Dealing with Landslides: An Instructive Website

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# Chapter I. Introduction

**Background of the Study**

Since the early times, a lot of natural disasters started to occur. Even before man history itself records catastrophic events. One of the most known geological phenomena are landslides. It is recognized as a deadly disaster that can destroy places and also people’s lives.

Decades ago people from all over the world had to look for signs of these kinds of natural and man made disasters, like observing animals, plants and also the kind of weather the place has. Whether they live in an urban or rural area it is the only means of source and information. Individuals those days had to trust professionals; even the experts to gain knowledge about what is or what will most likely to happen because not all have enough awareness of it. In the early 1980’s there happened to be an intelligent invention that was known to be the Internet (Ryan, 2010) and in past few years of its existence, there was change.

It helped people from trusting experts to be independent and to save themselves alone without the help of others. Through the Internet people from places to different parts of the globe shares ideas that can satisfy their needs in terms of disasters like landslides not only landslides but also its similar cases. Though not every piece of information is a fact, everyone can benefit from it. All users of Internet with its access can take the advantage that’s why it’s easier to spread something and make it viral.

## Statement of the Problem

It’s been a fast track of technologies surrounding us especially the Y generation. Group of millennial people tend to be a lot smarter when it comes to computer and digital devices; But how about the generation past us? How can we make it accessible for them?

Guided question:

How can “Dealing with Landslide,” inform users of the safety precautions during the disaster?

## Objectives

To create an interactive website that will help ensure users about landslide.

To make an accessible website for college students and travelers.

To use Internet as a way of spreading information from the source.

## Significance of the Project

This study aims to provide information about what to do during the said disaster. It is instructive in a way that can help users ensure their safety. It will offer them steps on what to do if the users are involved in a situation that might put danger to their lives. Putting it up in the World Wide Web (WWW) is a big help to the users because it is the fastest way to let the users know what is happening. So by this, a website is to be made. Not only for the travelers but also for college students that go places to different places. The website is called “Dealing with Landslides” because it is about how the users may encounter the disaster and by the word ‘dealing’ it means how you behave or act towards something.

# Chapter II. REVIEW OF RELATED LITERATURE

## Introduction

Over the years since the Internet started, it became the medium of passing information to one another. It gives way for the people to make an easy communication and interaction; because of the Internet, a lot of people all over the world began their stories by putting up blogs, websites and also their own perspective of how they view a certain topic. In this way, it makes Internet a necessity of an individual for it makes life a lot easier. Using the Internet had advantages for us students. Before, many students were really going to libraries to search and look for sources that they might need for research but in the Y generation since the Internet has began, it’s the start of something different. In just one click in the search engines, students, professionals and users of Internet can already determine which of the authors corresponds to their needs in research. That is one of the main reasons why users were inclined in operating it.

Internet gives more access to its users. It doesn’t make something complicated. It is widely used in the offices, schools, and universities, even in public places. The efficiency of work of the users is enough to show that it is a need of the industry. Of course it has many advantages like it can centralize updated data and backup documents without copying by hand. Likewise, it is a chance for students to explore the wealth of information, which enhances our learning. Instantaneous sharing of ideas and skills made it easier for people to share insights. It allows us to conveniently and professionally do researches, prepare projects, and do other work. This really can enable us to acquire more knowledge and equip ourselves.

## Landslide (A natural disaster)

This study is about a natural disaster, which is Landslide. It is common on a land that is surrounded by slope. (Clague, 2012) This catastrophe is dangerous to people and also the animals that lives on Earth. It can happen to any part of the world but mostly places with slopes are at high risks. In Mathematics, slopes are defined as the line that describes both the direction and steepness of the line. (Engineering Mathematics, 2015) In relation to Science, landslides happen in places with slopes. "Line that describes the direction and steepness of the line" for an example, a place in the Philippines like in Baguio. It is known for a high elevated land and most of the times landslides can take place without knowing it; an exception is the people that do research and forecast. Landslides are really unsafe. It can cause a delay in communication as well. In Manila, a good number of products come from elevated lands like in the northern part of the country. If this catastrophe occurs it will also affect the number of consumers in the low lands.

