

Animation for Industrial Safety

Visual Communication
Seminar Project

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Guide
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Approval Sheet

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by

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Declaration

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any

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(Signature)

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Contents

Introduction.....	6
Background.....	7
Objectives.....	8
Background of the Project.....	9
Importance of animation.....	10
Accdient Prevention by Animation.....	11
Safety Awareness.....	12
Fatal Facts.....	15
Fatal Facts: India.....	16
User study.....	17
Learning and Outcome.....	19
Acknowledgements.....	20
References.....	21

Introduction

India is country that was known for agriculture, but after industrial development, maximum employment is depend on industries and industries is depend on manpower. But the manpower which is required for the jobs, is also require proper education. Lack of proper safety education and training, possibilities are more for accident. Government industrial organisations and Public sector companies are taking lots off effort to minimise the occupational accidents. But existing awareness material such as safety posters, stickers,banners, informative messages are not effective as much.

Technology has given enough advancement into the life of a common man. One of the major benefit of information technology is, computer graphic animation. Industrial environment is full off hazards area, safety is major concern here. Animation generated information can explain

scenarios before and after accident and prevent employees from the similar incidents may occur in future. Animation can help to understand safe procedure of handling hazards operation

Education and training is the key to maintain healthy atmosphere at any hazardous workplaces. There are many ways to educate workers in the workplace such as display of safety posters, safety messages at factory entrances, canteens, and work floors and workers gatherings areas. It's important that workers fully understand the potential health effects which may occur after long period of time.

Maintaining safety awareness among workers is the key to controlling accidents at workplace. Safety awareness is the critical in many hazards workplaces.

Background

Since the industrial revolution, health and safety work-places have dramatically changed. Safety regulations and new technologies have created safer workplace for most workers, but dangerous work conditions still remain at many workplaces in the country. Every year there are around thousand of deaths and serious injuries occurs at many workplaces, and there are so many steps have been taken to reduce the number of incidence that occurs each day.

Accidents are not cheap, in fact they are very expensive, they are caused. Most accident are more caused by people than any other reasons, and it is not easy to get people to follow all the safety measures always, every body has a free will and they know it.

Every organisation or a work site has a safety officer appointed for the safety implementation, but all things are effortless, until and unless workers are not supportive to the safety program, then its difficult to maintain safety culture at any workplace. Personal

protective equipment are provided to them but not used. Worker should understand the value of PPE, it has to ensure that worker remember safety guidelines and avoid dangerous practices when nobody supervises them. Somehow worker needs to get it into their subconscious mind to want to follow safety rules and regulations. Safety awareness is the key to controlling accidents. Good safety programs work from the bottom up.

The safety promotional activities has to be continual year round program at the workplace, and the aim of safety promotion is to induce employees to improve their own protective behaviour and that their colleagues and to support to the managements stated goals.

Safety promotional objectives includes increasing safety awareness at all the organisational levels and concerns about workers safety.

Objectives

In this reports,I have tried focus on the use of safety animation for the education and training at the workplaces. At any workplace, unsafe conditions are around everywhere, so many parallel activities are going together at the same time. Supervisor and safety officers have major role when hazardous operations are happening. The work speed has maintained with the deadline of the completion of the project.

To promote and maintain safety interest among the workers is challenging task. Such a small unsafe act can spoil entire production speed. Safety supervisors and health professionals have the key role in the workplace where work load is more.

The importance of promoting and maintaining interest in safety is important and it is the responsibility of the line managers and safety professionals. I think only making safety propaganda at the workplace may not

be sufficient, management is ready to maintain safety standards of their organisation but safety professionals are the responsible for the whole.

However management also demonstrate their commitment and interest and actively support for a solid safety awareness program. A well successful promoted health and safety awareness program involve both the management and workers participations actively.

This project is helpful to the safety in charge, safety coordinators, safety management committees, to understand the importance of animated safety messages, induction training, create accident scenarios, explanation before and after incidents.

Background of the Project

Finding a good topic for special project was the serious task to me. Our IDC library was the best place to get an overview to get an idea on earlier project done by our senior students. But I did not get any concrete subject according to my interest.

I am studying here under sponsor category, my sponsor organisation expect me to learn which will be benefited to workers of the organisation.

I am basically commercial artist, studied bachelors degree in applied art, and joined safety awareness program at Government sector. My role is to prepare educational materials such as, safety posters, charts, stickers, banners, organising safety contest. But I thought, These ready made awareness materials may not communicate all the information. Then I started thinking,

how to communicate this safety issues to workers level, by which importance of safety can be conveyed very easily to all level of workers, there should not be any language problems to understand the safety awareness messages, health and safety issues and then I start working in this direction.

