays for helping develop and conduct this study.

I would also like to thank my parents Dr. Nancy Preston and Hon. Jeffrey Preston for supporting and encouraging me throughout my educational career. I would like to say a special thanks to both Sarah Adkins and Dr. Scotty Dunlap for their mentoring and encouragement throughout my entire time in the Graduate Program.

ABSTRACT

This study examined the effectiveness of risk assessment training on self-reported safe behaviors of individuals who are employed by a manufacturing organization in a central Kentucky. The analysis was comprised of 31 participants that worked in the production and office areas of a manufacturing organization. These individuals volunteered to participate in the study through the use of informed consent.

A pre-test was conducted prior to risk assessment training being conducted at the facility. Three weeks after the training was conducted, a post-test was administered for the purpose of evaluating the effectiveness of the training. By determining the summary score for individual questions and question groups and finding the mean difference between the pre and post-test, effectiveness could be compared. To compare these summary scores a paired sample t-test was performed. Only three questions found statistically significant improvement from pre- to post- test. However, a significant difference in the risk assessment group pre- and post- training ($t = 2.17$, $p = .04$) was found. The mean score of the pre-test was 14.90 ($SD = 3.25$) while the mean score was 16.32 ($SD = 1.81$). This study shows that risk assessment training is effective in causing employees to assess and mitigate risk but is inconclusive on its overall effect on self-reported safe behaviors that take place at home and at work.

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CHAPTER I

Introduction

Risk assessment and risk assessment training is a growing area of emphasis in the safety field. Large working groups, including the American Society of Safety Engineers, have recognized risk assessment as an area that needs to be grown and explored more thoroughly. Recently the American Society of Safety Engineers (ASSE) started the ASSE Risk Assessment Institute to investigate this emphasis area. The purpose of this study is to determine if there is a difference between workers participating in risk assessment training and the use of safe behaviors by the participants, both at the workplace and out of the workplace.

Background

The field of risk assessment is growing in the safety profession. It is the belief of many safety professionals that risk assessment is the future in reducing both workplace injuries and injuries that occur at home. Risk assessment is used by a group or individual to identify a risk, assessing that risk, and ultimately mitigating that risk.

The first step in risk assessment is to identify a risk or hazard. After a risk or hazard is identified, it is important to assess the risk. The formula of frequency multiplied by severity is used to determine the level of danger in an actual risk (FMEA, 2012). After the risk is assessed, the next step is to mitigate the risk or

hazard. This can be done by use of four different controls. These controls include: (1) Eliminating or substitution control, in which the risk is removed all together, (2) Engineering controls, in which something is made or put in place to eliminate or mitigate the risk or hazard, (3) Administrative controls, in which written protocols or guidelines are put in place to mitigate the hazard, and (4) The use of personal protective equipment (OSHA, n.d.).

Statement of the Problem

Since the inception of OSHA in the 1970s a safety culture of compliance has been ingrained in the American workplace (MacLaury, 1981). However, this safety compliance culture has not significantly decreased the number of deaths and injuries in the workplace, and it has not proven effective when reducing injuries and death rates outside of the workplace (American Postal Workers UNION, AF-CIOL, 2010). The use of risk assessment training in the workplace has the potential to help reduce the number of injuries and deaths both in and out of the workplace.

Purpose of the Study

This study produced information on self-reported risk assessment behaviors of employees who work in both the office and production areas of a manufacturing company located in central Kentucky. By comparing pre- and post-test scores, this study was able to evaluate the effectiveness of risk assessment safety training. The purpose of this study was to determine the

effectiveness of risk assessment training on self-reported safe behavior both in the workplace and outside of the workplace.

Potential Significance

The results of this study help to lay the foundation for supporting the introduction of risk assessment training into the workplace. By analyzing the changes of employees self-reported safety behaviors, before and after the risk assessment training, a relation can be shown between safe behaviors and the risk assessment training. Also, this study attempts to demonstrate that a relation between skills that are taught in risk assessment training, which are presented in the workplace, and determine if these skills carry over to activities outside of the workplace.