This natural disaster is a sliding down of land in a part of the Earth structure, which is particularly in the Earth's crust. (Landslides (Types, Mechanism and Modeling) John J. Clague; 2012) Not only can destroy a lot of properties but also businesses of different kinds. The devastation of landslides has many reasons, first is the people's actions through nature. Landslides can vary greatly in speed, water content and size. Different landslides can look very different and can vary greatly in their destructive power – size is not everything. Nevertheless, they pose a significant hazard to human life, buildings and transport routes. Data that were collected by experts many years ago said that Landslides are ranked 7th in the natural disaster table. (Diandong Ren, Storm-Triggered Landslides in Warmer Climates (2015) This disaster may occur with extreme rainfall or major earthquakes. (Ren, 2015)

Landslides are not only caused by nature, sometimes man is the reason for this calamity. Non-stop road constructions, towering buildings and building work places are some of the examples that makes Landslide a man made disaster. Lack of trees in the forest due to “kaingin” system also triggered the way for landslides to occur. Kaingin System is the burning, cutting down of trees **and plant growth in an area for cultivation purposes. Kaingin is a Filipino word that means clearing. (Bankoff, 2010)**

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## History of Landslide

Just like any other historical facts, landslides also have their own. According to Bressan (2011) landslides belong to a class of geological phenomena. It is contradicting to what we believe to what Science really wants to say. Before, landslides are said to be myths. That ancient people were really scared of, because they believe that Landslides are punishment for greedy people. Landslides are also considered to be a catastrophic event with large amounts of after math. Landslides are deadly, because it is the movement of the Earth’s crust that destroys people’s habitat. The first recorded landslide was during the prehistoric period specifically on about 10,000 BCE. (Bressan, 2011) It happened at Saidmarreh, Iran. Landslides did not stop on 10,000 BCE. It continued after several years. As experts and professionals studies it, it became more intense; maybe because of global warming. Global Warming means that there has been a rise in the temperature of Earth due to increased level of carbon dioxide. (Stewart, 2010) Carbon dioxide has a property that it doesn't let go of all the heat emitted by Sun, thus keeping Earth warm even in night. But due to industrialization the level of carbon dioxide has increased, making the Earth warmer and this is Global Warming.

On the other hand, there is a big difference in Science’s definition of Landslides. Though it is contradicting on the idea of the early times, it might seem true to other people that had an experience with it. Clague cited that the most destructive landslides of all are those that end up in water or occur on underwater slopes and generate tsunamis.

Statistics about deaths from landslide-generated disasters can be a little difficult to come by. Landslides come from a natural threat in nature. Each year, about 35 billion dollars are spent just to recover buildings and roads that were damaged. (A.Moises, 2012) Many individuals are affected by it including students, workers from different fields, professionals, experts and artists. Casualties of the landslides may include falling of rock debris or rock falls. In the data researched, the largest landslide on history was in Mount St. Helen located at United States of America. It is said that 250 million dump trucks can be filled because of the debris avalanche. (Ren, 2015)

Landslides can be so dangerous to humans and animals living on Earth. It is not just only because of nature but because of man as well.

Internet and technology’s role in informing about Landslides

Technology has a fast development in today’s world. It is full of different ideas and knowledge from diverse individuals. It changes from seconds, to milliseconds. It is how fast technology’s pacing is. Now, its role in informing the users about landslides is likewise, fast. Its function is to let the users know the importance of saving themselves from danger. By the use of Internet, the source will further more spread out to those people that need it. The Internet is an excellent type of way to send information to different parts of the Globe. Through the Internet the researcher can share graphics, animated pictures, multimedia records, audios, and even significant data. Its use is to imagine things quickly for the users to easily understand its contents, in the website. Since today the Internet and technology has been used worldwide and also used in everyday lives of people, it can really benefit a lot.