Then I learnt that, Animation is the best way of communicate safety message to the workers. A strong animated visuals can help to educate and train worker at all level to prevent accidents.

The report has focused on a role of animation at hazardous workplace. The report is strongly support for the development of health and safety training through the use of animated videos for education of all level of workers at workplaces.

Importance of Animation

Animation is becoming increasingly more prevalent in educating workers about workplace hazards in the hopes of preventing future accidents. Animation helps to create that demonstrate the proper and improper way to operate equipment.

1. An Innovative tool to teach and train,
2. Audio visual,
3. Localised concepts,
4. No language barrier ,
5. Describe the effective use of equipment,
6. Demonstrate preventative measures,
7. Clear, informative, and memorable,
8. In-house production,

When I decided that animation is the best medium for making safety related educational videos, then I have found there are many commercial agencies available with lot of awareness materials, but which really not suitable for the specific requirement.

With the help of animation accident scenario can be generated again and explain to the workers for learning lessons from

the incident which was already occur. The animated videos can be created according specific requirement.

Related available videos

1. NSC (National safety Council)
2. CLI (Central Labour Institute)
3. LPA (Loss Prevention association)
4. OSHA (Occupational Safety and Health Administration)
5. Online download

Existing videos drawback

- ☐ Different work culture...
- ☐ Language...
- ☐ Specific hazards...
- ☐ Different work environment...
- ☐ Unmatched...
- ☐ Not localised...

Animated safety videos can support for promoting and maintaining interest in safety awareness program at the work premises. Its also help to maintain the benefit of good public relation and supportive to the workers safety related educational training programs.

Accidents Prevention by Animation:

Accident prevention and safety in the workplace are always important no matter what the field or occupation. When it comes to prevention and safety awareness, you can't be too careful. The more you ensure employee safety, the better. Ensuring employee safety means educating them on safety principles.

Animated safety videos brighten up the glum topic of impending dangers in the workplace, and they have this incredible ability to depict any type of dangerous scenario that could take place at your workplace.

Ensuring employee safety is necessary in the workplace today. So many things could go wrong, and it's employers responsibility to contribute invaluable assistance to workers by providing prevention and safety videos they can peruse any time they need to. Accidents can happen any time, but one can minimize mishaps in his workplace with well planned-out presentations and safety campaign videos that will inform workers of all the warning signs to look out for. Paired with actionable instructions and

solutions, safety campaign videos can show employees how to complete any task in the safest manner.

(<http://www.87seconds.com/en/page/animated-safety-video>)

OSHA (Occupational Safety and Health Administration) has introduced the Napo series of films are produced in computer graphics. They feature characters in the world of work, faced with safety issues. The main character, Napo, and his partners express themselves in wordless language. Their stories have an educational value. They provoke questions and stimulate debate on specific aspects of safety at work. Sometimes they provide practical solutions or lead to them. It is this blend of education, cultural neutrality and humour set in a cartoon style that gives the "Napo" series its identity. Napo is a likeable but careless character.

The universal language of Napo makes the films suitable for everyone. Each scene is independent of the others and can be used as one film, or individually.