Definition of Terms

Risk Assessment – "A process that commences with hazard identification and analysis through which the severity of harm or damage is established, followed by an estimate of the probability of the incident severity or exposure occurring, an evaluation of controls, and concluding with a statement of risk" (ASSE, 2014).

Engineering Controls- Engineering controls are controls that are engineered to reduce the risk of being exposed to a risk. Engineering controls are the second highest form of mitigation used in risk assessment. An example of an engineering control would be the use or making of a machine guard (OSHA, n.d.).

Administrative Controls- "Measures aimed at reducing employee exposure to hazards. These measures include additional relief workers, exercise breaks and rotation of workers. These types of controls are normally used in conjunction with other controls that more directly prevent or control exposure to the hazard" (Croinn et al., n.d.)

Eliminate/Substitute Controls- This is the mitigating control involves removing or substituting the risk from a particular job for a safe alternative. This is the highest form of mitigation in risk assessment (OSHA, n.d.).

Personal Protective Equipment- Personal protective equipment (PPE) is clothing and other types of equipment used to mitigate injuries or the risk of injuries. Personal protective equipment is the lowest form of protection in risk assessment, where the risk has been identified but cannot be totally mitigated through the use of other risk mitigating control. Examples of personal protective equipment would be ear plugs, safety glasses, steel toe boots, and gloves (OSHA, 2003).

Limitations

The limitations of this study consist of the time constraints, active participation from employees, and low pre-existing injury rates. There was only a 21 day time period between the administration of the pre-test and the presentation of the training and the administration of the post-test. The second limitation is that employees may not use the specific tools and skills discussed in the training outside of the workplace. The third limitation is that the company where the

study was conducted already had a relatively low injury rate. According to OSHA 300 logs the organization had an injury rate of 4.33, with the last reported year of 2009. Injury rates are calculated by the number of injuries multiplied over 400,000 the divided by the total man hours worked. This could affect employees' perception of safe behaviors. Another limitation is the lack of previous research done on the overall effectiveness of risk assessment training on safe behaviors. There is a gap in the literature concerning the relationship between workplace safety training and safe practices outside of the workplace. Also, the response rates for the pre and post-test is a limitation to this study. Forty-eight participants took the pre-test and completed the training. However, only 31 individuals completed the post-test. Another limitation for this study has to do with the demographics section of the research instrument. The question dealing with age does not have a mutually exclusive response set. Also, the question concerning professional work experience is a non-exhausted response set. This does not allow respondents to be accurately categorized in to a demographic category. Also, regularly scheduled OSHA training took place on the days the risk assessment training took place. Areas that were covered in the training include, but are not limited to, ergonomics, powered industrial trucks, dock safety, and hand tools.

CHAPTER II

Literature Review

The Influence of Safety at Work on Safety at Home

When considering the field of risk assessment, it is important to analyze the relationship between safe behaviors at work and related behaviors outside of the workplace (Lunda & Hovden, 2003). With the introduction of a new safety culture in the 1980's, safety professionals recognized the importance of understanding if safe work practices transferred to behaviors outside of the workplace (p .739). It was hypothesized that companies that had instituted efficient workplace safety programs that provided training, education, legislation, and strict enforcement would not only affect workplace behaviors, but behaviors at home (p. 740).

In their study, Lunda and Hovden (2003) used three independent surveys to collect self-reported safety behaviors. These surveys were given to employees of companies that had been previously identified as having the key elements of an efficient safety program (p. 740). The researchers also administered the same surveys to employees of companies previously identified as not having a strong safety program. The results of the surveys from the two groups were then compared.

Lunda and Hovden (2003) found in their study that workers do not typically transfer safe behaviors to home or leisure activities in companies with

an strong safety culture. The study also found that organizations that did not include specially designed safety initiatives for at home or work did not have a significant impact on reported behaviors. The researchers conceded however, that more research was needed in order to better determine the relationship between safety training and at home behaviors.

