

RUNNING HEADER: ARE EMPLOYEE ATTITUDES ABOUT ONLINE TRAINING

Do Employee Attitudes about Online Training Correlate with  
Safety Records in a Large Manufacturing Corporation?

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**Abstract**

Although online training cannot completely replace all employees training, it is becoming more accepted by companies for compliance and new employee orientation training. Company X\* prefers and encourages online training as the primary training source for employees. The purpose of this study was to determine if there is a correlation between employee attitudes about online training and the number of workplace safety incidents. The correlation between the types of worksite (high versus low safety sites) and the number of online courses completed was investigated. After exploring the types of worksites for correlations, we studied the number of incidents that took place at the sites each employee surveyed and how they correlated with their attitude about online training. The investigator surveyed 590 employees at multiple worksites of Company X. The survey results found correlations between positive employee attitudes about online training and the number of courses enrolled; however, the number of online courses taken did not correlate with the employee's type of safety site. The employee's positive attitude did correlate with the number of incidents that took place. The research study demonstrates an employee's attitude correlates with everyday safety at a worksite and plays an important role at a worksite.

\*Name withheld for confidentiality.

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## **Introduction**

In 2007, employees spent 30 percent of their training time using online training courses compared to 11.5 percent in 2001 (Kranz, 2008). The American Society for Training and Development (2010) estimated \$125.88 billion was spent in 2009 for employee learning and development. Of this over 100 billion total, U.S. companies spent \$78.6 billion on “learning function's staff salaries, administrative learning costs, and non-salary delivery costs (including outsourced activities)” (ASTD, 2010). According to ASTD benchmarking companies, they have invested 52% more than they have invested on their non-benchmarking counterparts for training (Schuster, 2011). The training budget has been dramatically lowered or eliminated from some companies during the recent economic recession. While the economic recession has caused some companies to question training decisions, companies, who increased training development budgets, saw a growth for their business’s bottom line (Palazzolo, 2009; Schuster, 2011).

Companies have spent more for online training, but are saving money overall by reducing money spent on instructor-led events. The costs of travel, facilities, lodging, and employee compensation for lost work time are often greater when compared to the hardware and software requirements for online training development and delivery (Zhang, 2003). Online training is preferred for its convenience, which includes improved learner tracking and reduced delivery time, and consistent learning content. (Admiraal and Lockhorst, 2009).

With more online training being used, how do employees perceive online training?

In this study, we researched manufacturing employees to gain answers to the following:

1. Are employee attitudes about online training correlated with the number of online courses in which employees enroll?

2. Do employees at “high safety” sites participate in more training courses than employees at “low safety” sites?
3. Are employee attitudes about online training correlated with the number of safety incidents?

## **Literature Review**

Company X was a global company with sites including recycling, manufacturing, mills, and headquarters. Of these sites, 53 are considered “high safety” sites according to OSHA’s (Occupational Safety and Health Act) VPP standards. OSHA’s Voluntary Protection Program (VPP) is based on a site’s health and safety program. It must be exemplary with the site reporting below industry standards for safety. According to OSHA’s VPP standards, a list of required compliance courses must be completed and tracked for all employees. Based on these safety standards, we researched previous studies to determine employee attitudes toward online training and safety training.

Online training research topics can be found in various combinations within various disciplines. Employee or learner attitudes towards online training yields research results within the fields of academia, corporate, military, etc. An example of employee or learner attitudes towards online training have been researched includes the use of technology (wiki, blogs, discussion boards, etc.). Training specifically focused on safety includes instructor-led safety training for corporations. Due to a lack of research concerning employee attitudes about online safety training, the literature review has been divided into two sections. The first section consists of research on employee attitudes towards online training. The second section is research on safety training. Each study was chosen because of how it relates to the survey.

