

The Effect of a Definition Frame upon Perception : A Symbolic Interactionist Study of Wrongly Activated Cognitive Frames in a Disaster Situation in Japan¹⁾

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Abstract

In this paper the author tried to specify the effects of persons' cognitive frames upon their definition of unfamiliar situations. By analyzing a relatively well-organized set of field data of people's evacuation behavior at the time of the 1983 big tidal wave caused by the Mid-Japan Sea Earthquake, how the inhabitants' collective definition of the natural phenomenon affected their definition of the situation and the consequent behavior will be described and explained. It will become obvious that an already established frame of reference shared by the people toward the disasters causes a very strong effect upon their socially constructed perception of environmental change that is itself a purely natural phenomenon, and some educational implications of this fact will be discussed.

Keywords

communication, symbolic interactionism, theory of collective behavior, definition of the situation, cognitive effect.

I. INTRODUCTION

The purpose of this paper is to analyze a relatively well-organized set of data derived from a field research on people's evacuation behavior from a big tidal wave, known as a *tsunami* in Japan, with special reference to its relationship to the inhabitants' collective definition of the phenomenon. It will become obvious that an already established frame of reference shared by the people toward disasters causes a very strong effect on their socially constructed perception of environmental change that is itself a purely natural phenomenon.

From a field study of the case of the 1983 earthquake and the consequent tsunami, that hit the northern coast of the Japan Sea and killed more than one hundred persons, the records of the inhabitants' experience of this disaster were

gathered through interviews. By applying symbolic interactionist approach²⁾ to these materials, the structure of a socially constructed reality concerning the phenomenon of the big tidal wave has been analyzed.

In this specific case, a rare opportunity to identify the effects of people's cognitive frame on their evacuation behavior is provided, as this tsunami was the first one in these 170 years in this area. The inhabitants were divided into two distinct categories — those who have experienced or heard about the reality of tsunami and others who knew almost nothing about it. A comparison between the two categories was made with regard to their patterns of perception of the disaster and evacuation behavior.

Another important question that has been examined in this study is the people's peculiar reaction toward this disastrous situation: In this disaster, some people living by the shore *didn't evacuate from but moved to the most dangerous spots*. In many instances of disasters such as earthquakes, big fires, floods, and, usually, tidal waves, people always rush to escape, seeking for some safe place, and sometimes they cause a panic-like situation made through their inter-stimulating emotions and actions³⁾. Our literature on collective behavior is full of these descriptions concerning the escaping mob phenomena.

Contrastingly, in this case, some twenty or more people gathered at the most dangerous spots, that is, to the shores and the ports nearby, from where even the sight of approaching tsunami waves could have been easily recognized. A few persons even stayed all through the attack of the tidal waves and some of them recollected that even in the midst of the attacks they felt no fear at all. Why didn't they escape from the place? And what is the reason for their going down to the dangerous spots waiting for the disaster?

The following sections will discuss 1) the situation when the tsunami struck the coast, 2) inhabitants' response toward this situation, and 3) some explanation of why they acted in such a way as shown in 2), respectively.

II. THE SITUATION

This section describes the general feature of this disaster and the field research.

1) General Situation

It was 18 seconds after just noon, May 26, 1983, that a great earthquake occurred deep under the Japan Sea 100 km off the coast of Akita Prefecture in Northern Japan. It was observed to be the biggest earthquake (magnitude 7.7) in this area since the Akita Meteorological Agency began its operation. At 12:14, Sendai Meteorological Agency announced a warning for a possible attack of the tsunami, but it was a little too late, as by that time the first wave of tsunami

approaching the coast could be observed from the shore. The first wave was observed at about 12 : 10 (or, according to another information source, 12 : 07) in Fukaura town of Aomori Prefecture, and some fishing boats on the Japan Sea transmitted a message by wire about their observing a tsunami wave at about 12 : 15.

On receiving the information from the Meteorological Agency, NHK television stopped broadcasting its usual program, and transmitted the Agency's warning about tsunami in the form of a televised text at 12 : 19. The message was simply "A warning about tsunami is announced." At the same time, NHK radio also transmitted the same message. This earthquake didn't cause very heavy destruction of buildings and of human life by itself, but some confusion was brought about in the regional administrative functions that caused a delay in its information transmission.