Relationship Between Work and Leisure Time Injuries

In order to develop a clear understanding of what types of injuries occur and how they occur, it is important to understand the relationship between injuries that occur at work and those that occur during leisure time (Salminen, 2006). The researcher in this study attempted to find a relationship between the injuries sustained at work and injuries that occurred in leisure time activities. The study further focused on identifying potential methods of safety training that prevent both workplace related injuries and leisure injuries.

In order to collect the data for this research project, Salminen (2006) used three separate surveys that relied on employees to self-report injuries over a 12-month period (p. 374). The surveys were conducted through phone interviews to 5,000 randomly selected individuals. The data sets were then analyzed using a statistical analysis system to provide descriptive statistics. Additionally, cross–tabulations were run and then correlations were calculated using a chi-square test to determine the statistical significance of the relationship between work- related injuries and leisure time injuries (Salminen, 2006, p.374).

This study found that there was no significant relationship between work-related injuries and leisure time injuries (Salminen, 2006). The researcher concluded that the issue of work-related injuries and leisure time injuries should be handled completely differently. However, he conceded that in many countries, leisure time safety and work related safety is approached in the same way.

Effectiveness of Community-Based Injury Prevention

Past situations that have dealt with safety culture changes should be taken into consideration when looking at community-based injury prevention programs. Researchers in one study attempted to demonstrate a relationship between injury rates in fourteen Swedish municipalities, which participated in the WHO-Designated Safe Communities program, and the injury rates of similar size municipalities (Nelson, et. al, 2007). By doing this, researchers hoped to show the effectiveness of community based safety programs. The WHO-Designated Safe Communities program was an international effort sponsored by the World Health Organization. The stated purpose of the program is to use collaboration and partnerships in the process of establishing safety awareness and practices within communities (Spinks, Turner, Nixon, and McClure, 2009).

Nelson, Ekman, Ekman, Ryen, and Lindqvist (2007) compared the injury rates of these WHO-designated Safe Communities and communities that were in the same municipality group. In order to determine the rates, researchers looked

at the number of individuals discharged from hospitals per 1,000 populations (Nelson, et. al, 2007). This process was conducted from 1987 to 2002.

The researchers determined that all but three communities showed favorable reduction in injury rates. The researchers noted that these areas initially had higher than normal injury rates and that this was the reason these communities participated in the WHO-Designated Safe Community Program (Nelson, et. a, 2007). These results demonstrated that these programs of community-based safety are not always successful.

The Design of Hazard Risk Assessment Matrix

In order to better understand how risky a certain behavior is to one's safety, a base line model or formula needs to be developed so risk can actually be assessed. A risk formula has been used for many years in organizations such as industry and the US Military to prioritize operations and to assess risk (Donoghue, 2000). The formula they used to assess these risk is Risk= Probability x Consequences. The authors of this paper wanted to address how to approach this formula in both a qualitative and quantitative formula and identify when each methodology would be useful.

In order to standardize both the qualitative and quantitative matrices the terms death, permanent major disability, permanent minor disability, and temporary disability were used to classify the severity of the risk (Donoghue, 2000). In the qualitative matrix the probability of a hazard occurring was described in the terms frequent, probable, occasional, remote, and improbable.

In the quantitative study a mathematical formula was put in place to show probability. A walk-through survey was then conducted to demonstrate how the qualitative matrix was used. To show how the quantitative matrix was used an occupational health risk assessment of the mine and mineral processing industry was performed.

The results of these tests showed how beneficial these formulas could be for assessing risk both qualitatively and quantitatively. This study could be used to help determine what additional exposures exist in other industries (Donoghue, 2000). However, the authors do concede that the methods section requires some knowledge on hazards that are relevant to the job being analyzed, such as mining and mineral processing that were used in their research, and knowledge about the diseases it may cause.

The Impact of Home Safety Promotion

Safety in the home has not been addressed in as much detail as traffic safety or occupational safety. Even though the introduction of safety programs have been effective, not enough research has been done to determine which populations are affected most (Timpka, Nislen, & Lindqvist, 2006). The purpose of this study was to identify which social class was most impacted by the safety programs at home.

