

I. Material.

Title: Iza to iutoki Dou Nigeruka (How to Survive a Disaster)
The Behavioral Science of Disaster)

Author: Abe, Kitao

Publisher and Year: Nihon Songai Hoken Kyokai (Japanese Association of Property Insurance), 1973

II. Agent and/or Event.

Type of Disaster Discussed: Not specified

III. Table of Content.

IV. Abstract (Major ideas and suggestions.).

Emphasizing tragic consequences of panic, the author offered some ideas to control panic in emergency situations. Among them are "Fool-Proof" and "Fail-Proof." Fool-Proof means that facilities or equipment should be devised so that everybody can make use of them even if those people are mentally and physically handicapped. Fail-Proof means that alternative applications, methods, or equipment has been provided.

Most of contents overlap with Panic no Shinri (Psychology of Panic) by the same author.

Chapter 1 - Panic: Cases of the Ebino Earthquake, the Niigata Earthquake, the Tokachioki Earthquake, the Los Angeles Earthquake, and the Osaka, Sennichi Department Store Fire

Chapter 2 - Astonishment and Fear

1. Temporary Loss of One's Mind
2. Fear. Eruption of Violent Actions
3. Being Calm; Is It Possible?
4. Not Being Calm, but Recovering from Fright
5. Assume a Certain Emergency Role

Chapter 3 - Emergency Responses

1. Latent Anxiety about Disasters
2. Effectiveness of Customary Responses to Earthquake

Chapter 4 - Responses to Fire

1. Fright of Fire
2. "Fool-Proof" and "Fail-Proof"

Chapter 5 - Panicky Responses to Emergencies

1. The Crowd Involves People
2. Panic in Underground Shopping Mall
3. Stories Regarding the Osaka, Sennichi Department Store Fire
4. Decisions to Escape

Chapter 6 - Evacuation: Its Dynamics

1. Emergency Responses and Evacuation
2. Determinants of Evacuation
3. Facilitative Factors of Evacuation
4. Obstructive Factors of Evacuation
5. Information and Crowds: Extrinsic Factors of Evacuation
6. Mass Evacuation in the Los Angeles Earthquake
7. Time Prior to Evacuation
8. Distance to an Evacuation Place
9. Removal of Valuables
10. Life in Shelters: Family Functions
11. Life in Shelters: Problems and Helping Behavior

Chapter 7 - Information and Rumor: Double Edged Sword

1. Functions of Rumor
2. Information as a Determinant of Panic
3. The Theory of Marginal Utility of a Transistor Radio

4. Uses and Effects of Information
5. Rumor
6. Emergence and Growth of Rumor
7. Credence of Rumor

Chapter 8 - Traffic Jam

1. What Happens to Cars?
2. Traffic Paralysis and the Secondary Disaster
3. Among Drivers the Lack of "Customary Responses" to Disaster
4. How to Prepare Against Traffic Panic

Chapter 9 - Organizational Breakdown of Business Firms

1. Leaving Workplaces
2. Anxiety about Family Members
3. Countermeasures Against Organizational Breakdown

Chapter 10 - To Avoid Panic

1. Disasters Created by Human Beings
2. What Creates Anxiety and Fright?
3. Panic
4. Behavior in Panic
5. To Avoid Panic
6. Everyday Preparation Against Sudden Disaster

I. Material.

Title: Panic no Shinri (Psychology of Panic)
Author: Abe, Kitao
Publisher and Year: Kodansha, Tokyo, 1974

II. Agent and/or Event.

Type of Disaster Discussed: Not specified

III. Table of Contents.

IV. Abstract (Major ideas and suggestions).

On the basis of empirical findings, the author emphasized that human factors determined the degree of disaster. Among others, panic in emergency situations is regarded as the most dreadful factor.

In the last chapter, the author provides twelve measures for avoiding panic. Some of those are:

1. Decrease the degree of shared fear by providing people with accurate disaster information.
2. Separate people into controllable groups.
3. Create social solidarity among people thereby decreasing competition.
4. Assign a specific emergency role to each person.
5. Educate a good emergency leader.
6. Be just to evacuees.
7. Avoid the spread of rumors by providing accurate, directive, and concrete information.