This earthquake and the tsunami caused the death of 104 persons living in Akita, Aomori, and Hokkaido. The damage was especially serious in Akita, where 82 persons, including 40 workers at the ports and 13 children on an excursion, were killed. About 230 or more persons were injured. Afterwards, this disaster was named as the Mid-Japan Sea Earthquake and the following tsunami.

An important feature of this disaster was that much of this damage was brought about not by the earthquake itself, but by the consequent tsunami. Of the 104 persons killed, one hundred were the victims of the tide. In the case of severely damaged Akita, 79 persons out of all the 82 victims were killed by the tsunami. This disaster was caused primarily by the flooding water.

Another feature of this disaster was its unexpectedness. It had been widely believed by the inhabitants that there is no tsunami in the Japan Sea. Unlike the Pacific Coast of Japan where people have frequently experienced tidal waves, the coastal area of the Japan Sea is said to have no tsunami, for geological reasons. So, for the inhabitants of this area, the occurrence of a tsunami was nothing but an extraordinary event. According to a survey conducted in Akita⁴⁾ after this disaster, of 723 persons surveyed, 45.8 % heard of the warning of tsunami by the Meteorological Agency through some media. And of 392 persons who answered the question of "Why did you make light of the warning?", 49.9% answered that they "never thought of a tsunami," and 10.3% had believed that they are "safe because of the geological location of this region" (table 1).

It can be easily inferred from these results that quite a few inhabitants had never anticipated a tsunami in their neighborhood. Many of them had no direct experience of tsunami and only heard about it through mass media. It is widely believed that this kind of ignorance of the phenomenon is the main reason of their confused reaction toward it.

It seems that their ignorance of the phenomenon influenced their understand-

Table 1 The Reason Why They Made Light of the Warning

1 . Believed that it is safe here for geological reasons.	10.3 %
2 . Judged from my own experiences.	14.5
3 . Judged from other persons' opinions.	10.8
4 . Was directed by other persons to think so.	0.8
5 . Judged from the situation.	11.7
6 . Never thought of a tsunami.	49.9
7 . Other reasons, DK.NA.	2.8
(N=351)	

Table 2 Response to the Tsunami Warnings

1 . Expected a tsunami that will cause great damage.	9.9 %
2 . Expected a tsunami but didn't think that it would cause great damage.	50.0
3 . Didn't expect a tsunami even after hearing the warnings.	39.5
4 . Others.	0.6
(N=392)	

ing of the warnings of the tsunami. Result from the same survey as cited above shows a similar trend in their estimation of the size and the effect of the tsunami (table 2). Half of the inhabitants of Akita didn't anticipate a tsunami that would cause a great damage in their local area, even after they heard of the warnings. And a far more impressive finding is that about 40% of the respondents thought that a tsunami won't hit the coastal area, *even after they heard of the warnings*. These results will be enough to show the over-all tendency of ignorance among the inhabitants toward this unfamiliar phenomenon that suddenly appeared in their taken-for-granted order of the world. It was a very small portion, only 9.9%, that could anticipate a disaster that would cause great damage.

To sum up, in general, the inhabitants of this area seem to know very little, if not none, about the reality of the tsunami phenomenon and its consequence. This fact will explain the general impression of confused and delayed response toward the disaster, both among the inhabitants and the local administrative offices.

However, it is not enough to explain the reason why some people stayed back at the dangerous spots. Further, the above information can not explain why some people took the very risky decision to go down to the port or to the shore. This kind of behavior requires a closer inspection of the real situation of a water front zone where some people went and kept staying.