Numerous people use the Internet as their guide and source. Sometimes, people use laptops, desktop computers, tablets and even smart phones. So it is not a hindrance for everyone to know about landslides because many people use technologies. As of today technologies come from different specs and prices. Many of the people can really afford buying one. Even the cheapest smart phone has a way to connect to Internet.

## Role of Information Technology in the catastrophe (Landslide)

Information Technology is starting to become one of the largest and developing study. IT’s are in the field of computers, applications, telecommunications and manipulating data. (Jackson, 2013) As Information technology’s role in the study is to make a project that will benefit to its users. Many of the people today are not really updated with regards to natural calamities though they are always connected in the Internet that’s why an IT should be the one demonstrating the users of its use.

By the use of the website, users may finally be introduced to a new kind of sending information. It may become viral and many of its users may start using it. Technology can give people ideas in new ways - either by surfing the Internet or by just connecting to it. The website may be a way for nature to decrease casualties during the calamity.

Information technology has not only brought the world closer together, but also made things stand on its own and become independent. This means, we can share messages instantly and efficient. Because of Information technology, world boundaries were erased. The world has become a brighter future. Probably the most interesting role of information technology is creating new and interesting knowledge that will allow people to be more competitive.

## Website as an instructive instrument

The transmitting of messages to one another by using the Internet and technology made its way to success. Since the time it boomed and became popular, many people used it and became the medium of communication. Today, technology has allowed the next leap from simple black and white overheads to interactive websites, which incorporates color, sound, movement and hyperlinks.

So what is a website exactly? It is a tool to present text and images on a central site. (Wang, 2013) Websites have advantages to its users. It is available and can be accessed by anyone at any point of time. The website may provide other links to other sites on the same topic. By the use of putting information in the website, the author may be easily contacted through an emailing address it also saves a trip to the library.

The users can easily grab information needed. Of course, it saves time and the users may peruse the information at leisure taking as much time as desired. The website will be updated to avoid inaccurate data. It should always be reliable so that the users may think that the content of the website states facts and not merely opinions.

## Synthesis

Technology can be viewed in multiple ways. It has educational benefits; it helps in business purposes and importantly it connects people with ease. It has advantages and disadvantages that

# Chapter III. Framework

## Theoretical Framework

This study is pointed to Information Richness theory and Contextual design approach, which became the pattern of the case. The Information Richness theory provides framework for describing a communication medium’s ability to reproduce the information sent over it without loss or distortion. (Clague, J.J, Landslides: Types, Mechanisms and Modeling (2012) Also, provides methods to collect data about users in the field, interpret and consolidate the data in a structured way. Holtzblatt, Karen and Beyer, Hugh R. (2014)

There are two types considered in using Information richness theory, the rich media and the lean media. (Holtzblatt, Karen and Beyer, Hugh R. (2014) In using the rich media, communication with the user is not delayed and understanding the study is less lean. The study’s aim is for the user to deeply comprehend about the precautions, significance of the landslide by applying the theories.

“Dealing with Landslide” aims to help the users in understanding the situation more clearly with the help of graphics and the process of contextual approach. The researcher may be able to extend the work face because of the contextual design approach used. There are 7 significant processes to Contextual design theory. Contextual Inquiry, Interpretation then moved to the third, which is Affinity, Visioning, Storyboarding, UED (User Environment Design), Mock up Interviews, and the Final Visual Design or the output of the said topic. By contextual Inquiry, the interviewed source will be transferred into an interpreted text; by this, the users will further be guided of what the study is all about.

