Workplace Safety
Training Needs Analysis

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Title of Project: Safety Training

Intended Target Audience:
Corporate: Non-Management Personnel

Learning Outcomes:
Upon completion of the training, all non-management office personnel will be able to demonstrate their ability to reduce and/or prevent accidents on the job by:
- Defining personal liability.
- Describing the cost of accidents caused by human error or an unsafe work environment.
- Defining the roles of the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) in ensuring safe working conditions.
- Identifying protective gear necessary to ensure worker safety.

Project Overview:
In this safety training, employees will learn about personal liability in the workplace, the cost of accidents caused by human error, how to maintain safe working conditions, and ensuring worker safety.

In 2015, almost three million cases of non-fatal workplace injuries or illnesses were reported by private industry; of that number, more than 95% of them were injuries ("Employer-reported workplace injury and illness summary," 2016). In addition to that, more than 750,000 non-fatal injuries or illnesses were reported in the public sector ("Employer-reported workplace injury and illness summary," 2016).

This training will address those issues in three ways:

1. An interactive infographic will show the cost of workplace injuries, both to the company and employees. The cognitive load theory says that all knowledge comes in package of information where it is organized and stored in the person's brain. Because the brain can hold just so much information, we need to be careful not to burden it with too much data, and create cognitive overload (Driscoll, in Reiser & Dempsey, 2012). That is why this infographic will focus only on areas that deal with the liabilities of workplace accidents.

2. A training video will stress the need for Personal Protective Equipment, and how it even applies to an office. The video will utilize the principle that narration and animation will help the employees learn more deeply than a combination of narration and on-screen text, which tends to split the learner's attention between two streams of visual input (Driscoll, in Reiser & Dempsey, 2012).

3. Employees will participate in a game that will familiarize them with safety rules and regulations of government agencies that ensure safe working conditions. This activity will play off the theory that a good game is not one that just consists of sophisticated bells and whistles, but is just difficult enough to be challenging, hovering just beyond the boundaries of the the learners' competence (Shute, Rieber, & Van Eck, in Reiser & Dempsey, 2012).

One of the problems with safety training is that it is hard to know how well employees are learning what they are being taught, because it takes time to see if injury numbers are decreasing. If injury statistics go down, then it is evident that the lessons being taught are successful. If the numbers remain static or increase, then it is obvious that employees are not learning what management wishes to convey.

However, in the short term, employees will be given measurable assessments to determine how well they have assimilated the information in these learning objects. During these assessments, employees will demonstrate their understand and knowledge of the information (Reigeluth, in Reiser & Dempsey, 2012).

Action Plan:
1. INFOGRAPHIC:
   You can find the wireframe for this infographic here:
   https://www.dropbox.com/sh/xgdhia57pupo8yv/AACJ0-dKkMRYEZlWlw5gkXCka?dl=0

   a. This infographic will support two of the learning outcomes:
      - Defining personal liability.
      - Describing the cost of accidents caused by human error or an unsafe work environment.
      This Web-based infographic will show how much unintentional injuries have cost U.S. companies in medical bills and lost productivity time over a year's time.

      When students are learning, processes such as attention, encoding, and retrieval receive the material, makes sense of it, and then store it away until such time as it is needed (Driscoll, in Reiser & Dempsey, 2012). Furthermore, one might also say that an interactive infographic is a form of informal learning (Rossett & Hoffman, in Reiser & Dempsey, 2012). For that reason, it is imperative that the data on this infographic be kept as simple as possible, without extraneous details. At the same time, it is important to contextualize the information (Driscoll, in Reiser & Dempsey, 2012). That is why the infographic will break those costs down into a more comprehensible size by relating them to the costs of everyday life, so that employees have a better grasp of what is at stake when they do not work safely (National Safety Council injury fact, 2016). It will also address the subject of possible employee liability in the case of a workplace injury.