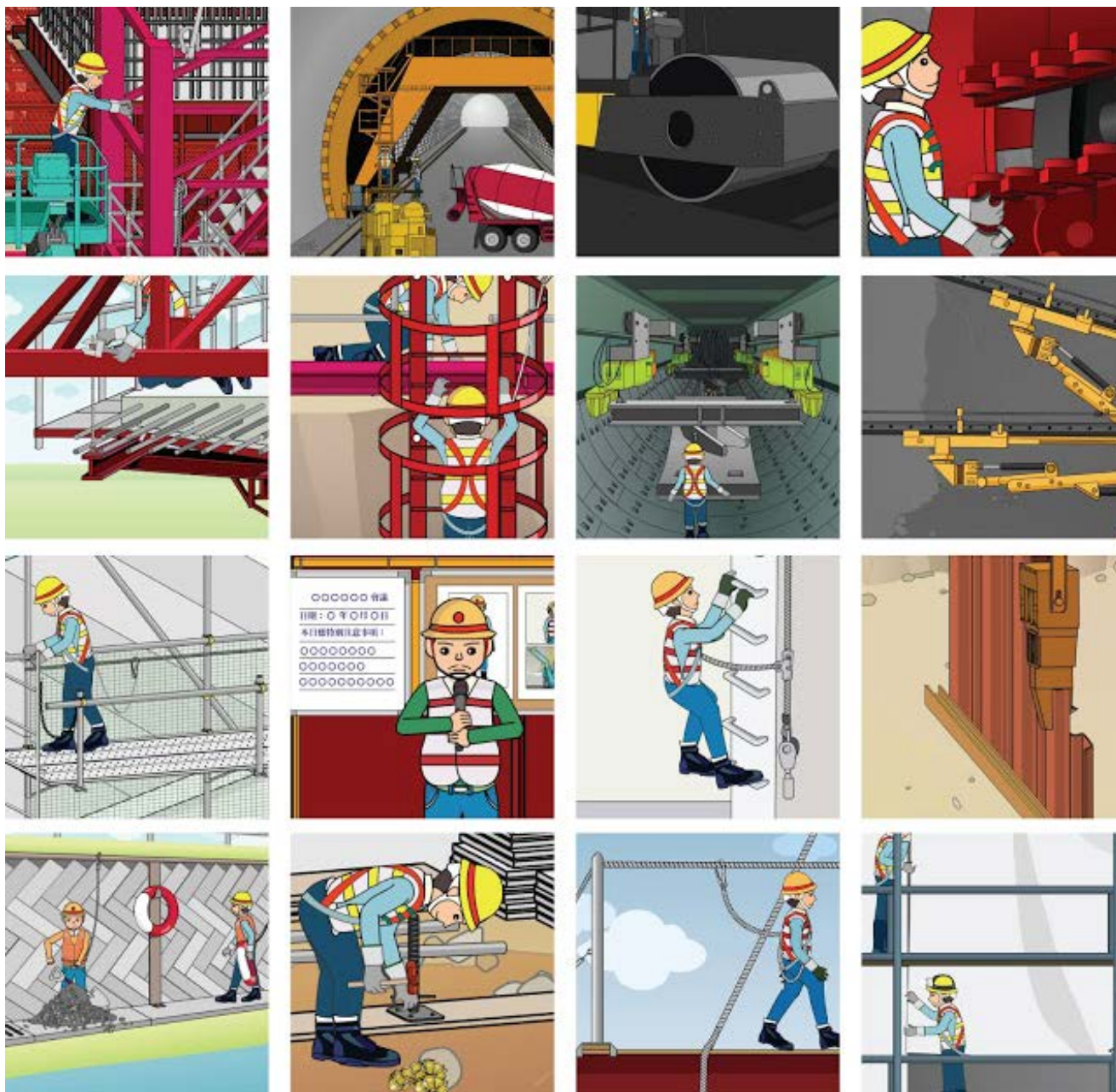
Safety Awareness: - free films resource “Napo’s Films”



Worldwide, animation has been adopted for the health and safety education. Workers are being trained through high-tech classrooms technology all over the

world. Below are the few examples of animated videos which are popularised and helping for the awareness for health and safety education at the workplace.





Fatal Facts:

According to
Construction Industry Research & Policy Centre
Website: <http://bus.utk.edu/cirpc/>
Email: cirpc@utk.edu

Department of Industrial and Systems Engineering
Website: <http://web.utk.edu/~ie/>
Email: iidept@utk.edu

Every day in America, 13 people go to work and never come home. Every year in America, nearly 4 million people suffer a workplace injury from which some may never recover. These are preventable tragedies that disable our workers, devastate our families, and damage our economy. American workers are not looking for a handout or a free lunch. They are looking for a good day's pay for a hard day's work. They just want to go to work, provide for their families, and get home in one piece.

Secretary of Labor, Workers
Memorial Day Speech

Out of 4,206* worker fatalities in private industry in calendar year 2010, 774 or 18.7% were in construction. The leading causes of worker deaths on construction sites were falls (34%, 264 out of 774),

followed by electrocution (10%), struck by object (8%), and caught-in/between (4%). These “Fatal Four” were responsible for nearly three out of five (56%) construction worker deaths in 2010*, BLS reports. Eliminating the Fatal Four would save 437 workers’ lives in America every year.

-Construction’s “Fatal Four”,
Construction Worker Deaths.

4,690 workers were killed on the job in 2010 (3.6 per 100,000 full-time equivalent workers) — more than 90 a week or nearly 13 deaths every day. (This is a slight increase from the 4,551, fatal work injuries in 2009, but the second lowest annual total since the fatal injury census was first conducted in 1992). 707 Hispanic or Latino workers were killed from work-related injuries in 2010 — more than 13 deaths a week.

