

Chapter 32

The Science of Disaster-Related Oral Traditions

Field of expertise: disaster lore studies, disaster informatics

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Summary

The Tohoku region, which was devastated by the Great East Japan Earthquake, has repeatedly experienced tsunami disasters in the past, especially in the Sanriku area. Before the earthquake, how much of the disaster folklore (tsunami folklore) was passed on and how much of it led to damage reduction? It was clarified that before the Great East Japan Earthquake, past experiences were handed down mainly within families and that there were regional differences in the relationship between disaster tradition and evacuation behavior. We also know that it is important to hear about disaster experiences directly from the people who experienced them.

Keywords: disaster tradition, tsunami tradition, oral tradition, tsunami monument, evacuation behavior, storyteller

Introduction

The Pacific coast of the Tohoku region has experienced several tsunami disasters in the past, and the Great East Japan Earthquake claimed more than 10,000 lives. Is it possible that the things, people, and activities that conveyed the experiences and lessons of past tsunamis were not effective in the Great East Japan Earthquake? This disaster has become a major opportunity to reconsider the nature of disaster storytelling (tsunami storytelling).

1: Problems Revealed by the Great East Japan Earthquake

What happened?

It goes without saying that the main cause of death among the victims of the Great East Japan Earthquake was drowning due to the tsunami. In order to protect lives from tsunamis, it is necessary to take damage prevention measures such as living outside of the tsunami inundation area and building seawalls to prevent tsunami from reaching homes, as well as to take prompt evacuation action when the damage prevention limit is exceeded. In addition to the policy aspect of land use, countermeasures related to housing are also influenced by passing on memories of disasters, which will be discussed in this chapter. The Omoe Aneyoshi area in Miyako City, Iwate

Prefecture, is often cited as a symbolic example. In this area, many people were killed in the 1896 Meiji Sanriku Earthquake Tsunami and the 1933 Showa Sanriku Earthquake Tsunami. A tsunami monument was erected with the inscription, "Don't build houses below this point". Although fishing boats and warehouses were damaged in the Great East Japan Earthquake, the monument protected the lives of the residents who quickly evacuated to the residential areas and their homes on higher ground. However, an engraving on a tsunami monument alone doesn't guarantee that the message will be passed on (i.e., the teachings will be protected). A tsunami monument in the Nakawahama area of Hirota Town, Rikuzentakata City, Iwate Prefecture, is engraved with the words, "Don't build houses in low land". After the Showa Sanriku Earthquake and Tsunami, houses were gradually built below the monument, probably due to the construction of a seawall nearby. In the Great East Japan Earthquake, the tsunami overcame the seawall, causing not only the loss of homes but also many casualties.

The reality of the damage

A comparison of the human casualties in Iwate and Miyagi prefectures shows that the mortality rate is higher in Miyagi than in Iwate (Figure 32-1), when compared to the impact of the tsunami. It shows that most of the areas in Miyagi Prefecture are located in the upper left side of the figure, where the maximum tsunami height is relatively low and the death rate is high. Figure 32-2 shows the percentages and ratios of the responses to the question, "What came to mind when the earthquake occurred?" The two possible answers were, "I remember hearing there was a big tsunami here in the past" and "I've never heard about a big tsunami here in the past" (Sato et al., 2018). When we look at this second figure, we see that in Iwate Prefecture, the most common response to the question "What came to mind when the earthquake occurred?" was "I remember hearing a story," while in Miyagi and Fukushima Prefectures, there was a belief that the area was tsunami-free. A tsunami monument was erected after the Showa Sanriku earthquake tsunami in the Yuriage district of Natori city, Miyagi prefecture, but there was no major damage caused by the 1960 Chile earthquake tsunami and 2010 Chile earthquake tsunami. In some cases, the myth of safety that "tsunamis don't come to Yuriage" permeated (exhibited in the Natori City Earthquake Reconstruction and Heritage Museum, supervised by the author).