In order to determine which group was most impacted by the WHO safety promotion program, researchers administered a pre- and post- test of patients who contacted local medical units. The researchers then collected rates for

individual communities. They then compared the rates of injuries between different socio-economic groups. The researchers also examined gender as a variable in this study. The statistical comparison was based on a significance level of .05 (Timpka, Nislen, & Lindqvist, 2006).

The researchers found those who were in the lowest socio-economic class had higher rates of injuries than those in other socio-economic groups. The results of this study agreed with previous studies that had been conducted. The authors did not analyze the causes of these higher injury rates (Timpka, Nislen, & Lindqvist, 2006). There were many limitations to this study, including the exclusion of individuals who were 65 and older.

Assessing Risk: A Simplified Methodology

Pinheiro, Cranor, and Anderson (2011) completed a study which examined the use of risk assessment in the oil and gas industry. They focused on identifying a methodology that would simplify the process of assessing risk. The researchers suggested the implementation of a modified risk matrix for performing risk assessment. It is important to note that risk assessment is rarely used in normal, short-lived jobs (Pinheiro, Cranor, & Anderson, 2011). In order to increase the use of risk assessment in the oil and gas industry, Pinheiro, Cranor, and Anderson (2011) developed a simplified risk assessment matrix.

The authors first compared their new, modified, risk assessment matrix to the most commonly used and accepted risk assessment matrix. In the old risk assessment matrix the formula of risk = probability x magnitude is used

(Pinheiro, Cranor, & Anderson, 2011). The authors argue that this method does not take into account short-lived jobs. The new simplified risk management uses the formula of risk = available mitigation x confidence in implementation. This takes into account human factors, such as the mitigation control actually being implemented.

Pinheiro, Cranor, and Anderson (2011) also explore how to mitigate risk through the use of personal protective equipment, engineering controls, eliminating hazards, substituting individuals or tools, and administrative controls. This study also explored what the specific oil and gas company does to mitigate risk in low, medium, and high-risk situations. The study concludes that the modern matrix is useful in the oil and gas industry because it is flexible and convenient (Pinheiro, Cranor, & Anderson, 2011). This suggests that the simplified matrix of risk assessment may be beneficial in other industries.

Assessing Suitable Safety Performance

Eaton and Little (2011) developed an outline of the steps of risk assessment and advocate for a proactive approach to the utilization of these steps. It is important in considering risk assessment to define what risk is and to identify how risk assessment can be used to mitigate risk in work systems and in office processes. Eaton and Little (2011) further hold that businesses, which actively participate in risk assessment, are being proactive in their approach to reduce risk and to reduce rates of injuries.

It should be noted that many people have confused the difference between hazard and risk. Hazard is the actual thing that can cause harm, whereas risk is the chance that adverse effects from the hazard will occur. Eaton and Little (2011) expand on this idea and identify five steps in risk assessment that assist in differentiating hazards and risks. The first step in their model is to identify a hazard. The second is then to measure the frequency of being exposed to that particular hazard. Thirdly, the risk associated with a work system is then analyzed with the goal of reducing the risk. The fourth step is to develop other mitigation controls. The final step is to evaluate and monitor the mitigation technique's effectiveness.

Eaton and Little (2011) compare risk assessment to other methodologies and conclude that this process has advantages over older, traditional models. They further explore methods to implement risk assessment in organizations. The first suggested step of implementation is to engage the leadership of the organization, followed by using business language in introducing risk assessment processes. After these two steps are complete, it is important that the specific risks facing the organization be identified, so that actions can be initiated to mitigate those risks. It is essential in the risk assessment process to plan how to maintain sustainable safety in organizations through continually assessing and mitigating hazards and risks before an incident actually occurs (Eaton & Little, 2011).

Chapter III

Methodology

Context of the Study

Much attention is being given to the process of risk assessment. Large working groups, including the American Society of Safety Engineers, have recognized risk assessment as an area that needs to be grown and explored more thoroughly. Recently the American Society of Safety Engineers (ASSE) the ASSE Risk Assessment Institute to explore this topic more thoroughly. The purpose of this study is to determine the effectiveness of workers participating in risk assessment training and the use of self-reported safe behaviors by the participants, both in the workplace and out of the workplace.