2) The Octwoods Situation

A small town here referred to as *Octwoods* is located on the northern shore of Akita Prefecture. Being one of the biggest fishing port of Akita Prefecture,

Octwoods along with another port nearby was traditionally the center of fishery in this region. It isn't so now, because almost all parts of the port have been destroyed by this tsunami. Here it killed ten persons, injured eight persons, flooded 157 houses, destroyed 45 houses, sank 27 ships and boats, half or fully destroyed 180 ships and boats. In essence, in fact all the ships and boats that were there were destroyed to some degree. Two fishermen were drowned. Another five, who were in or near the Octwoods port, were injured. The recovery of the port as a fishery center is said to be not yet complete.

The field survey was conducted in this small fishery port town. The details of evacuation behavior by the inhabitants will be discussed in this section. But, before going to this topic, some additional descriptions about the site and the situation of Octwoods town before and after the tidal wave may be helpful in understanding the evacuation behavior of the inhabitants.

Octwoods is a town with a population of 6,000 and a 112km² area. Its main industry is agriculture and fishery, and the latter is widely done privately by the fishermen. This town too had not experienced a big disaster in more than a hundred years. The same thing is true of its tsunami experiences, with minor exceptions of 1939's and 1964's both were recognized by the people as "something like a stormy sea." Because of these conditions, the inhabitants had no experience of tsunami in this area. Only one interviewee of the total 20 persons interviewed had experienced tsunami, but it was one that had occurred outside this area.

The Octwoods town had no local emergency wireless, and the local administrative communication was done by announcement through outdoor speakers and speaker-equipped cars. It had no voluntary group for emergencies. Instead, fishing boats' wireless was used widely for communicating everyday information. Located in the Octwoods bay was the Octwoods fishery port, with a building for the fishermen's cooperative and a repair centre for the ships in it. This repair centre has a speaker at the top of the roof, and it is used for everyday information by the fishermen's cooperative, and usually operated by a female worker of the repair centre.

It is this small town's inhabitants' first experience with a big tsunami that has been analyzed in the following chapters.

III. INHABITANTS' REACTION TOWARD THE DISASTER

As already mentioned, the earthquake occurred 18 seconds after noon on May 26, 1983. And the consequent tsunami's first wave is believed to have reached the shore of Octwoods port at about 12:21 or 12:22. It is well-known that the destructive power of the tsunami is strongest in its first wave. In this case also, the biggest destruction was brought about by the first wave. The first wave

came from the direction of north-west, got over the break-water of the port, which is five meters high, very easily, and flooded into the port and onto the town near the sea. So, it is a short interval of 21 or 22 minutes between the earthquake and the first wave reaching the shore. Judging from this, as is often true of this kind of disasters, here we have to employ a centered analysis of an unstructured situation that contains various kinds of events in it, rather than some objectively constructed quantitative analysis. In this section, a rough but complete picture of the neighborhood of the Octwoods port and of the inhabitants' reactions is intended to be drawn.

Since it seems to be needed to trace the flows of communication through various channels precisely, a factual analysis of communication channels and the information transmitted through them will be presented first. Then the inhabitants' behaviors responding to the earthquake and the tsunami will be shown, with some citations from the informations collected through the field research.

1) Channels of Communication about Disaster Warning

NHK television and radio began transmitting warnings of the possible tsunami at 12 : 19. How these warnings were heard and interpreted by the inhabitants of Octwoods in different ways will be discussed in the following section.

The local administration's information system was damaged by the earthquake. So it is only after 12 : 30 that the two speaker-equipped cars went around the town announcing the danger of the waves. This is only after the first and the biggest wave had destroyed the port. So there is no need to discuss the effects of this information channel, because the interest of the analysis here is focused upon the people's behavior just before and after the first attack.

The next information channel was the fishermen's cooperative's wireless network. After receiving the warning, the cooperative tried to transmit the message through fishery boats' wireless. The content of this message was "Stay off shore," means that no ships/boats should come back into the port, even though it was noon and many fishermen usually have their lunch on land or on the ships anchored at the port. This must be a very effective channel for transmitting the warning, but the effect of this effort is unknown, since no fishermen interviewed answered that they received the message. Only a message that came from a fisherman's wire who identified the wave by himself had some effect on other fishermen's behavior, but this will be discussed later.