**Figure 1**

**CONTEXTUAL DESIGN**

**APPROACH**

**Researcher**

Website

(Dealing with Landslides)

**Rich Media**

**(Information Richness Theory)**

In the figure presented above, it shows how the Contextual Design Approach is connected with the researcher. It will be easier for the researcher to analyze what is needed because the theory includes interpretation of the users environment. By the third step of the contextual design approach is the affinity, which means the researcher must brainstorm all the important data that has been tackled during the interview/inquiry. In this way, the researcher may provide all the information needed by the users in the website. Visioning which allows the researcher to redesign people’s work with new ideas with the use of technology. Storyboarding that will be more focused on the details of the particular tasks and goals. UED or the (User environment design) is the proposed design of the project depending on the users’ wants. Lastly is the final visual design. After finishing the 7 significant processes, the researcher will conclude a final design that is suitable for the users. Another theory that will support the researcher is the Information richness media. Rich media is used by the researcher to further explain how things work and happen by the use of graphical materials such as animated clips, videos, audio, pictures, graphs and tables. In this way the users will not be having a hard time using it. The theory will be applied to the website (Dealing with Landslides) to make users comfortable of what they view. Finally, the users will benefit the website and will make the project successful.

## Conceptual Framework

The study is about Landslide prevention and its causes. This study needs acquired skills for it to be completed. An example of a required mastery is how to use different applications like Adobe Photoshop, Adobe Dreamweaver (for programming purposes), and Adobe Flash. The study uses INFORMATION RICHNESS THEORY and CONTEXTUAL DESIGN APPROACH, one of the theories consists Rich and lean media. Rich media is an Internet advertising term for a web page ad that uses advanced technology such as video streaming and graphical pictures while lean media is the opposite. It focuses on the texts and not on the multimedia part. Since the study needs to be more attractive; it uses rich media. The proposed study will have a website that will inform users (college students, teenagers of all ages, travelers and foreigners) about simple and accurate prevention of what to expect during the said disaster.

Dealing with Landslides, which applies, to Information Richness Theory. This will be used and applied in creating the website project. Figure 2. Illustrates how users of the website should be viewed depending on the used skills. It is for the users to be introduced to what kids of application the researcher used. As an IT programming and multimedia student, taught to have knowledge with different applications are benefits for us to show a website that will truly develop each person’s understanding of the matter. Simply by showing that it is a rich website and do not only contain texts.

It will show that users will be much more interested of what they’re going to see because it has an outline of the graphics and animation that the researcher will be using in the website. As part of the hardware requirements, the researcher should have a laptop or computer, a backup or hard drive for the files made and lastly the researcher should have at least a tablet for it to be handy. Design of the website will contain interactive buttons, website layouts for a much better view, animation, video clips and audio as a part of Information Richness theory; the rich media. For the website development there must be applications of Adobe to complete the task. After the researcher has fulfilled the requirements needed it will come up to an output, which is the Instructive, website: Dealing with Landslides. It is about informing the users about Landslides. It has the reliable sources for natural disasters and is a user-friendly website.

## 

Process

1. **Design**
2. Buttons
3. Website Layouts
4. Animation
5. Video clips
6. Audio
7. **Development**
8. Animation using Adobe applications
9. Codes for website layouts

Input

1. **Skills**
2. Programming
3. Basic HTML
4. Multimedia
5. Landslides (Prevention)
6. **Software**
7. Adobe Photoshop
8. Adobe Dreamweaver
9. Adobe Flash
10. Adobe Premiere
11. **Hardware**
12. Laptop or computer
13. Backup/ Hard drive/ Flash drive
14. Tablets

Output

An Instructive Website:

Dealing with Landslides

-Informs about landslides

-Shows precautions

-Reliable source for natural disasters.

Users of the website may be able to view different kinds of precautions. Before, during and after the landslide has occurred.

## Figure 2

## Operational Framework

# Chapter IV: Methodology

## A. Research Methodology

## Research Design and Methods

This study aims to create an informative website about Landslides. It will be beneficial for the users for it will show and illustrate steps of survival. The researcher will conduct a multi-method research to fulfill the needs of the users. Through the survey, the researcher will conduct a quantitative method that will ensure the users’ needs in the website. The collected data from the survey will serve as the over all design needed to complete the website. It will also provide the information in the website depending on the survey’s answered questions and results. Lastly, the researcher will conduct a qualitative research method through an interview. With this, the researcher will be asking questions to the users about the said field. The interview will have data that will support the study and will help the researcher to make the website with all it’s gathered information.