Description of Study

This study was comprised of three main parts. The first part of this study consisted of a pre-test that included four demographic questions and 34 questions concerning self-reported safe behaviors at both work and at home. These behaviors were what were perceived by the employee prior to risk assessment training. The second step of this study was risk assessment training. This training was developed and delivered by a Certified Safety Professional with experience in both higher education and risk assessment in general industry. The training consisted of three sections: (1) How to identify risk and its severity, (2) How to mitigate risk, and (3) An exercise in which employees had to develop a

situation and had to identify and mitigate the perceived risk. Participants were shown the different stages of mitigating dangers through the use of a pyramid diagram (Figure 1). The best option, eliminating the risk, at top of the pyramid, followed by engineering controls, then administrative controls, and finally personal protective equipment at the bottom of the pyramid. Also, participants were exposed to a risk assessment matrix in order to assess the risk (Figure 2).

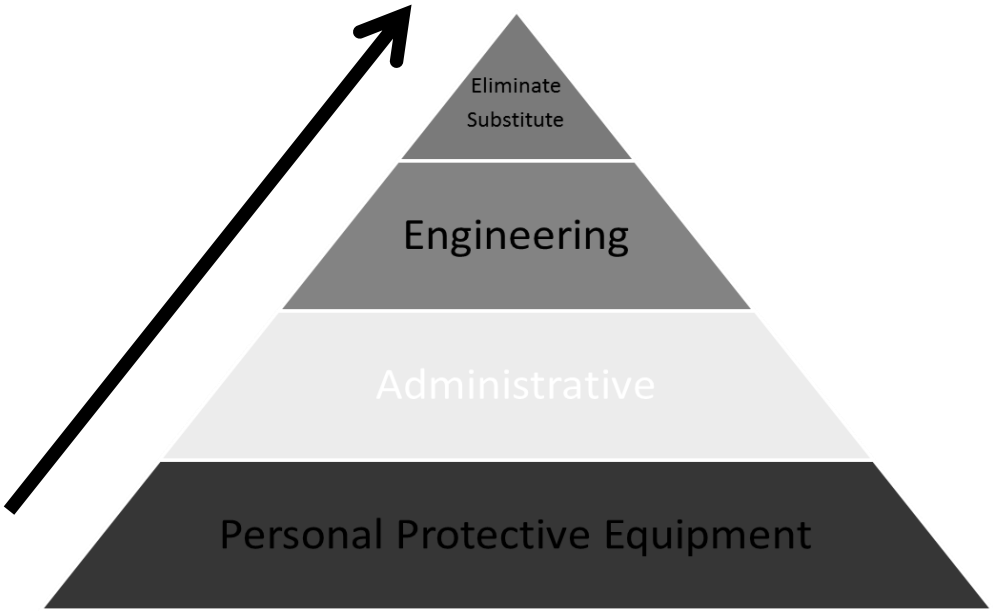

Figure 1. Risk assessment mitigation controls pyramid

Source: OSHA. (n.d.). Hierarchy of controls. Retrieved April 8, 2014, from https://www.osha.gov/dte/grant_materials/fy10/sh-20839-10/hierarchy_of_controls.pdf

