

## Development of the Pictorial Description Method for Disaster Education of the General Citizens

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### Abstract

Personal disaster experiences are important to learn instructions for future disasters. We developed the method of converting the victims' past experiences into the educational materials for the development of disaster-awareness in the society. This method consists of the following 4 steps; 1) conducting semi-structured interviews with victims of past major disasters, 2) reconstructing the episodes to reproduce the image of 'damage', 'Victims behavior in the process of life recovery from the disaster', 'Received support from the community and administration', 3) picturizing these episodes by professional Japanese style artists, 4) making educational material combining the information about hazard and the extent of damage about the relevant disaster with the pictures of episodes.

We applied this method to the 1945 Mikawa Earthquake, Japan. This earthquake's magnitude was M6.8, not so big, but more than 2,300 persons were killed and more than 20,000 houses were collapsed by this earthquake. Moreover, it was not well covered in newspapers to the other area of Japan and the entire world because the event occurred in war time.

The many victims of this disaster still live in the past damaged area, and it is not so difficult to get information on the examples on the damage and the recovering process from the interview. We have conducted 20 interviews and have produced educational materials including 130 pictures. So we used them for panel displays at local community and high school festival to propagate the concrete information on an earthquake disaster. With the help of the systematic lecture and training, the drawing pictures give strong impression to the audiences and it becomes clear that the drawing pictures based the interview are one of the effective materials for outreach activity on earthquake disaster mitigation.

**Keyword:** *Ethnographic Interview, Pictorial Description, Personal disaster experience, Historical earthquake, 1945 Mikawa Earthquake*

## 1. Introduction

Many people around the globe lost their lives in recurrent natural disasters. Earthquakes in particular occur without warning. In addition to direct damages, such as collapsed buildings caused by the shaking, there are significant damages from the secondary disasters of Tsunami and fire. It is imperative that we prepare ourselves habitually for all damages imaginable. But it is difficult to envisage a disaster that one has never experienced. The victims of 1995 Great Hanshin-Awaji Earthquake and 2004 Niigata-Chuetsu Earthquake remarked, "It would never happen to me!"

The previous researches show that there are two major factors that inhibit individual preparation for disasters (Kimura and Hayashi, 2005). The first one is due to the fact that we do not have enough opportunities to learn about how the disaster struck and affected the victims and how the victims returned to their normal previous lives. The other factor is the difficulty in which to reconstruct the details of the disaster for geographically unfamiliar regions. Using a specific example of an earthquake disaster that took place approximately sixty years in the local area, we developed a disaster prevention system to resolve these issues.

## 2. The 1945 Mikawa Earthquake

We selected the 1945 Mikawa Earthquake for our investigation. The earthquake occurred on January 13, 1945 and the magnitude was 6.8. Figure 1 shows the death toll listed by cities, towns, and villages. The majority of the damages were confined to the 20km radius in Aichi Prefecture. Yet, a total of 2,309 people died, which made the Mikawa Earthquake the sixth deadliest in Japan in the 20th Century.

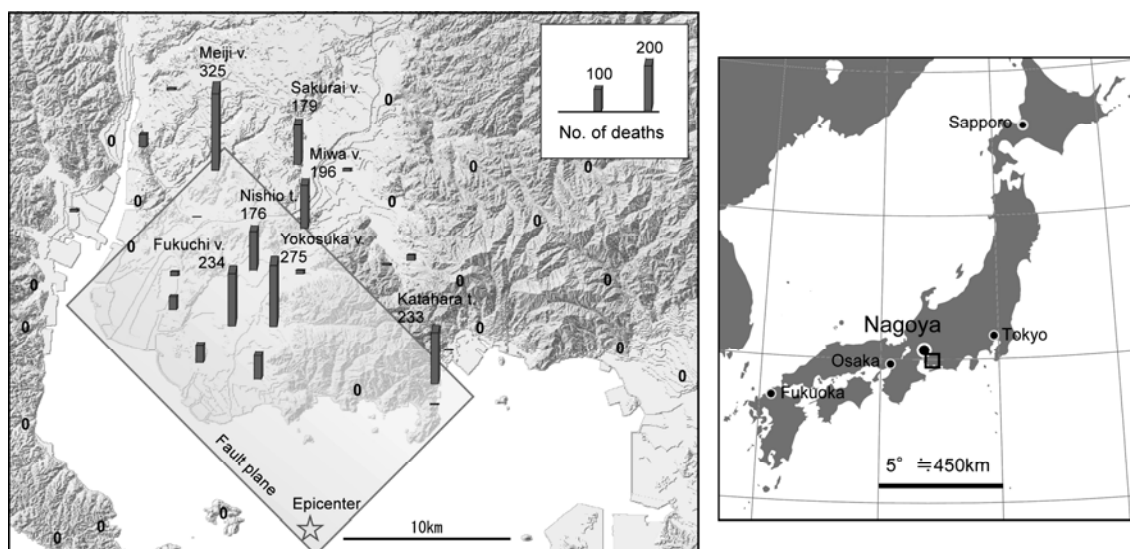


Figure1 Map of Mikawa area, Aichi Prefecture. Heights of columns are the death toll listed by cities, towns, and villages. The star is the epicentre and the rectangle is fault plane derived by Kikuchi *et al.*(2003). The rectangle in right map denotes the area of left map.