Contents

1. Catastrophic Damage: The Case of the Managua Earthquake and the Kumamoto Taiyo Department Store Fire
2. Fear and Astonishment: Escape from Fear
3. Emergency Response: Possibility of Adaptive Behavior
4. Crowds: Panic Behavior
5. Fear in and Underground Shopping Mall
6. Fire in High-Rise Buildings
7. Anxiety
8. Information and Rumor: Double Edged Sword
9. Mob: Madness and Confusion
10. To Avoid Panic

Contents

Preface: Psychology of Disaster Prevention

Chapter 1 - Recognize That Disasters Are Ill-Natured

1. Check Your Preparation Against and Preconception of Disasters
2. Disasters Always Take Advantage of Your Weak Points
3. What Causes Your Optimistic Way of Thinking?
4. Observe and Check Your Environment with "Mother-in-law's Eyes," and Be Honest and Kind to Yourself and Others

Chapter 2 - Know the Enemy (Disasters) and Evaluate Yourself

1. Check Human Behaviors and Common Sense Regarding Disasters
2. A Major Cause of Disasters: Human Beings
3. Traditional Common Sense Regarding Disasters is a Fallacy
4. Formulate New and More Appropriate Common Sense Regarding Responses to Earthquakes

Chapter 3 "Fool-Proof" and "Fail-Safe"

1. Simplicity, Plainness, Straightness, and Realism
2. Failure in Effectively Responding
3. Perfect Confusion
4. Epoque
5. Short-Sighted Perspective: Spatially
6. Short-Sighted Perspective: Time
7. Not Abstract Argument, but Concrete Argument
8. Self-Orientation or Selfishness
9. Understand the Reality

Chapter 4 - Not Being Calm, but Making You Calm as soon as Possible

1. Assign a Certain Emergency Role
2. Calmness through the Role
3. Assign Roles to Children
4. Internalize the Role
5. Attention not to Being Calm, but to Doing Something

Chapter 5 - One Good Turn Will Meet Another

1. Changing Your Viewpoint on Initial Extinguishing Activities and Emergency Traffic
2. Possibility of Extinguishing Sixty Percent of Fires for Yourself
3. "Fail-Safe" for Voluntary Extinguishing Activities
4. Helping Behavior Saves You
5. One Good Turn Will Meet Another
6. Lookers-on See More than Players Do

7. Ill Responses by Drivers Are Fatal to Urban Areas
8. Open Your Houses for the Drivers
9. Do Not Defend, but Offend Against Disasters

Chapter 6 - Ascertain the Good Timing for Evacuation

1. Be Timely When Evacuating
2. Evacuate Earlier Rather Than Too Late
3. Eliminate Obstacles for Successful Evacuation
4. Factors Which Affect the Timing of Evacuation
5. Geographical Knowledge: Have an Evacuation Map in Your Head

Chapter 7 - Controlling Panic

1. Partition and Order of Crowd
2. One and One Do Not Make Two
3. Why Is Panic Threatening?: Physical Collision
4. Why Is Panic Threatening?: Circular Reaction
5. Density of Crowd
6. Conflicting Directions and Disorderly Crowd Flow
7. Disorderly Crowd Flow Caused by Different Speeds of Components
8. Acceleration and Amplification of Anxiety and Fear
9. Successful Control by Partition
10. To Create Crowd Order

Chapter 8 - You Are the Leader

1. Divisions of Labor and Activation of Organizations
2. A Determinant Factor of Crowd Behavior: Leader
3. Division of Labor as Crowd Partition
4. Trained Leaders Rather Than Spontaneous Leaders
5. Active Organizations Rather Than Blueprinted Organizations
6. Pay More Attention to Ensuring Safety
7. Efforts to Set Up Neighborhood Organizations
8. Miracle Survival from the Great Kanto Earthquake
9. Learning Lessons from Records or Archives of Disasters
10. Keep Things Necessary for Shelter Life in Your Storage Outside Your Houses

I. Material: Saigai Ji no Hinan Kodo ni Kansuru Model Jikken
Title: (Experiments on Evacuation Behavior)
Author: Abe, Kitao
Publisher and Year: in Tokyo Gaikokugo Daigaku Roushu, Vol. 30, pp. 233-250,
1980

II. Study:

(1) Agent and/or Event

Type of Disaster: Experiment

Date of Occurrence:

Location:

Casualties and Damage:

(2) Method

Method in detail: See the attached

Date of Study: Not mentioned

III. Hypothesis and Findings.

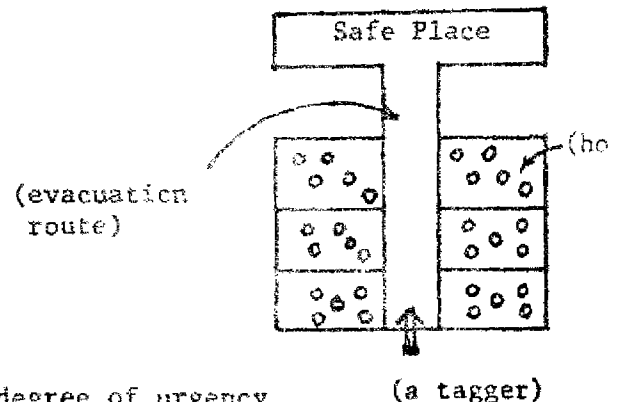
I. Experiment

A. Subjects

1. Fourth grade students in four elementary schools in Tokyo

B. Design

1. Let the subjects play a tag game.
 - a) The conditions controlled
 - (1) the degree of urgency
 - (2) the necessity of cooperation
 - (3) the availability of disaster information