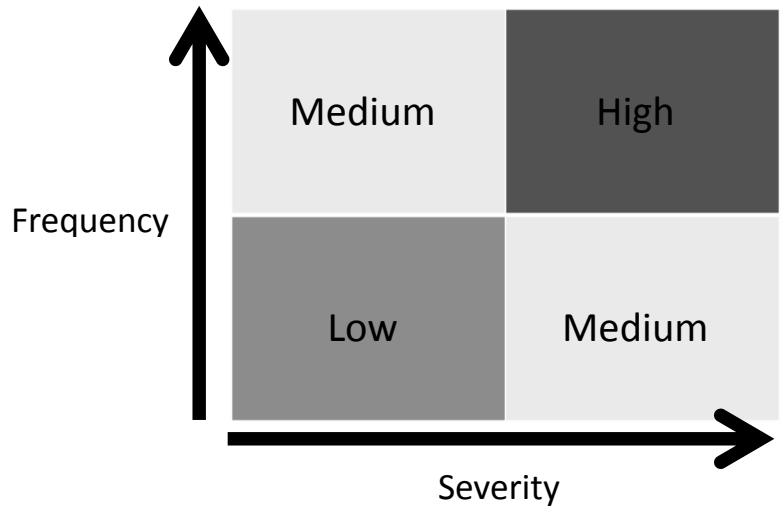

Figure 2. Risk Matrix

Source: FMEA. (2012). Quantified risk assessment techniques-part 1 failure modes and effects analysis-fmea. *Institute of Engineering and Technology, 26a*. Retrieved April 8, 2014, from http://www.oshrisk.org/assets/docs/Tools/3%20Conduct%20Risk%20Assessments/FMEA%20guide.pdf

The third part of this study was a post-test, This post test was administered approximately three weeks after the training was completed. The post-test was identical to the pre-test.

Selection of Participants

Participants for this study were employees of both the production and office areas of a central Kentucky manufacturing company. The sample for this study was employees that were attending their regularly scheduled OSHA mandated

safety training. Employees voluntarily participated in this study. All employees signed consent forms (Appendix C) prior to participation.

Research Questions

This study aims to determine if there is an association between workers participating in risk assessment training and the use of safe behaviors by the participants, both in the workplace and out of the workplace. The primary purpose of this study was to prove or refute that risk assessment safety training would increase an employee's ability to self-identify risky behaviors both at their workplace and out of the workplace. The secondary purpose of this study was to analyze the effectiveness of the safety training program in its ability to increase employee knowledge of workplace safety, as well as safety outside the workplace. The purpose of this study was to answer the following research questions:

1. Do workers who participate in a risk assessment training self-report the use of safe behaviors in the workplace?
2. Do workers who participate in a risk assessment training self-report the use of safe behaviors out of the workplace?
3. Does risk assessment training increase the employees' self-perception of their knowledge of workplace safety?
4. Does risk assessment training increase the employees' self-perception of their knowledge of safety outside of the workplace?

Data Collection

Data was collected through a pre- and post-test administered to employees at a central Kentucky manufacturing company. The pre- and post-tests were assigned a generic identification number that could not be traced to the participants, which ensured anonymity. The purpose of the identification number was to ensure matching of pre- and post-tests for the participants. Volunteers provided written consent through the use of a signed consent form (Appendix C) prior to taking the pre- and post-test. The data was then coded and input into a secure Microsoft Excel file. Along with the Likert scale pre- and post-tests, participants also provided demographic information including gender, age, years of professional work experience, and if they worked in the production or office area.

The instrument (Appendix D) to collect data for this study was designed to allow individuals to identify self-perceived safe behaviors. This instrument used a 5-item Likert scale with choices ranging from strongly disagree to strongly agree to respond to statements throughout the test. The first portion of the pre- and post-test focused on perceived safe behaviors in the workplace and the second section focused on perceived individual safe behaviors at home. The third section of the pre- and post-test asked whether the participants knew how to use risk assessment and the risk assessment process.

Data Analysis

Each participant was given an identification number to match pre- and post-tests to the same participant. The only individuals with access to the identification numbers with the associated names were employees of the Human Recourses Department of the organization in which the research was conducted. These members of the organization did not have access to the test results. The data collected in the pre- and post-tests was entered into Microsoft Excel and then transferred to Statistical Analysis Software ("SAS," 2010).

In addition to comparing mean scores of the individual items, mean summary scores were calculated and compared as well. Summary scores were calculated by summing the responses from workplace questions, out of the workplace questions, and risk assessment questions. The workplace and out of the workplace components each contained 15 5-item Likert scale questions. The total scores for both components ranged from 15 to 75. Lower scores indicated a low-level of risk perception and higher scores indicate a high-level of risk perception. The risk assessment component contained four 5-item Likert scale questions with a summary score ranging from 4 to 20. Lower scores indicated low frequency of assessing risk, whereas higher scores indicated a high frequency of assessing risk.