## **Employee Attitudes**

Employees, who had access to personal computers, laptops, and mobile devices, experienced technology phobias (Litchfield et al., 2002). These technology fears can be relieved, if not eliminated through positive experiences (Litchfield et al., 2002; Lambert and Lenthall, 1989). Positive experiences were reflected in a positive attitude which led to more online training activity (Litchfield et al., 2002). However, employees expressed the need for a good support system in order to be successful. An employee fearful of pressing the wrong button, who did not have even limited technology resources, was less likely to have a positive attitude about online training (Fulantelli and Allegra, 2003; Hay, 2003; Admiraal and Lockhorst, 2009). Varying degrees of software knowledge and comfort levels involving bandwidth issues are types of limited technology resources which effect overall attitudes (Oberaski et al., 2001; Admiraal and Lockhorst, 2009). Perhaps the most important factor to employees was the flexible schedule online training allowed for necessary compliance trainings (Tynjala and Hakkinen, 2005; Admiraal and Lockhorst, 2009).

Litchfield, Oakland, and Anderson's (2002) studied two demographically, similar groups with one being the control. Both groups had similar experiences with exposures to technology, which included online training modules, chat rooms, quizzes, and email. Individual training modules included, "scrollable text, graphics, audio, animations, interactive calculators, video, and patient simulation "(Litchfield, Oakland, and Anderson, 2002). Litchfield, Oakland, and Anderson (2002) found no significant increase for the study group concerning computer self-efficacy. One explanation was a lack of knowledge or tracking for the time spent online within the training environment. Although each group was exposed to the online training, it was

assumed the study group would spend more time online because it was an entirely online training group.

Admiraal and Lockhorst (2009) surveyed small and medium businesses and found employees of larger companies did not attribute Internet connection or software issues to the overall negative feelings associated with online training. One explanation was larger companies have global resources available for allowing a more even distribution of resources. Still, Admiraal and Lockhorst (2009) noted that employees did not see the large failings because of cited inability to perform particular desired functions. Companies have experienced this as a common problem with technology because they needed to find a product that “fit” their need; however, technology was not “one size fits all”. Companies chose an “off the shelf” online training because of its content; however, the online training had too many or not enough details to meet their training needs. Companies discovered the online training was ineffective for meeting needs.

## **Safety**

In a manufacturing environment, safety issues are a major concern with employees enrolled in annual safety trainings. The safety training demonstrates and establishes procedures to help meet the goal of a safe, productive environment. By encouraging and utilizing online safety training, companies and managers monitor compliance through tracking and reporting. Employees receive instant feedback during the online safety training. Because employees are able to see the benefits of safety training immediately, a positive attitude about safety and training is reflected in the attitudes (Grau et al., 2002).

Because construction sites have a high fatality rate for workers each year, Choudry, Rafiq, and Fanga (2008) interviewed construction workers about safety concerns. The workers,

who explained they needed to be a “tough guy”, were more likely to ignore safety lessons while on the job site. The interviewees described instances where co-workers would sign-in for trainings and not participate because they “knew” the content. All interviewees felt the managers or leadership play a significant role in safety training participation (Choudry, Rafiq, Fanga, 2008; Erickson, 2008). The managers mediated between the safety leadership and the corporate leadership to achieve effective training. Effective training occurs when “organizational training needs are anticipated and identified, then delivered accordingly” (Palazzolo, 2009). Previous research has demonstrated employee attitudes towards online training and safety training. The research specifically directed at employee attitudes about online safety training could not be found.

## **Methodology**

To determine the employees’ attitudes about online safety training at Company X, a survey was distributed to a selected number, who were chosen by their online safety training enrollment during a set time period. The beginning population was 1039 employees who were enrolled in the safety training courses. After duplicate entries were eliminated, a sample set of 590 employees were selected for survey participation.

## **Statement of the Problem**

Organizations are responsible for meeting the training needs of employees based upon delivery method and time management. Most training is delivered in a face to face manner today; however, online training is becoming more popular and frequently used in a number of



organizations. Few research studies have been conducted to question the correlation between employee attitudes about online training and the number of workplace safety incidents.

Company X has developed personalized online courses available to employees through the company intranet using the LMS. The online training program, MyLearning, was promoted on various company intranet sites to encourage employee enrollment. The Environmental, Health, Safety, and Sustainability (EHS&S) group site included initiatives and a training topics list. Within the EHS&S group, online training courses have been developed and implemented since 2006. At the end of 2010, there were over 50 online training courses available from the EHS&S group. Topics for these courses ranged from new employee orientation to cell phone safety. Employees including managers, office staff, and warehouse workers enrolled in these courses.