   b. People remember 90 per cent of what they see, 20 per cent of what they read, and 10 per cent of what they hear (Cox, 2017). That is why the design of the infographic will be simple, with headlines, icons, and limited text in its base form, as well as a simplified color palette. By keeping the text as short and succinct as possible, thereby reducing cognitive load (Driscoll, in Reiser & Dempsey, 2012), the users will be encouraged to read all of the information. Therefore, as the user mouses over or clicks the icons, additional data will pop up. This way the user is forced, to some degree, to interact with all the material on the infographic.

   c. An employee's understanding of the information in the infographic will be assessed by his or her direct manager. Each manager will hold a meeting with his or her direct reports in which they will discuss the information contained in the infographic, as well as possible financial ramifications for on-the-job injuries. At the end of the meeting, each employee will be given 15 minutes to write a one- or two-paragraph summary of the discussion, and a one-paragraph statement detailing how he or she can do his or her job in a safer fashion. A qualified instructional designer will then review the submissions to ensure employee understanding.

     d.   MacBook Pro; Adobe Photoshop; Adobe Illustrator; Adobe InDesign, Muse, or Captivate; Web browser

2. TRAINING VIDEO:
You can find the storyboard for the training video here:
https://www.dropbox.com/sh/xgdhia57pupo8yv/AACJ0-dKkMRYEZlWlw5gkXCka?dl=0

     a.   The training video will support one learning outcome:
- Identifying protective gear necessary to ensure worker safety.

The video will feature two or three very short scenarios in which people are reminded that PPE is not just for those who work in the field, but also for office workers. For example, someone changing a dusty lightbulb will be prompted to wear safety glasses, to keep trash from getting in their eyes; another person will be reminded that they should be wearing gloves to prevent getting their fingers smashed or cut when moving office furniture and equipment. The video will ask employees to remember to wear PPE, and to encourage their coworkers to wear it as well.

The anchored instruction model of learning said that it is not enough for people to simply possess knowledge, but they need to possess it in such a way that they understand when to use this information (Hoadley & Van Haneghan, in Reiser & Dempsey, 2012). Consequently, storytelling techniques are a natural medium to use in order to achieve the desired result. That is why learning objects such as this training video can be very successful instruction tools. Content quality, effectiveness for teaching and learning, and ease of use are the necessary components that will cause this training video to achieve its purpose (Nash, in Reiser & Dempsey, 2012).

     b.   The design of the video itself will be as simple as possible, because the more complex graphics and animation are, the less effective they are as learning objects (Clark & Mayer, in Reiser & Dempsey, 2012). The video will consist solely of the instructor who draws the viewers' attention the subject matter through illustrations, animation, or video footage. This allows the viewer to focus on what is being said rather than being distracted by extraneous action or scenery in the background (Clark & Mayer, in Reiser & Dempsey, 2012).

     c.   As a way of assessing the employees' understanding of the information presented in the video, they will be presented with a list of hypothetical situations in which it will be determined whether PPE is needed for the task. If the answer is yes, then employees will state what sort of PPE is required. For the purposes of this assessment, the situations described will be straight-forward; in other words, there will be no trick questions involved. Employees will be expected to answer 80 per cent of the questions correctly to pass the assessment.

     d.   MacBook Pro; Adobe Premiere Pro; Adobe After Effects; Photoshop; MP4

3. EDUCATIONAL GAME CONCEPT:
You can find the storyboard for this game concept presentation here:
https://www.dropbox.com/sh/xgdhia57pupo8yv/AACJ0-dKkMRYEZlWlw5gkXCka?dl=0

     a.   This game will support the following learning outcome:
- Defining the roles of the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) in ensuring safe working conditions.

The game will be a type of scavenger hunt. Every week, a safety regulation from OSHA or the EPA will be sent to employees via e-mail. The employees will then access the Web sites of OSHA or the EPA to find the source. In doing so, they will familiarize themselves with how OSHA and the EPA ensures safe working conditions. This familiarization will be a condition of continued employment, because such knowledge has great value to all employees (Shute, Rieber, & Van Eck, in Reiser & Dempsey, 2012).