- Worker Injuries, illnesses and fatalities, 2010 Fatal Injuries

[http://ilab.engr.utk.edu/cirpc/
contact.html](http://ilab.engr.utk.edu/cirpc/contact.html)

Fatal Facts: India

Statistics of factories 2009, labour bureau ministry of labour & employment government of India
Chandigarh/Shimla

The statistics of fatal injuries and non-fatal injuries resulting from industrial accidents by reasons due to which the persons injured are prevented from attending to work for a period of forty-eight hours or more immediately following the accidents. The coverage remains limited and varies from year to year because many factories fail to submit the returns. The numbers of injuries are based on the notices of accidents to the notified authorities in a prescribed manner.

The important statistical measures for injuries are

- (i) Frequency Rate,
- (ii) the Severity Rate and
- (iii) Incidence Rate.

The Frequency Rate is calculated by dividing the total number of injuries by corresponding number of mandays worked in lakhs. The Severity Rate,

which takes into account the duration of disability as well, is calculated by dividing the number of mandays lost due to injuries by the number of mandays worked in lakhs. This rate is calculated only in respect of those non-fatal injuries in which workers returned to work during the same year. The incidence rate is calculated by dividing the number of injuries by average daily employment per thousand.

Above calculation says how safety is important at workplace. There are hundreds of solutions available for safety awareness programme for betterment of job environment.

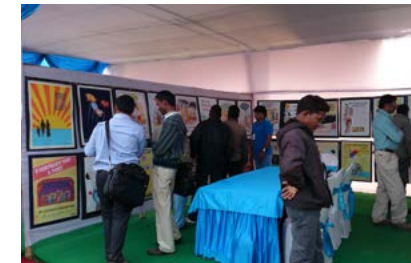
In order to ensure the welfare of workers, appropriate provisions have been made under Section 42 to 50 of the Factories Act, 1948.

Thus, Safety education is part of Accident programme, and Animating safety messages at workplace will be an effective and powerful tool for the workers education.

User Study:

During user study, I was organised the display of safety posters drawn by me, at 30th Department of atomic, safety professionals meet at Uranium Corporation of India limited at Narwapahar, Jharkhand, India (18th-20th, December, 2013.) During the meet I was interacted with the students and explain the importance of safety at

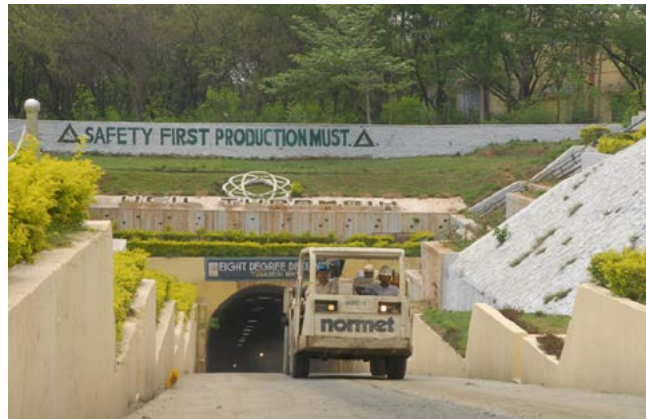
the mining and milling activity, This interaction was based on safety posters which was displayed at the exhibition stall. Health and safety education and training through animated videos would be better medium than posters. Exhibition was visited more than 500 hundred workers and their family members.



It was my lifetime experience, I was more than 200 hundred meters below the ground level in the Mine.

I learnt that how worker are working at that suffocative environment. How prime important is given to safety?. Health and safety education training is

the major agenda for the mine activities. I have noticed that everywhere display of safety posters were maintained. There are lot of scope for safety animated videos, which can be more useful for the workers as well as visitor to understand the working process of the mine.



A jumbo drill cuts the earth deep down the Narwapahar mine

Learning and outcome

This design research report presented an overview of the importance of animation in accident prevention program at hazards workplace, which aims to understand animations that show major impact in workplace communication. These materials are used as learning materials in health and safety trainings in industries to minimize accidents. The results of the project will be tested at construction sites and the effects of these trainings will be examined.

In India, there is a vast need of effective health and safety training programs in hazards workplaces to reduce accidents. Using animations will significantly

facilitate learning about the health and safety issues in industries.

Since now, although many significant improvements in health and safety trainings have been performed, there are still improvements needed to minimize accidents. Therefore, the training materials that will be established in this project will be very useful audio visual learning materials.

The present project will strongly support to understand the importance of workplace safety animation.

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- ☐ Safety Awareness programme, (chapter 25)

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