The researcher considered using multi-method because it will be useful in the website and also it will benefit the users who will be using the website in the future. Using the quantitative and qualitative research method will help in gathering information that is necessary in the study. It will contain the significant data from the surveys and interviews done by the researcher. By using the multi-method research, it will be easier for the researcher to finish the instructive website (Dealing with Landslides).

## Concepts and Interactive/Variables and Measures

In line with the users of this study:

Users’ Age (Variable)

13 and Above (Measures)

Website (Variable)

Internet Usage (Variable)

Information about Landslides (Concept)

Usage of Website (Concept)

History of Landslides (Concept)

## Research Instruments

## Questionnaire/ Survey (Research Method)

The researcher will make a survey between the age gaps of the users. The survey will focus on their alertness during the calamity; If they have experienced it or not. The users will be asked to rate the experience they had before, during and after the disaster. The data collected will be used in the information to be added in the Website (Dealing with Landslides) if the users would like to see an online demonstration of how they will manage the catastrophe when it started happening.

## Interview (Research Method)

The researcher will conduct an interview with the users specifically the college students, teenagers between the ages of 13-above to gather information about Landslides and their experiences. It will permit the researcher to explore more on the users’ environment and to know more about information to put in the interactive website. If the conducted interview is made successful, then the website will be much interesting for the users’ to view.

## Units of Analysis

The targets of this study are the individuals that go places to places specifically in the Philippines. It’s a guide for the users if they are traveling to nearby or far away places. The users are ages 13 and above, people that are used to travel with care are expected to view the website.

The aim of this study will be focused on the users itself because they will benefit the use of the website made by the researcher.

## Data Gathering

Random Sampling will be used and given to different sets of teenagers and college students between the ages of 13 and above which are on the same status and level of lifestyle; either they are fond of traveling or not. After the questionnaires have been given to them and it is completed, the researcher will then have to summarize all the significant answers that the users gave. Likewise, the researcher will do the same process with the Interview. After the interview has been done, the researcher will look for the best answers and take note of it. It will be helpful enough in the succeeding process of the website.

## Data Analysis

In order to analyze the data gathered from the survey, the researcher will use the descriptive statistics. It will permit the researcher to farther know the concepts for the users’ benefits. For the quantitative research, the researcher will use the survey for the users to complete. On the other hand for the qualitative research the researcher will use an Interview as to see if the field of study is clear with the users.

## Project Design

The website will be created with the study to give the necessary ways in order to help manage the people that are affected with Landslides. It is user-friendly and users of the website will not have a very hard time figuring out what would be the best possible solutions to their problems regarding landslides. Though it’s a simple website it is smart looking. It can really inform users of what to do before, during and after the landslide have occurred. The researcher considered the environment of the users in making a suitable website.

**Testing Procedure**

The website will undergo certain procedures in order to be completed. The researcher will make sure that the website is suitable for the users’ environment and that the codes that the researcher entered is valid and correct.

**Scope and Limitations**

The study will focus on the how the users will manage the disaster. It is an informative website about what to do during the calamity. Only the significant information is included so that the users may benefit from it. It is limited to college students and teenagers who travels a lot and to the people that needs a handy and reliable source of information. The website contains graphics such as pictures and videos. It will be a user-friendly site. The researcher will be using rich media to further explain the ideas to the users.

# References:

Landslides (Types, Mechanism and Modeling) John J. Clague; 2012

Storm-triggered Landslides in Warmer Climates, Diandong Ren; 2015

Cultures of Disaster: Society and Natural Hazards in the Philippines, Greg Bankoff; 2010

Climate of Uncertainty: A Balanced look at Global Warming and Renewable Energy; 2010

Holtzblatt, Karen and Beyer, Hugh R. (2014): Contextual Design. In: Soegaard, Mads and Dam, Rikke Friis (eds.).

"The Encyclopedia of Human-Computer Interaction, 2nd Ed.". Aarhus, Denmark:

The Interaction Design Foundation. Available online at <https://www.interaction-design.org/encyclopedia/contextual_design.html>