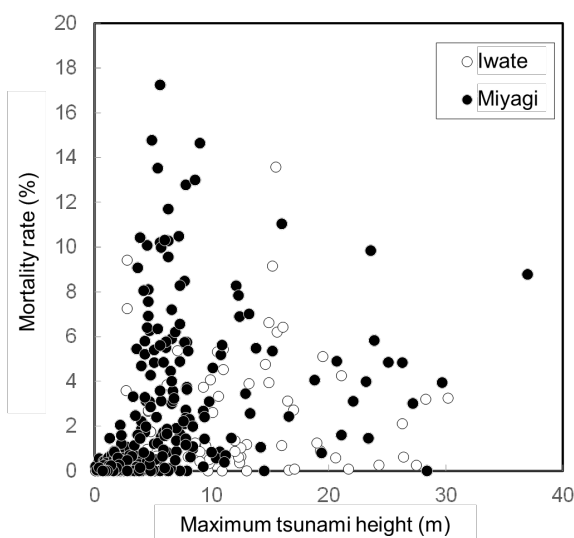


Figure 32-1. Relationship between maximum tsunami height and mortality rate by subregion in the Great East Japan Earthquake (Created by author)

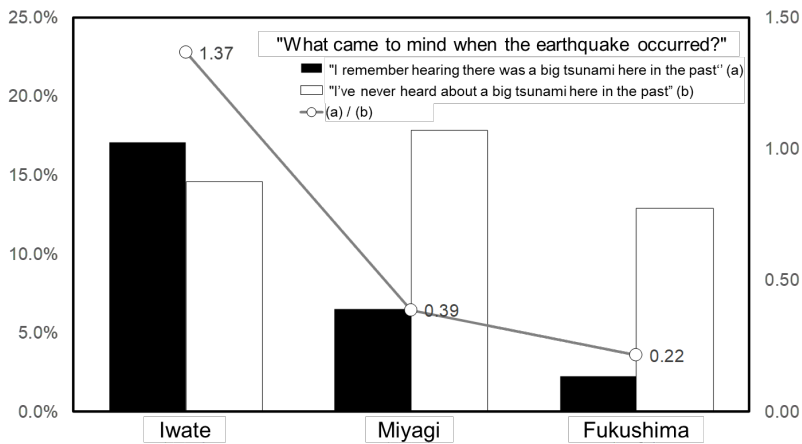


Figure 32-2. Recollection of past tsunamis at the time of the Great East Japan Earthquake (Sato et al., 2018)

2: Paradigms Destroyed by the Earthquake

Conventional wisdom and necessary responses

No one doubts that it is important to tell future generations about the reality of a disaster. Especially when it is a tsunami (tsunami disaster) in question, its role is even greater because it has the characteristic of occurring again in the same place, x number of years later. The Tohoku region has been repeatedly damaged by many tsunami disasters, such as the 1896 Meiji Sanriku Earthquake Tsunami, the 1933 Showa Sanriku Earthquake Tsunami, and the 1960 Chile Earthquake Tsunami. If we go back even further in time, there was the 1611 Keicho Oshu Earthquake Tsunami and the 869 Jogan Earthquake Tsunami as well. When I see and hear a lot of tsunami-related transmission channels (“tsunami tradition media”), including tsunami monuments, oral traditions, place names, tsunami stones, remains, readings, songs, paintings, and rituals, I can feel the spirits of Tohoku's ancestors saying, "We need to tell our descendants that there was a tsunami disaster here." As we have seen, there were regions in which stories were told, and regions where they weren't. There are regions where residents understood that beyond these stories lay keys to reduce damage, and regions where this wasn't the case.

3: A New Approach

Before and immediately after the Great East Japan Earthquake, the debate on whether the tsunami awareness transmission channels could reduce the damage had not been quantitatively and systematically examined. It has not been scientifically clarified whether the spirit of our ancestors was utilized in actual disaster situations or not. The authors are trying to quantitatively elucidate the characteristics and effects of oral traditions of disaster, which have, until now, been limited to a qualitative approach.

4: Progress and Future

A new approach to disaster science

In this section, I would like to discuss what is known at the time of writing in August 2020.

Where are past disaster stories passed on from?