The last channel that must be considered is announcements through the speaker installed on the roof of the repair centre. A female worker of the house watched television and knew about the 12 : 19 warning on NHK TV. At once she took the microphone and announced to the people at the port, "Now a warning for tsunami is announced. Please beware of it !" for two times until the first

wave came. When she was announcing it for the third time, the first wave came and attacked the repair centre, and this woman was almost drowned by the flood. This accident was reported in the newspapers and became well-known then. But, since the first attack is thought to have come at about 12 : 21 or 12 : 22 and people at the port could easily recognize the coming wave, the real effectiveness of this announcement is questionable.

To sum up, these three channels — TV and radio, fishermen’s wireless, and the announcement through a speaker — were chiefly used for the transmission of the warning in this case of Octwoods disaster.

And, as for the most basic channel for exchanging words, that is, the aural interpersonal communication, a more detailed description will be provided along with the people’s reactions toward the wave in the later section.

2) People’s Reactions Toward the Earthquake and Tsunami

In this field survey, 20 persons who were at the port, near the port, or on the sea near the port were interviewed intensively. Since there were about 30 or more persons in the area when the first wave came, this number should suffice our need for reconstructing the whole picture of the situation, though no

Table 3 Inhabitants’ Responses

Persons	Location When Earthquake came	Forecast of Tsunami	Response to Earthquake	Response after Warning	Response to 1st. wave
A	on the sea	none	go to port	anchoring	evacuation
B		none	go to port	anchoring	evacuation
O		correct	stay offshore	go offshore	stay offshore
P		correct	stay offshore	stay offshore	stay offshore
Q		none	stay offshore	stay offshore	stay offshore
C	on the sea, going to port	none	anchoring	anchoring	evacuation
L		none	anchoring	anchoring	evacuation
K	at the port/ on the ship anchored at the port	none	on the ship	none	evacuation
M		none	at the port	start ship	damaged
H		none	at the port	anchoring	damaged
I		none	on way home	none	evacuation
N		none	temporal evac.	announcing	damaged
J	on the road nearby sea	none	go to port	stay at port	evac./damaged
R		none	stay still	stay near port	evac./damaged
D	one’s own house	correct	look at TV	go to port	evacuation
E		none	go to port	go to ship	evacuation
F		none	temporal evac.	go to ship	evacuation
G		none	go to port	working	go into ship
S		none	switch on TV	take lunch	stay home
T		correct	none	anchoring	evacuation

representativeness of the interviewed samples is assured. But, in this kind of field survey, some key-persons' views are very helpful for the understanding of the reality of the whole situation.

The actual process of the inhabitants' communication and action is a very complicated one in which a collective definition of the event is gradually constructed and in turn will become controlling the process itself. The field survey traced this process by asking the respondents' every communicative act and other kinds of actions. But it is such a complicated process that the description of the entire process is inconvenient for an overview of the whole situation. Instead, a more simplified summary of the process must be of value for the understanding of what had happened then.

Table 3 shows all 20 samples' i) location at the time of the earthquake, ii) their forecasts of the possibility of a tsunami, iii) their responses to the earthquake, iv) their responses after hearing of the warning, and v) their responses to the attack of the first wave. Each item will be examined.

i) The location when earthquake came

Of 20 samples interviewed, seven persons were on their ships. Of this seven, five were outside the port and were doing works related to fishery. The other two were on their way back to the port and were already near port. Five persons were at the port and working aboard or near their ships. Two were on a road in the town, on their way to the port. All the respondents were fishermen or their wives or relatives. The wives' everyday routines include going down to the port for helping the fishermen, or for bringing lunch for the fishermen who were back there (they usually take lunch together at the port.) So it seems very natural that they were going down to the port. The remaining six persons were at home. At this point of time, only *five* were in the port area.