One element to learning sciences is being open to alternative perspectives on how learning is acquired (Hoadley & Van Haneghan, in Reiser & Dempsey, 2012). Hence the reason that gamification is included with this training. This game will add a measure of fun to what might otherwise be a dull exercise. With this format, the game accomplishes several important:

- It utilizes problem-based learning.
- The learning requires active participation.

The participation results in feedback (Shute, Rieber, & Van Eck, in Reiser & Dempsey, 2012).

b. When the weekly clue is sent out via e-mail, employees will submit their answers through a link in the e-mail. At the end of the week, employees will receive feedback that contains the correct answer to the clue, which is a necessary part of effective learning (Shute, Rieber, & Van Eck, in Reiser & Dempsey, 2012). Each submission will be transmitted into a database. That way, the company is able to keep track of those who are playing. Every week, one employee who submitted the correct answer will be picked at random to win a gift card. A leaderboard will be on display to show the employees who answer the questions correctly most often. At the end of the year, the employee who tops the leaderboard will be given a prize. If there is a tie, there will be a drawing for the winner.

c. The main challenge in education-based games is for the administrators of the game to make valid inferences about how well the players are learning what the game is teaching (Shute, Rieber, & Van Eck, in Reiser & Dempsey, 2012). The leaderboard will be the basis of the assessment for this game. Not only will it determine who the prize-winners are, but by using it, managers can see at a glance which employees are most engaged in the game, and how employees are doing at finding the required answers. Furthermore, database reports will be generated monthly, so that managers are made aware of any employees who are not participating as directed, or who are having trouble obtaining the necessary information. Employees will be expected to play at least 50 per cent of the time, with 80 per cent of their answers being correct. Managers will then speak to those employees who are not contributing to the game as expected. Those who are making a good-faith effort at playing, but are having trouble finding the correct answers will be given special training on how to locate them. Employees who simply will not play the game after several manager contacts will be subject to company discipline.

d. E-mail; database

References

Clark, R. C. & Mayer, R. (2012). Using rich media wisely. In R. A. Reiser & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (3rd ed., pp. 309-318). Boston: Pearson

Cox, S. (2017, February 23). Infographics in eLearning [video file]. Retrieved August 1, 2017, from https://www.lynda.com/Education-Elearning-tutorials/Infographics-elearning/540344/584544-4.html

Driscoll, M.P. (2012). Psychological foundations for instructional design. In R.A. Reiser, & J.V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (3rd ed., pp. 35-42). Boston: Pearson

Employer-reported workplace injury and illness summary. (2016, October 27). Retrieved August 1, 2017, from https://www.bls.gov/news.release/osh.nr0.htm

Hoadley, C. & Van Haneghan, J. (2012). The learning sciences: Where they came from and what it means for instructional designers. In R. A. Reiser & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (3rd ed., pp. 53-60). Boston: Pearson

McSween, T. E. (2003). *Value-based safety process: Improving your safety culture with behavior-based safety* (2nd ed.). Hoboken: Wiley-Interscience.

Nash, S. (2012). Learning objects. In R.A. Reiser, & J.V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (3rd ed., pp. 290-297). Boston: Pearson

National Safety Council injury facts. (2016). Place of publication not identified: National Safety Council.

Reigeluth, C. (2012). Instructional theory and technology for a postindustrial world. In R.A. Reiser, & J.V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (3rd ed., pp. 75-81). Boston: Pearson

Rossett, A. & Hoffman, B. (2012). Informal learning. In R. A. Reiser & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (3rd ed., pp. 169-176). Boston: Pearson

Shute, V., Rieber, L, & Van Eck, R. (2012) Games… and… learning. In R. A. Reiser & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (3rd ed., pp. 321-330). Boston: Pearson