Disaster Education as an Access to Communities of Practice

07/09/2010
Hideyuki Shiroshita
Faculty of Safety Science, Kansai University

Compare Indian ocean tsunami 2004 with Chilean tsunami 2010

• Many residents in the affected countries by Indian ocean tsunami did not have idea of tsunami
  ➔ Early warning system has been installed and knowledge transfer (disaster education) has been implemented

• Japan has the early warning system and people have basic ideas of tsunami
  ➔ Only 37.5% of people who got an evacuation order from the local governments

Disaster Education in Japan

• People say “disaster education is important!”
• This sometimes lets us forget the reason of importance
  ➔ Even an activity does not contribute to disaster management, people can not criticize the activity as it is “disaster education”
• The term of “disaster education” became an excuse
• We have to return to the starting point
  ➔ Disaster education is education for Disaster Reduction

Disaster Education in Japan

People say “disaster education is important!”

This sometimes lets us forget the reason of importance

Even an activity does not contribute to disaster management, people can not criticize the activity as it is “disaster education”

The term of “disaster education” became an excuse

We have to return to the starting point

Disaster education is education for Disaster Reduction

In this presentation

• Futures of the current disaster management is introduced
  ➔ Integrated Disaster Management
• In order to realise the Integrated Disaster Management
  ➔ Participatory Disaster Education

Development Phases of Disaster Management in Japan

• From a long term perspective, Japanese disaster management can be divided into 3 development phases as follows
  – Phase1: Before 1961
  – Phase3: 1995 to date
• The disaster education for the phase 3 is currently needed in Japan

Phase 1 (Before 1961)

• After WWII, there was not enough budget for dealing with disasters in Japan as the country had spent much budged for the war
• Big earthquakes and many typhoons had hit several areas in Japan during the period
• As the result, almost every year, more than 1,000 people died by the disasters
  – 1959 Isewan typhoon brought severe damage in the central part of Japan. It killed more than 5,000 people

• There were not enough hardware and software countermeasures during the phase 1
Phase 2 (1961 – 1995)

- Based on the lessons learned from Isewan typhoon, the disaster measures basic law was established in 1961.
- By the basic law, around 20 billion dollars allocated as annual budget for disaster management.
- Scientific and Engineering countermeasures have mainly implemented by specialists such as academics and public officers (But it has been segmentalised into each discipline).

Phase 3 (1995 to date)

- More than 6,400 people died by the 1995 Kobe earthquake.
- Disaster management was far from the perfect.
- There are 2 types of responses for improving disaster management:
  - Should integrate segmentalised disaster researches (Improving specialists sector).
  - Should integrate division of labour for disaster management (Collaboration).

An example: Numbers of casualties by natural disasters in Japan

2 axes of integration

Integration of segmentalised researches
Integration of division of labour

Non-Specialists
Specialists

There are 2 viewpoints for disaster management

- Viewpoint from Specialists
- Viewpoint from Non-Specialists
  - They look at same thing, but appearance are not same
- Non-specialists don’t see the inside of disaster management as these are black boxes.
  - Non-Specialists lean on the specialists as they place too much confidence in the disaster management.
- This is one of the lessons learned from Kobe earthquake.

Integrated Disaster Management as the Disaster Management for Phase 3

- Specialists should disclose what they know and what they don’t know.
- Disaster education is one of the important components.
- But if we define knowledge transfer as disaster education, the relation between specialists and non-specialists is fixed.
- Sharing the meaning and perspective on disaster management through collaborative practice between specialists and non-specialists.
**Integrated Disaster Management**

- How can we realise this integration?
  - Participatory Disaster Education

**Where do we participate in?**

- Most specialists have been saying “participation” in disaster management is important since the Kobe earthquake
- Actually many chances to participate in events and workshops have been given by the specialists
- However, in these cases the specialists behave as specialists
  - Even though these are called “participatory approach”, this situation lets non-specialists understand that disaster management would be done by the specialists in the end

**Participating in the REAL disaster management**

- In order to integrate the division of labour for disaster management, the gap between the both must be bridged
- All people should participate in the REAL disaster management world
- Specialists must give accesses to real disaster management world= Trigger of integration

**Participatory approach**

- The most important thing is sharing and creating the definition of “disaster management” through collaboration
  - Theory of the legitimate peripheral participation (Aka Communities of Practice) by Lave and Wenger (1991)

**An Example of Participatory Disaster Management**

- Educational programme through Manten Project
  - (Participation in Manten Project)
- This is running by the Research centre for earthquake prediction (RCEP) and the Research centre for disaster reduction systems (DRS)
Overview of Manten Project

• Network of high-density earthquake observation by off-line seismometers
  – This helps to predict the next earthquake from long time scale
• Issues over installing the seismometers
  – Expensive
  – Lead time
  – Maintenance
→ RCEP has developed the new seismometer “Maneten system”

Manten System

• Seismometer and data logger

Problems of Manten system

• Procedures before installing
  – Finding the Place
  – Negotiation with landlords
• Maintenance
  – Data collection from the logger
  – Battery change

→ School is one of the appropriate places to install
→ Educational programme was started

Installing in Shimoyama elementary school

• 8th December 2009
• 5th and 6th grades pupils
• First half
  – Demonstration of Manten system
• Latter half
  – Installation of the system by the pupils

Demonstration

Installation
Done!

After the installation

• Every 2 month
• Data collection (Change the data card)
  — Checking the wave of tremor
• Improving the educational programme

Rationale

• “Communities of Practice”
  — Concept proposed by Lave and Wenger (1991)
• People in a community of practice are connected by the practice
• People are usually joining in many communities of practice
  — Office, Laboratory, Tennis club etc.
• Manten Project = Community of Practice of earthquake prediction

What is learning?

• Process of Legitimate Peripheral Participation (LPP) in Communities of Practice

Features of LPP (1)

• Through participating in a CoP
• The person becomes to be able to do something
  → Meaning of the something for the person is changed
  = Understanding the meanings of activities and terminologies in line with the culture and the history
  → It is impossible to cut learning process out from Communities of Practice
  → “Situated learning”
• Manten Project: The meaning of Seismology for the students will be changed by participating in the CoP

Features of LPP (2)

• The meaning of activities and terminologies are not fixed
  — Society and period
  — Meanings are created by people in the CoP
  → Participants create a new meaning of practice through collaboration
• Manten Project: There is a possibility that meaning of seismology which is even owned by specialists would be changed through collaboration
What is “Participatory disaster education”? 

- Participating in the Disaster management related Communities of Practice  
- Not participating in the workshops etc.  
  → Even if participating in virtual world, the actual world will not be changed

Disaster education and Learning about Disaster

- Learning=Process of participating in CoP 
- Education supports learning  
  → Participatory disaster education should be defined as giving access to CoP of Disaster management

Conclusions

- In order to realise disaster management for Phase 3 (in the most of developed countries) 
  - Integration for division of labour for disaster management is needed for bridging the gap between specialists and non-specialists 
  - For bridging the gap, participatory disaster education, that is an access to Communities of Practice of disaster management should be provided

Thank you very much!