ii) Forecast of the possible tsunami

Of these 20 respondents, only four anticipated the possibility of tsunami. As noted before, the inhabitants were generally ignorant of any well-grounded knowledge about the tidal waves. All four persons who forecasted tsunami had some degree of knowledge about tsunami phenomenon ; two had experienced a real one outside of this town, and the remaining two had some hearsay knowledge about the tsunami. Of the 20 respondents, five answered that they thought there is no danger of tsunami in the Japan Sea. Among others, there are some who had some idea about the tsunami, but their knowledge did not seem to be integrated into a total picture of the phenomenon. From these facts, it is impossible to make a definite conclusion as to the relationship between close knowledge of tsunami and correct anticipation of it. But, at least, it can be said that the people who anticipated the possibility quickly after the earthquake are

likely to be the ones who were exposed to some experience or knowledge of tsunami.

iii) Response to the earthquake

The pattern of the responses by the inhabitants to this earthquake is a unique one, when compared with the responses of the people who live on the Pacific coast of the north Japan, where people experience many tidal waves periodically. In these regions, there are relatively stabilized belief systems in the inhabitants' definitions of the tidal waves, being widely shared by them. Among them is found a very functional behavioral orientation of "hurry to climb up the hills higher, or to go off the shore if you are on board, as soon as you should feel any hint of earthquakes."

The phrases of this kind with their short and haiku-like style of the original Japanese form, are widely heard among the old people living in the region, and seem to have a positive function of making people evacuate from the dangerous lower areas near the water front. And, since these phrases can drive people more than anything else to escape from the sea as soon as they notice a sign of earthquake, it can be easily inferred that a definition of the situation that connects the earthquakes to the tsunamis directly and unconditionally is formed in the people's belief system, and thus serves as an unconscious, but both cognitive and behavioral, frame of reference on the basis of which they act toward their socially defined outer world.

On the contrary, the Octwoods inhabitants' response to the earthquake is characterized by their lack of some unified behavioral orientation: Two persons on the sea tried to go to port, the other three kept staying off the shore; two on their way back to the port kept anchoring their ships; three of the five who were at the port kept staying there doing something, one temporarily evacuated, and the last one went home, but not for an intended escape. Of eight persons at home or on the road, three went to the port for their lunch or for work, one temporarily evacuated and two checked the TV, but the remaining two did nothing. If they were the residents of the Pacific coast where the periodical tidal attacks would have given them some chances for preparing for a repertoire of corresponding acts, they might have evacuated from the port desperately, and would never have gone near the port until some assurance should come from some authorities.

This vivid contrast must be enough to show the difference between the inhabitants of Octwoods and those who live on the Pacific coast. The inhabitants of Octwoods who had almost no experience of tsunami also lacked the firmly established behavior-orienting definitions of the disastrous situation that would have forced them to a collective evacuation from the port.

iv) Response after hearing the warning

The same trend, as was seen in the response to earthquake, was observed at this stage of the disaster. Even after hearing the warning, they continued their everyday routines. Although some of them felt it was very dangerous, but none of them escaped from the port. They tried to start the ships for going out of the port, or they tried to anchor their ships at the port using more thick ropes.

Of seven persons on the sea in or outside the port, two kept staying offshore, and one began moving the ship offshore, another two arrived in the port and tried to anchor the ships, while the other two were still trying to anchor their ships. And at the port, only one person tried to start the ship to go out of the port, and the remaining eleven persons (here excluded is sample S, who stayed home and felt safe) didn't try to "go to some higher places" or "go offshore," but kept staying at the port, the most dangerous zone.

It is obvious from these observations that they felt no urgent need of fleeing from the port, because of the lack of their correct definitions of the situation of this unfamiliar disaster. As noted before, the warning came just a few minutes before the attack of the first wave, while the interval between the earthquake and the first wave is rather long, at least enough for evacuation. So, if they had a correct definition of the situation, they might have escaped as soon as they noticed the earthquake. If people don't have a relevant definition of the phenomenon, they cannot escape from the imminent catastrophe, even though they are provided with plenty of warnings. Here, in the case of Octwoods, there were *sixteen* persons at the port, as compared to the *five* when the earthquake had occurred about 20 minutes before.

v) Response toward the first wave

Finally the first wave reached the shore with its increasing destructive power culminating as a wide-spreading black wall of water. The destruction was so severe that property worth about thirty-three hundred million yen was lost. But, in the midst of a catastrophe of such an order, to our astonishment, there still remained a few persons at the port.