II. Findings

A. Experiment I

1. Evacuation without a tagger (the low degree of urgency)
 - a) evacuation was smoothly accomplished
 - b) density per square meters was negatively associated with speed of human flow

B. Experiment II

1. Evacuation with cooperative work requirement
 - a) evacuation accomplished at a slower pace

C. Experiment III

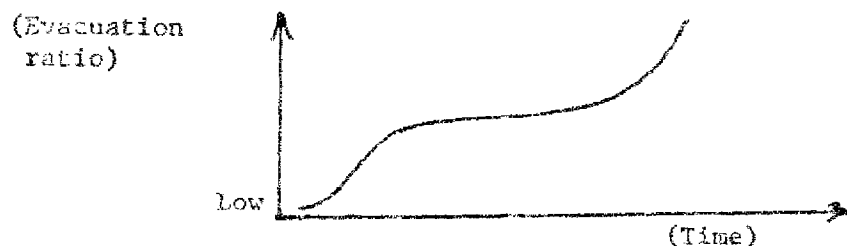
1. Evacuation with a tagger (the high degree of urgency)
 - a) the subjects pushed one another in passing an evacuation route and some of them fell down
 - b) falling-down happened at the point after the highest density point in an evacuation route, rather than at the highest density place
 - c) it did not necessarily take longer to evacuate in comparison with Experiment I.

D. Experiment IV

1. Evacuation with a tagger and a work requirement
 - a) movements of the group closer to a tagger stimulated other groups; movements

E. Experiment V

1. Evacuation with a tagger, without any information about the time a tagger begins to chase (the high degree of urgency and no information about a crisis)
 - a) when certain groups began to evacuate, all other groups rushed into an evacuation route.
 - b) time and evacuation ratio showed the following curve



I. Material.

Title: Saigai Shinri (Psychology of Disaster), I-XII
Author: Abe, Kitao.
Publisher and Year: in Psychology, July 1980 - October 1981, Vol. 4-8,
10-12, 14-15, 18-19

II. Agent and/or Event.

Type of Disaster Discussed: Not Specified

III. Table of Content.

See the attached

IV. Abstract (Major ideas and suggestions.).

See the attached

Twelve related articles have appeared serially in a professional journal, Psychology.

1. Three Human Factors Which Determine the Disaster
(Psychology No. 4, July, 1980, pp. 72-76)

Human factors which determine disasters are (1) human responses to emergencies, (2) life styles, and (3) the idea that "I" am exceptionally free from a disaster.

2. Astonishment and Fear
(Psychology No. 5, August, 1980, pp. 74-78)

The necessity for "Fool-proof" and "Fail-safe" measures is emphasized.

3. To Form New Customs for Disasters
(Psychology No. 6, September, 1980, pp. 74-79)

Traditional knowledge or customs for protecting ourselves from disasters have already been outdated. New customs based on facts should be formed among people.

4. On Carelessness I
(Psychology No. 7, October, 1980, pp. 70-73)

Disasters strike our weakpoints. We should realistically recognize our weakpoints and take steps to strengthen them.

5. On Carelessness II
(Psychology No. 8, November, 1980, pp. 76-81)

We should keep the fear of disasters and the necessity of countermeasures in mind in our everyday lives.

6. On Evacuation I
(Psychology No. 10, January 1981, pp. 74-80)

The Izu Oshima Kinkai Earthquake and the Osaka Sennichi Department Store Fire are used to illustrate physical and psychological obstacles to evacuation.

7. On Evacuation II
(Psychology No. 11, February, 1981, pp. 72-77)

The author uses the examples of three tragic fires to indicate that four important points are necessary for safe evacuation (1) smoke rather than fire is more dangerous, (2) that people need to be guided when evacuating, (3) that windows of high-rise buildings are not necessarily the best ways to evacuate, and (4) that information is very important.

8. On Evacuation III
(Psychology No. 12, March, 1981, pp. 72-77)

Two topics relating to evacuation are discussed; (1) when people will evacuate, and (2) people's tendencies in evacuating. In the discussion on the latter topic, the author indicates seven tendencies; (1) people choose the way out they know best, (2) people run away from smoke, (3) people who are not familiar with the setting tend to blindly follow

a leader, (4) people evacuate toward brighter places such as windows or the like, (5) people who recognize the sign of an "emergency exit" will safely evacuate, (6) people tend to follow other peoples' behavior, and (7) some people will shut themselves up in a room after they have been successful in escaping.

9. Urban Disaster I

(Psychology No. 14, May, 1981, pp. 78-82)

As to the factors which make urban disasters unique in comparison with disasters in non-urban areas, the author indicates these are (1) high-rise buildings, (2) automobiles, and (3) subways.