Paired-samples t-tests were conducted to compare the difference in mean scores for each component and the summary scores pre- and post-training. A significance level of $\alpha=0.05$ was used throughout.

Subjectivity and Bias

Personal bias was not present in this study because the purpose of this study was to evaluate the effectiveness of risk assessment training through self-reported safe behaviors. The goal of this study is to ultimately increase safe behaviors for employees in and out of the workplace. The risk assessment training was provided for the purpose of employees to identify risky behaviors and develop ways to mitigate the risky behaviors.

CHAPTER IV

Research Findings and Analysis

There were 31 individuals who participated in this study. The majority of the participants were male subjects (61.29%). Most of the participants that participated in both the pre- and post-tests were over 50 years of age (38.71%). Also, the majority of participants had more than 20 years of work experience (38.71%). It is also important to note that the majority of those who participated in the pre- and post-test were employees who worked in the office area (64.52%), oppose to just the minority who worked strictly in the production area (22.58%). The rest of the demographic information for this study can be found in Table 1.

There was a significant difference in the risk assessment group scores pre- and post- risk assessment training ($t = 2.17$, $p = .04$). The mean score for the pre-test was 14.90 (SD= 3.25) while the mean score post- test was 16.32 (SD = 1.81). There were only three individual questions that showed a statistically significant difference. The first question was work question number seven ($t = 2.50$, $p= .02$). The pre-test question had a mean score of 3.38 (SD = .98) while the mean score of the post-test was 3.93 (SD = .82). The second question that demonstrated a statistically significant difference was at home question six ($t = 2.16$, $p = .04$). The mean score of the pre-test was 3.83 (SD = .82), while the post-test mean score was 4.19 (SD = .60). The third question that showed a statistically difference was risk assessment question three ($t = 2.53$, $p = .02$). The

mean score of the pre-test was 3.67 (SD = .83) while the mean score of the post-test was 4.09 (SD = .39).

Table 1. Demographic and professional characteristics of employees (N=31)

	n (%)
Gender	
Male	19 (61.29%)
Female	12 (38.71%)
Age	
≤30	8 (25.81%)
31-40	6 (19.35%)
41-50	5 (16.13%)
≤50	12 (38.71%)
Professional Work Experience (years)	
<5	6 (19.35%)
6-10	5 (16.13%)
11-15	0 (0.00%)
16-20	8 (25.81%)
>20	12 (38.71%)
Area of Work	
Office	20 (64.52%)
Production	7 (22.58%)
Both	4 (12.90%)

CHAPTER V

Discussion and Implications

Discussion and Implications

This study demonstrates a statistically significant increase in the use of risk assessment, before and after the risk assessment safety training. It can be concluded that risk assessment training is effective in educating individuals on how to assess and manage risk, as well as utilizing risk assessment to protect themselves. These results can also be reflected in the statistically significant results of the comparison of the pre- and post-test data for risk assessment question number three. In this question, more participants self-identified that they know the hierarchy of controls that are available to help manage risks as compared to the pre-test.

It is also important to identify that there is no statistically significant differences in the majority of questions concerning safe work behaviors at work and at home. There was also no statistically significant difference in self-reported safe behavior groups of at work and at home as a whole. However, it is important to note that there were positive statistically significant results to questions that ask if participants are aware of ergonomic hazards at work and if they perform ergonomically correct work at home.

Recommendations

More research is needed to demonstrate the effectiveness of risk assessment training of self-reported safe behaviors. This study does not take into account the difference in self-reported safe behaviors where the participants work in the facility, their gender, age, or work experience. However, those variables were collected in the data set used for this study.

The second recommendation is to repeat this study design on a larger sample size. This study gives enough evidence to support further research. Even though normality could be shown through the use of 31 participants, it would provide more validity to the results if a large sample size was available.