At this point of time, three were staying offshore. One was safe at home. Ten managed to evacuate from the port. One escaped into the ship and was saved. Five were injured, though two of them tried to escape. This would not have happened if it were on the Pacific coast.

The most remarkable case is that of a fisherman and his wife. They stayed at the port during the first attack, trying to save their ship by pushing the floating ship back to sea, fixing and tightening the anchoring ropes, shouting, "Ship, don't come to us, don't come to us!" And they "felt no fear, because we thought of nothing on hearing the word 'tsunami'." Some other persons who were at the port also reported that *they thought nothing on hearing the word.*

One characteristic shared by these persons who didn't escape is their lack of any direct experience of tsunami before. Even though they heard the word, they couldn't understand what the word's reference was. In their frame of definition, the word tsunami had no empirical reference in the real world, and, consequently, they couldn't act toward the real tsunami on the basis of the meaning that this word usually had. So, in a strict sense of this word, they *couldn't see* the wave named tsunami just in front of them. A very strong effect of the defining frame upon the person can be identified by this specific case.

3) Cognitive Effects on Communication

Finally, a short analysis of the inhabitants' communication process during this disaster will be presented. As already stated, three main channels existed for transmitting the warning. And, also, aural communication could be used.

Of all, the most effective channel was the announcement through the speaker by a female worker at the repair centre. All the ten persons who heard the warning heard it through this channel. This had an effect of making people look in the direction of the sea, and consequently, making them evacuate from the port, although it was just a little too late because the first wave was already approaching very close.

A fisherman offshore recognized the first wave approaching the port earlier than this announcement, that is, earlier than (or almost the same time as) the TV/radio broadcasted warning. He transmitted the warning to other ships with his fishermen's wireless. At least three respondents caught this message and stopped going back to the port. Perhaps this was the earliest warning. But there is no evidence of this warning reaching the persons who were at the port at that time.

Interpersonal communication played an interesting role. Person D looked at the televised warning and went out to give warning to the people at the port. Since he had past experience of a tsunami outside of this area, he noticed that this would be a very dangerous situation. He warned the persons at the port that they should leave the port as soon as possible, in a loud voice for several times. Some people on the town road did hear of his warning, but they "did nothing but grin." He shouted to at least three or more persons there, but *no one evacuated on hearing him*. Here again some incorrect cognitive frames of definition seem to be operating among them. And judging from this fact, the aural communication of the warning looks ineffective in this unfamiliar situation. The voices *were not heard* in the word's strict sense.

IV. WRONGLY ACTIVATED FRAMES AND SOME EDUCATIONAL IMPLICATIONS

An irrelevant frame of definition of situation sometimes negates every effort of communication. In this paper, an example of this simple fact has been described so far. But there still remains a final question that is not yet answered: Why did they stay at the port until they were hit by the first wave? Why some of them went to the most dangerous spot?

An answer will be found in their preoccupation with *anchoring* their ships. It gives us a strange impression when we see the fact that six or more persons tried to anchor their ships even after they heard some kind of warning. Among these six are included that fisherman and his wife who stayed all through the first tsunami waves, trying to anchor their ship. Why did they wish to do so? What is the reason that can explain the remarkable difference between them and the people of the Pacific coast who quickly run away on hearing some warning?

One explanation is that the Octwoods people had no relevant frame of definition for this specific disaster. Being frequently and periodically exposed to the stormy Japan Sea, their cognitive and behavioral frame of definition is built for these stormy sea situations. Indeed, at least four respondents compared the tsunami to the stormy sea in their interviews, and they tried to anchor the ships "as is usually done when we experience the stormy seas." And the relevant action toward the stormy sea is *to anchor and fix the ships*. According to the inhabitants, the stormy sea is a minor disaster that happens frequently as an everyday event.

So, it can be assumed that an already established behavioral frame of definition for the stormy sea is *wrongly activated* toward the tsunami, that is an irrelevant disaster for this frame. As a result of this, the Octwoods people tried to do what the frame for the stormy sea requires of them, that is, to fix and anchor the ships.

