

Paper:

Attempt to Typify Disaster Educational Programs – Case Study of the Disaster Management Education Challenge Plan

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This study analyzes the disaster educational programs that were implemented under the “Disaster Management Education Challenge Plan,” an education project supported by the Cabinet Office, Government of Japan. In this study, cluster analysis of the characteristics of the disaster educational programs led to categorization of the programs into four types. The results are expected to encourage the general public to launch disaster management educational activities that incorporate practice cases from each of the four types of programs, and will likely spur the development of further programs.

Keywords: disaster education, educational program, disaster management education challenge plan, typification, cluster analysis

1. Introduction

In the past, Japan has experienced a number of natural disasters and its geographical characteristics make it vulnerable to earthquakes, storms, and flood damage as well as other natural disasters in the future. An urgent response to the recent rash of storm and flood damage, and potentially massive earthquakes in the early twenty-first century is required. In order to alleviate the harm caused, it is important to develop not only damage prevention measures by reinforcing buildings, but also to ensure that individuals and organizations, including citizens and disaster responders, receive disaster management education that cultivates knowledge about disaster response management and competency (disaster management literacy) [1]. There are three groups involved in overcoming disasters: self-help efforts (individuals and their families), mutual assistance (local community), and public assistance (disaster responders). Each of these groups has its own role [2] and should become literate in disaster management through adopting a disaster management education. The Expert Research Group of the Committee for Promoting a Nationwide Movement for Disaster Reduction [3] was established at the Central Disaster Management Council in July 2005 with a focus on promoting awareness among citizens and promoting the disaster re-

sponse skills of local communities as the basis for disaster damage alleviation. The Committee emphasizes the necessity of promoting disaster management education not only in schools but also across society. Unfortunately, prior to the establishment of the Committee, there were no organized disaster education programs, specifically with regards to the types of programs and the format in which they were taught. These limitations made it particularly difficult for ordinary citizens to launch disaster management education programs. In order to address the lack of standardized disaster educational programs, this study examined the Disaster Management Education Challenge Plan (DMECP) [4], which was a nationwide disaster management educational project developed by like-minded experts on disaster management education supported by the Japan Cabinet Office. The resulting analysis was used to classify the ongoing disaster educational programs into four distinct types.

The DMECP aims to create common resources to expand the venues for disaster management education efforts, and enhance their quality as they are implemented nationally. The plan is seeking various disaster management education plans from organizations and individuals (educational organizations, nonprofit organizations (NPOs), and community groups) that also wish to reinforce disaster management education. For the first three years of the project from 2001 to 2003, plans were publicly sought according to the disaster educational program designed by the Disaster Management Education Challenge Plan Executive Committee and introduced for trials at pilot schools. From the year 2004 onwards, plans were sought yearly and selected plans were provided with support including expert advice on the educational programs and funding for implementation, as well as opportunities for people-to-people exchanges. In 2012, the Challenge Plan began seeking applications for an Introductory Challenge with simplified paperwork requirements relative to the General Challenge to attract a diverse application pool that represented a broad range of the society. The Executive Committee of the DMECP selected practice cases from the plans that were entered to the General Challenge on the basis of their activity processes and achievements. Outstanding practice models received the Grand Prize for Disaster Management Education, the Outstanding Perfor-