## **Participants**

In 2010, Company X had an estimated 60,000 employees worldwide. The population for this study was 1,039 employees who completed eleven online EHS&S safety training courses in 2009. Of the population, 590 employees were given a survey to complete. This sample, consisting of both men and women, was determined by removing duplicate employees and retired employees.

## **Instrument**

The survey included questions concerning employees' computer self-efficacy, perceived usefulness of online training, the acceptance of online training, the value of online training as related to job performance, and general demographic questions including type of worksite. The survey was a compilation of four previously validated surveys (Compeau & Higgins, 1995;

Davis, 1989; Davis, 1993; Lee, 2002). The revised survey was validated by a small pilot study before final distribution. The pilot included 10 participants who were similar demographically to the research participants. The pilot study provided needed validation to the new arrangement and verbiage changes to the survey questions.

We examined the employees' attitudes about online training for possible correlations with workplace safety incidents. Safety incident information was based on Company X's Lost Workday Incident Report (LWIR) for 2009. To identify the number of incidents per site, respondents were asked to identify their site. We used the total number of incidents per site in 2009 for our data analysis. We examined the employees' attitudes about online training for possible correlation with the type of safety site (high or low).

## **Procedure**

The respondents were surveyed by e-mail and given two weeks to respond. One reminder e-mail was sent. After the survey was completed, the data was collected for analysis. It involved three steps: (1) develop and administer the survey through e-mail, (2) content analysis of the incidents, and (3) application of Spearman's Rho to correlate the date or application of Mann-Whitney to correlate the number of courses enrolled and type of safety site.

### **Question One: Are employee attitudes about online training correlated with the number of online courses in which employees enroll?**

We hypothesized that employees with more positive perceptions of their MyLearning experience would enroll in more online training courses. Spearman rank order correlations were run to determine the relationships between the responses of 119 employees to items concerning their attitudes about MyLearning and the indicated number of courses enrolled in during 2009.

We correlated the number of courses with the employees' attitudes using question one parts (a) through (e).

**Question Two: Do employees at “high safety” sites participate in more training courses than employees at “low safety” sites?**

We hypothesized that employees at the “high safety” sites ( $n = 6$ ) would participate in more online trainings, and that employees at the “low safety” sites ( $n = 97$ ) would participate in fewer online training. The employees provided their site location which allowed us to determine whether their site was a low or high safety site. We used this information to correlate the number of online training courses enrolled in with the type of site.

**Question Three: Are employee attitudes about online training correlated with the number of safety incidents?**

We hypothesized that employees with more positive attitudes about their online training would have fewer safety incidents at their sites. The number of site LWIRs was determined when the employees provided their site. We used this information with the LWIR to record the number of incidents for their site. Pearson correlations were run to determine the relationship between the number of site LWIRs and the perceptions of 91 employees towards their MyLearning experiences.

## **Results**

The data collected from the survey has been analyzed for any statistical correlations. During 2009, the employees participated in the number of online courses as seen in the frequency count in Table 1. The greatest number of employees enrolled in three online courses (21%) and least number enrolled in nine online courses (1.7%).

**Table 1**

*Frequencies and percentages of respondents by number of online courses enrolled*

Courses	<i>f</i>	%
0	3	2.5
1	3	2.5
2	15	12.6
3	25	21.0
4	18	15.1
5	11	9.2
6	6	5.0
7	6	5.0
8	6	5.0
9	2	1.7
10 or more	24	20.2

**Question One: Are employee attitudes about online training correlated with the number of online courses in which employees enroll?**

Of the five items seen in Table 2, three proved to be statistically related to the number of courses enrolled. First, there was a positive correlation between employees’ perceptions of improved job performance and the number of online courses enrolled ( $Rho(117) = .194, p = .035$ ). Second, there was a positive correlation between how convenient employees found online training to be compared to instructor-led training and the number of online courses enrolled ( $Rho(117) = .207, p = .024$ ). Third, there was a positive correlation between how understandable employees found the MyLearning materials to be and the number of online courses enrolled ( $Rho(117) = .205, p = .025$ ).