The third recommendation is to increase the length of the study. It would be very beneficial to see how the use of risk assessment would be affected throughout different times in the year. This study was conducted through the winter months, which limited the amount of at-home work activities that were being performed. A longer study design could produce different results in the at-home portion of the questions.

The fourth recommendation is to repeat this study in different types of organizations. This study took place in the manufacturing industry. It would be beneficial to do a comparison between the effectiveness of risk assessment training on self-reported safe behaviors of employees from different types of organizations.

The fifth recommendation would be to look at the effect of risk assessment on organizations that are self-insured or that purchases coverage. These two organizations might approach risk assessment differently, due to overall cost. Injury rates have an affect on the cost of insurance premiums, when looking at workers compensation.

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Appendix A

Consent Form

Consent Form

The following information is provided to make you aware of issues related to the research for which you are being asked to participate.

- This study involves research. The purpose of this research is to understand how risk assessment training impacts work behavior.
- There will be no risks or foreseeable discomfort related to the research.
- The benefit to participants will be self-realization of things that they can do to contribute to injury reduction in the workplace.
- Confidentiality will be maintained within the limits allowed by law. Records related to this research will be maintained confidentially via hard copy and electronic files between the researcher and the Eastern Kentucky University academic advisor. Completed pre-tests and post-tests will not have any identifying information.
- Participants may contact Scotty Dunlap (the researcher) at Scotty.Dunlap@eku.edu with any questions throughout the process.
- Participation in this research is voluntary. Refusal to participate will not result in a penalty. Participants may discontinue participation at any time without penalty.
- The finished product of this research will be a journal article that will be submitted for publication and a graduate student thesis.

Please indicate by completing the following information that you understand the information listed above and that you give consent to participate in this research.

I, _____, understand all aspects of this research and consent to participate.
(Print Name)

_____ _____

Participant Signature Date

APPENDIX B

Research Instrument

Risk Assessment – Pre-

The survey is completely anonymous. Your participation is voluntary and you may elect not to participate.
Please check the appropriate box below:

Gender

- ☐ Male
- ☐ Female

Age

- ☐ 30 or under
- ☐ 31-40
- ☐ 41-50
- ☐ 50 or over

Professional Work Experience

- ☐ Less than 5 years
- ☐ 6-10 years
- ☐ 11-15 years
- ☐ 16-20 years
- ☐ More than 20 years

Area of Work

- ☐ Office
- ☐ Production

Please indicate the degree to which you agree or disagree with the following statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
At Work					
I am aware of everything that can cause me harm.					
I am aware of what personal protective equipment I need to protect myself from injury and illness.					
I wear the appropriate personal protective equipment when working.					
I am aware of fire hazards that exist.					
I work safely around fire hazards.					
I am aware of ergonomic hazards.					
I perform ergonomically correct work.					
I am aware of hazards associated with chemicals.					
I utilize chemicals safely.					
I am aware of hazards presented by exposed moving parts of machinery.					
I work to ensure machine guards are in place to prevent injuries.					
I am aware of the dangers of electricity.					
I work safely where electricity is involved.					
I am aware of injuries that can occur from poor housekeeping.					
I work to ensure good housekeeping is maintained.					
At Home					
I am aware of everything that can cause me harm.					
I am aware of what personal protective equipment I need to protect myself from injury and illness.					
I wear the appropriate personal protective equipment when working.					
I am aware of fire hazards that exist.					
I work safely around fire hazards.					
I am aware of ergonomic hazards.					
I perform ergonomically correct work.					
I am aware of hazards associated with chemicals.					
I utilize chemicals safely.					
I am aware of hazards presented by exposed moving parts of machinery.					
I work to ensure machine guards are in place to prevent injuries.					
I am aware of the dangers of electricity.					
I work safely where electricity is involved.					
I am aware of injuries that can occur from poor housekeeping.					
I work to ensure good housekeeping is maintained.					
Risk Assessment					
I know how to properly assess the risk of a task.					
I know how to measure the risk of a task.					
I know the hierarchy of controls that is available to manage risk.					
I actively utilize risk assessment to protect me from injury and illness.					