Figure2 The schematic process of making pictures which describe a personal disaster experiences.  
 1: Interview with the artist. 2: Discuss about making pictures. 3: Making Pictures.  
 4: Verification by the interviewee.

The earthquake occurred at the wake of Japan’s defeat in the World War II, at a time when the wartime media blackout enforced a strict regulation against reporting damages. For this reason, many Japanese citizens remained ignorant of the earthquake and the damages it caused (Hayashi and Kimura, 2006). Meanwhile, air raids continued at the damaged site of the earthquake, and combined with the social chaos that ensued, much of the records and documents of the earthquake, including photographs had been lost.

### 3. Research Interviews

We conducted interviews with the earthquake victims to record their experiences of the earthquake. The interviewees were selected as not to discriminate against their occupation, sex, and age. The interviews contained questions that addressed the following three issues that would help them to describe the condition of damage and the process of reconstruction: 1) personal suffering and material damage from the earthquake, 2) victim’s state of consciousness and sequence of action following the onset of the earthquake, 3) the amount of support and relief available (which organization or person helped you). In addition, the interviewees were asked to attribute time and place to each topic. (“When did it happen?” and “Where did it take place?”)

The research began in October 2003 and completed 24 interviews by August 2007. We interviewed each subject at least twice. The first interviews were about 2-4 hours long. A professional artist accompanied the interviews and sketched illustrations while listening to subjects' experiences. During the second interviews, the subjects checked the accuracy of the written version of their stories. They also reviewed the illustrations that are to be used as informational and instructional guides, and check for any disparity between their recollected reality and what was portrayed in the illustrations. When editing was required, the errors were corrected. We made as many revisions as needed until we had the subjects' approval. Figure 2 shows this interview process.

#### **4. Pictorial Description about the disaster experiences**

Today, visual materials like photographs of structure damages serve an important role in educating the citizens about disaster reduction. Unfortunately, as previously mentioned before, there are no remaining photographs recorded this earthquake. This is the reason we decided to recapture the event through illustrations of victims' experiences. We performed this work with two artists, Mr. Tomohiro Banno and Mr. Tetsuya Fujita. They graduated the master course of Japanese Painting Graduate program at Aichi Prefectural University of Fine Arts and Music.

The artists created 5-12 images for each subject. In order to provide instructions for disaster prevention that "protects lives" and "protects livelihood," the images had to follow certain guidelines. 1) Images that appropriately portray the condition of the disaster, victims' response to hazard, and conditions of reconstruction and relief, 2) images that portray impressionable scenes that are clearly recollected by the interviewee, and 3) images that portray an individual's narrative from start (disaster) to the end (recovery).

#### **5. Example of collected story and illustrations**

Figure 3 illustrates a story by one of the interviewee. Toyo Ogasawara was 28 years old at the time. She and her husband managed the public bathhouse "Ine No Yu" in Katahara-Cho. Toyo and her mother-in-law kept the business running, because her husband was a soldier fighting abroad. Few days before the Mikawa Earthquake, they experienced several minor earthquakes. "My mother-in-law told me that 'second floor shakes too much, and we will not be able to evacuate outside', and so my mother-in-law, my two children, and I began sleeping on the first floor". However, the strength of the shaking increased immediately, trapping the entire family under the fallen house. The two children died under the house. Since all the men



(1) My mother-in-law, my two children, and I began sleeping on the first floor.



(2) My house collapsed immediately when the earthquake started. All family were shut in the fallen house.



(3) My parents who had survived the earthquake came to pick them up in a cart.



(4) I had suffered a fractured femur that took six months to heal.

Figure3 An example of pictorial description which described a personal disaster experience. These pictures were painted by T. Fujita.



Figure4 A dialogue with the victims using the pictorial materials. (Anjo-shi in Aichi prefecture on November 2005.)

in town were summoned to service, there were only women and children, which made the rescue progress difficult. Soldiers who were stationed in Katahara managed to rescue Toyo and the mother-in-law. Many houses in the neighborhood had collapsed, and many people lost multiple members of their family like Toyo's. On that evening, Toyo's parents who had survived the earthquake came to pick them up in a cart. Her parents set up the funeral services for the children. Toyo had suffered a fractured femur that took six months to heal, but she suffered no aftereffect. Soldiers cleaned up the wreckage of houses and roads. Within weeks, Toyo's house was cleared away and the roads were recovered. Toyo was able to reopen her business within half a year of her return home for the public bathhouse and equipment within was renewed shortly before the earthquake and suffered no major damages.

## 6. Conclusions

We developed a method to reconstruct and record natural disasters by visually recording personal experiences of a local disaster that struck sixty years ago. The research is still ongoing, and there are over 150 completed illustrations. The illustrations were used for a dialogue with the victims at Anjo-shi in Aichi prefecture on November 2005 (Figure 4). In September 2006, a Mikawa Earthquake event was held at the Anjo History Museum that displayed a two-month exhibition of the illustrations. The images are frequently used at various disaster management lectures that we host for the local citizens. Furthermore, they are published in a book from a local newspaper publisher that have sold over 10,000 copies. There have been other exhibitions in libraries and other regional venues. These exhibitions evoke in its audiences a sense of necessity and awareness for earthquake preparation otherwise who have fewer accesses to the concept of earthquake disaster.

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