As stated above, many of them *didn't see* the tsunami correctly, and *didn't* hear the warnings of tsunami correctly. They were seeing a phantom stormy sea in their vision of the real tsunami, and they tried to act upon the stormy sea that had no substantial reality. This understanding of the event seems to explain well what happened at the port of Octwoods, that is, their going down to the port, their neglecting many cues for a possible onslaught of tsunami, their staying at the port even after they saw it, and their seemingly meaningless preoccupation with anchoring the ships.

If this understanding and explanation of what happened in the Octwoods situation is correct, a serious influence of human cognition on subsequent

behaviors seems to be operative. Since this kind of cognitive effect can be regarded as operating in every social situation, or at least in relatively fluid ones, their effects on educational efforts of various kinds will become very important. In concluding this paper, an educational implication of this findings will be discussed briefly.

Education of any kind includes a transformation of one's cognitive and/or behavioral frame of definition toward some desirable direction to some extent. That is, education in this sense is nothing but a modification of cognitive and behavioral frame in an intended direction. But, as is shown in the previous sections, people's cognitive and behavioral frames are formed constantly and culminatingly as a result of various long-term learning processes. So, it is very difficult to change the basic belief system or the world view of a person, just because of its stabilized character that has been made through the life course. The effect of these already established frames are so powerful that all the communicative efforts are negated by them as in the case of the Octwoods situation.

For our practical purpose, there seems to be two alternative ways in treating the basic belief systems of people. One is to try to make some drastic change in the system by using some coercive method of education. But, needless to say, such a kind of coercion will inevitably cause some disfunctional effects in the total belief system, because the coercive change in the basic structure cannot be made without affecting the other parts of the whole system which still hold the previous values. So we cannot use this as a favorable way of education.

The other way is to try to change the basic belief system gradually to the desired direction in some natural setting. Since a person and the environment in which his self was made compose an inseparable unity in which a usual social life of a person is made possible, this gradual education must be done in his natural social settings, such as the place where he was born and was educated so far. As clearly shown in the communication studies of the 70's and the 80's changes in cognitive and behavioral frames occur in the everyday and uncontrolled situation where the culminative and constant effects from various sources gradually and slowly cause the changes — changes that are followed by other changes in other parts of the system, and cause no dysfunctional effects in the whole belief system. To try to make some change in a person in his natural social world to which he has belonged is apparently the better way of education of this kind.

In this paper, the author tried to show an example of an irrelevant frame of definition of the situation drastically affecting people's cognition, and, consequently, their understanding of the social reality and their communicative action.

Notes

- 1) This paper is based on the author's field research of a port town located in the northern part of Akita Prefecture, Japan. The field work was conducted during July 1983, about 50 days after an earthquake and its consequent big tidal wave struck this region. An earlier version of this paper was published in Japanese in a report of the Institute of Journalism and Communication Studies at the University of Tokyo (The Institute of Journalism and Communication Studies, 1985). The author wishes to express his gratitude to the Institute for permission to use these materials for the present paper, and especially to Associate Professor Yoshiaki Hashimoto and Mr. Yoshihiro Goto of the Institute, who were my fellow researchers on this disaster. And he also thanks to the people of the Octwoods town for their kind cooperation with us, hoping their complete recovery from the disaster.
- 2) In this paper the author tried to use Herbert Blumer's version of symbolic interactionist approach (Blumer, 1969) for gathering some direct observations of the research field. The reason is that, needless to say, this is just the situation where more formal and structured approaches inevitably become invalid because of the situation's rapidly moving and changing character typically found among these disastrous events. But, as will be shown below, more formalized statistical procedures and the results will be used as some additional materials for a further objective descriptions of the situation.
- 3) Among the literature on the various forms of collective behavior and group behavior, the author owes much to Turner and Killian (1972) and to Shibutani (1966). The author's discussion about communication channels and collective definitions will be found in Goto (1987, 1990a, 1990b, all in Japanese).
- 4) See the Institute of Journalism and Communication Studies (1985).

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