Stories of past disasters (tsunami disasters) are transmitted within the home. Many people knew about past tsunamis from listening from their parents and grandparents, and through channels such as newspapers, books, and television. In particular, many residents learned about the Showa Sanriku earthquake and tsunami from their parents and grandparents, and the Meiji Sanriku earthquake and tsunami from mass media such as newspapers, books, and television (Sato et al., 2018). This is both because oral traditions at home are limited to three generations or two degrees of kinship, and because the number of people who have actually experienced these disasters decreases over time. It became clear from studying both cities that it was a common tendency that even in tsunami-prone areas such as the Sanriku region, people learn from mass media rather than oral traditions. We can also see that in Rikuzentakata City, Iwate Prefecture, the story of the tsunami was not transmitted through the stone monument (tsunami monument) they have there (Sato et al., 2018).

Do oral traditions about disaster reduce damage?

In analyzing the questionnaire conducted on the residents of Rikuzentakata City, Iwate Prefecture, those who evacuated from the tsunami in the Great East Japan Earthquake said, "We regularly discussed disaster reduction as a family" (Sato et al., 2017). They also said, "I know that a tsunami disaster, called the Showa Sanriku Earthquake, caused great damage here in the past." This indicates that the oral tradition of past disasters that occurred in the area may have led to individual tsunami evacuation. On the other hand, in the same survey and analysis conducted on the residents of Kesenuma City, Miyagi Prefecture, there was no relationship between knowing past disasters and evacuation behavior, and we are aware that there are regional differences in the presence or absence of this tendency.

How can disaster experiences be transmitted to future generations?

We know that disaster experiences are more likely to be remembered when they are told by the people who experienced them; however, disaster stories are often recorded in video and text. Figure 32-3 summarizes the results of an experiment conducted on the memory of recipients of a storyteller's disaster experience after listening to or reading the story directly from the person, from a trainee (who did not experience the disaster), or in the form of audio, video, or text (Sato et al., 2019). Immediately after listening to the narrative, participants who only heard an audio recording remembered a lot, but 8 months later, the results of an unannounced-style follow-up showed that the participants who heard a live narrative directly from the person who experienced the event remembered the most.

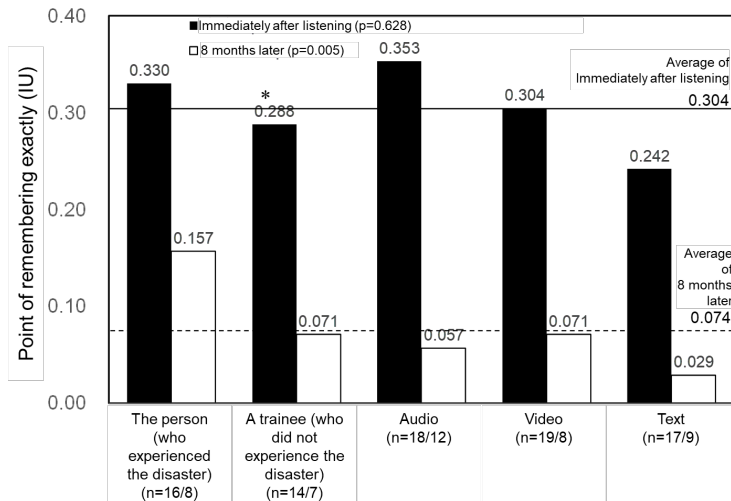


Figure 32-3. Comparison of the amount of accurate memory between groups (immediately after and 8 months later)

The parentheses in the legend are the p-values of the results of the analysis of variance. ($p < 0.05$, ** $p < 0.01$)¹

Conclusion - from the authors

Since the recurrence period of tsunamis (tsunami disasters) spans multiple generations, the role of transmitting the memory, especially within households and communities, is significant. It is important to continue to ask how to effectively and sustainably pass on the knowledge of the disaster, and to put it into practice based on what has been learned. In particular, as can be seen from the discussion so far, the key to transmitting disaster stories is the people. The most important mission for the future is to identify and put into practice methods for developing the people (human resource development) who will be responsible for the transmission of this knowledge.

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¹ (Sato et al., 2019)

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