**Table 2**

*Employee attitudes and number of online courses enrolled*

Employee Attitude	Number of Online
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		Courses
Improved Job Performance	Corr.	0.194
	Coeff Sig.	0.035
	N	119
More Convenient than Instructor-Led	Corr.	0.207
	Coeff.	0.024
	Sig.	119
	N	
Material is Useful	Corr.	0.123
	Coeff.	0.184
	Sig.	119
	N	
Complete in Timely Manner	Corr.	0.130
	Coeff.	0.158
	Sig.	119
	N	
Material is Easy to Understand	Corr.	0.205
	Coeff.	0.025
	Sig.	119
	N	

**Question Two: Do employees at “high safety” sites participate in more training courses than employees at “low safety” sites?**

To determine if there was a statistically significant difference in the number of online training courses enrolled in differed between the two groups, a Mann-Whitney test was run which demonstrated no statistical significance ( $U=183.50, p = .125$ ).

**Question Three: Are employee attitudes about online training correlated with the number of safety incidents?**

First, there was a significant negative correlation between the number of LWIRs, and the amount of “step-by-step” assistance required to complete the training ( $Rho(89) = -211, p = .045$ ). Second, there was a significant negative correlation between the number of LWIRs and how positively employees viewed their time spent with the MyLearning training ( $Rho(90) = -.227, p = .030$ ). Third, there was a significant negative correlation between the number of LWIRs

and their rating of their MyLearning experiences “considering everything” ( $Rho(90) = -.228, p = .028$ ).

## **Discussion**

We concluded the employees in our study had a positive attitude about their online training. These results support previous research indicating that effective training would be reflected in positive attitude from the employees. The employees indicated the online courses are more convenient than instructor led courses and improve their job performance. Interestingly, the employees did not indicate a positive or negative attitude about completing the time spent completing the online courses. The typical EHS&S online course is estimated to be 20 to 30 minutes in length. Because the majority of our participants identified their job as other, we cannot determine if this is an issue with their position.

No matter their position, the participants indicated correlations between the number of Lost Workday Incidents (LWIs) and the number of online courses enrolled. This supports the previous research that stated a positive attitude about training influenced safety training. We determined the employees, who had fewer LWIs, viewed their time with the online courses as productive and had favorable experience with the online training. These employees also desired step-by-step assistance when needed.

When we looked closer at question two on the survey, we found variations about employee attitudes based on gender. Although there were fewer females in the study, they supported the online training. The females were more willing to enroll in training given no assistance, little assistance, or a help line. A more balanced study could be performed based on employee attitude and gender towards online training.

When we gathered the data for question two, we discovered an unbalanced distribution of the type of site. There were 97 participants located at low safety sites and 6 at high safety sites. This could explain why we found no statistical significance between the type of safety site and the number of courses enrolled. Further research should be done with a more balanced distribution of the type of sites.

Online training has been a part of the corporate environment and will not be fading away in the near future. It is growing to include all aspects of new technology including mobile devices. To meet these demands, training must meet the expectations of all learners. These learners include employees at all levels with various educational and cultural backgrounds.

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## Appendix

### Appendix A: Survey Questions

Statement	Yes	Not Sure	No
(Davis, 1989)			
1. MyLearning has improved my job performance.			
2. MyLearning has made training easier.			
3. I find MyLearning useful to my job.			
(Lee, 2002)			
I am confident about...			
4. completing my online courses on time.			
5. understanding the online course materials.			
(Compaeu & Higgins, 1995)			
I would do this even if...			
6. there was no one around to tell me what to do.			
7. I have never taken an online training course before.			
8. I had only seen someone else taking an online course before trying it.			
9. I could call someone for assistance if I needed help.			
10. someone else helped me begin.			
11. someone showed me how to use it the first time.			
(Davis, 1993)			
Considering everything...			
12. my impression of online training was...	Positive	Neither	Negative
13. my time spent with online training was...	Productive	Neither	Wasted
14. my experience with online training was...	Favorable	Neither	Unfavorable
(General Demographic)			
15. How many online courses did you participate in during 2009?	0 – 5	6 – 10	11 +
16. How many instructor led trainings did you participate in during 2009?	0 -5	6 – 10	11 +
17. What is your gender?	Male	Female	Blank
18. What type of facility do you work?			
19. What is your job title?			