10. Urban Disaster II

(Psychology No. 15, June, 1981, pp. 79-85)

The author, focusing on an earthquake disaster, discusses the breaking down of lifeline functions as well as the way of life after disasters in urban areas.

11. Urban Disaster III

(Psychology No. 18, September, 1981, pp. 74-79)

The possible great fires after an earthquake and the large scale evacuation which would be necessary are discussed in relation to the significance of the designated evacuation areas.

12. The Flow of Crowd I

(Psychology No. 19, October, 1981, pp. 76-81)

The author discusses the mass movements which may occur in crowds and notes the relationships between the density of a crowd and its speed of movement and the tendency of many people to fall down in such situations.

I. Material: saigaiji-no Shakaiteki Knoran (Social disorder in
a Disaster)
Title: _____
Author: Abe, Kitao
Publisher and Year: No Information

II. Study:

(1) Agent and/or Event

Earthquake A. Izu Oshima Kinkai Earthquake
Type of Disaster: B. Miyagi Ken Oki Earthquake
Date of Occurrence: A. January 14, 1978 B. June 12, 1978
Location: A. Izu Peninsula, Shizuoka Pref., Japan
B. Miyagi Pref., Japan
Casualties and Damage: No Information

(2) Method

(The Izu-Oshima Kinkai Earthquake)
Method in detail: 1) Questionnaire method: Response Rate 71.3%
Stratified Random Sampling (Izu area; 2,000
respondents, and Shizuoka Pref. except Izu area;
2,000 respondents)
2) Structured Interview with 1,076 people in 20
subdivided areas in Izu area.
(The Miyagi Ken Oki Earthquake)
Questionnaire method; 1,486 respondents
Date of Study: February 30-March 10, 1978 - Izu-Oshima Kinkai Earthquake
No Date for Miyagi-Ken Oki Earthquake

III. Hypothesis and Findings.

- 1) Panic is subdivided into four types of behavior; 1) evacuation behavior,
2) rush-for-shopping behavior, 3) go-home behavior, and 4) rumor.
- 2) By the factor analysis with 89 items, five dimensions which determine the
people's consciousness and behaviors responding to earthquake and the
earthquake warning are identified. Those are 1) the degree of damage or
casualties, 2) source of information (from a relative, or from anonymous
people), 3) other-oriented or self-dependent, 4) community-oriented or
isolated, and 5) location (at home or distant from home).

I. Findings for the Izu Oshima Kinkai Earthquake

- A. The greater the damage
 - 1. The more information from the outside came into the community
 - 2. The more face-to-face communications tend to be
 - 3. The more other-oriented people tend to be
- B. The characteristic of the area, the degree of the damage, had the greatest effect on the occurrence of panic.
- C. With the degree of the damage controlled, the major factors which affect the occurrence of panic were as follows
 - 1. Source of information
 - a) the greater the number of sources, the more likely panic is to occur
 - 2. Confirming behavior
 - a) the failure to confirm information led to panic
 - 3. Anxiety
 - a) the larger-the anxiety, the greater the possibility of panic
 - 4. Sources of information
 - a) those who obtained information from their neighbors, passers-by, or relatives are more likely to panic than those who obtained information from co-workers or friends
 - 5. Experiences
 - a) those who had experienced no earthquake were more likely to panic than those who had not

II. Findings for the Miyagi Ken Oki Earthquake

- A. The initial shock of the earthquake had a positive relationship with the degree of perceived social disorder.
- B. The major dysfunctions which the respondents indicated as social disorder were
 - 1. Breakdown of electric current 173 respondents
 - 2. Suspension of water supply 92 respondents
 - 3. Suspension of gas supply, including propane gas 74 respondents
 - 4. Traffic jam 72 respondents
 - 5. Debris in disorder 48 respondents
 - 6. Lack or shortage of food or other necessary goods 47 respondents
 - 7. Suspension of telephone communication 44 respondents

Total number of respondents = 460

- C. The major items which people tried to buy after the earthquake were:
 - 1. In the area with the high perceived disorder
 - a) canned food
 - b) milk
 - c) juice
 - d) cookies
 - e) fruit
 - 2. In the area with the low perceived disorder
 - a) instant food such as Cup-Noodles
 - b) candles

19. Those who were out of the home were more likely to perceive the disorder around them than those who were at home. The specific locations tend to affect their perception. Those who perceived the greater disorder are people who were
- | | |
|------------------------------------|-------|
| 1. On trains or in cars | 23.5% |
| 2. In a building | |
| a) supermarket or department store | 24.9% |
| b) company | 15.2% |
| c) restaurants | 15.1% |
| d) friend's house | 6.6% |
| e) own shop | 4.3% |
| f) school | 2.6% |
| 3. In a road distant from home | 11.8% |
| 4. Driving a car | 10.1% |