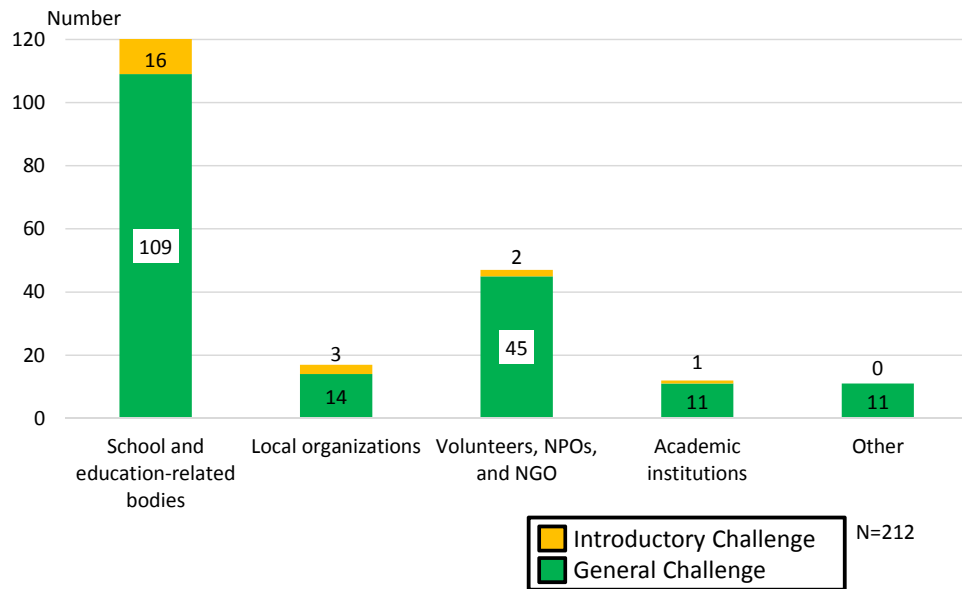


Fig. 1. Distribution of programs according to the type of implementing entity.

mance Prize for Disaster Management Education, and the Special Prize for Disaster Management Education. During the fiscal year 2011, the Special Grand Prize for Reconstruction Education was established to recognize organizations that were affected by the 2011 Great East Japan Earthquake; these organizations greatly contributed to local reconstruction efforts with their sustained work to implement the DMECP for a year. The support and evaluation systems developed under the Plan have helped accumulate a number of high-quality, advanced disaster educational programs as practice cases. Moreover, they have helped identify key elements for classifying disaster educational programs into various types.

2. Methods

This study created and analyzed a dataset of 212 disaster educational programs that were implemented under the Disaster Management Education Challenge Plan through the fiscal year 2013. The dataset was collected from the activity reports that were submitted by the entities that implemented the programs. The variables that were analyzed included the report items and the attributes of the implementers themselves. The report variables were: “type of disaster targeted (earthquake, flood),” “purpose of education (to raise disaster awareness, to learn techniques),” “target of education (elementary school students, local residents),” and “program formats (lecture, hands-on study).” The variables that reflected the attributes of the implementing entity included: “area where the implementing entity are located,” “types of implementing entity (school, teachers and staff, local residents).”

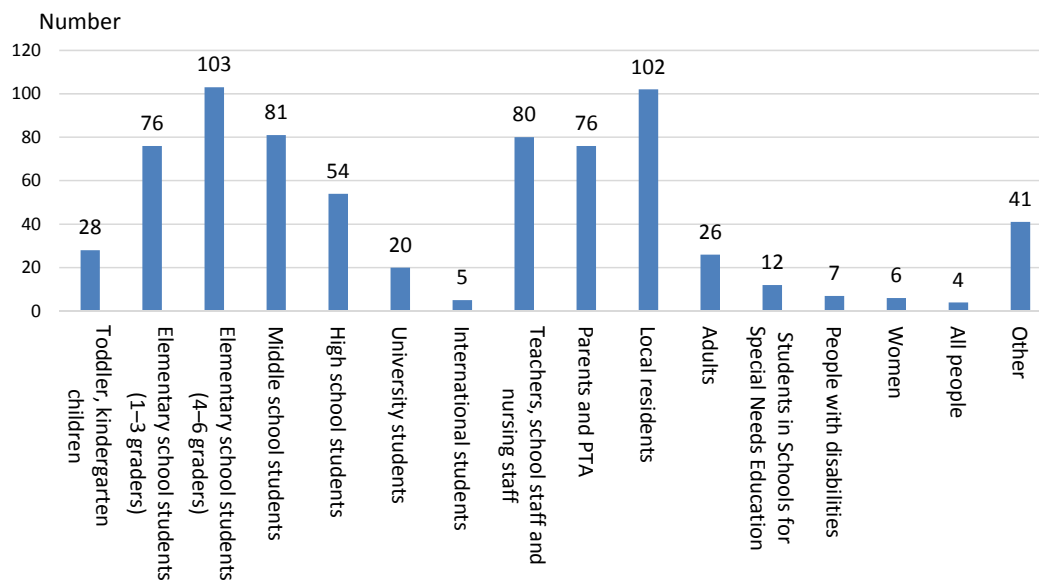
The distribution of programs is based on the community groups’ educational focus, and “application categories (introductory and general).” In the initial analysis,

the current state of the disaster education programs was assessed. This was followed by a cluster analysis to categorize the characteristics of the programs, and then, given these results, by an examination of the types of programs available. The study also introduced practice cases that could serve as model cases for each type of program. The individuals and organizations that do not have the relevant expertise and knowledge can practice disaster management education by learning outstanding practices and adapting them to their school and local communities.

3. Analysis of Disaster Educational Programs in the Disaster Management Education Challenge Plan

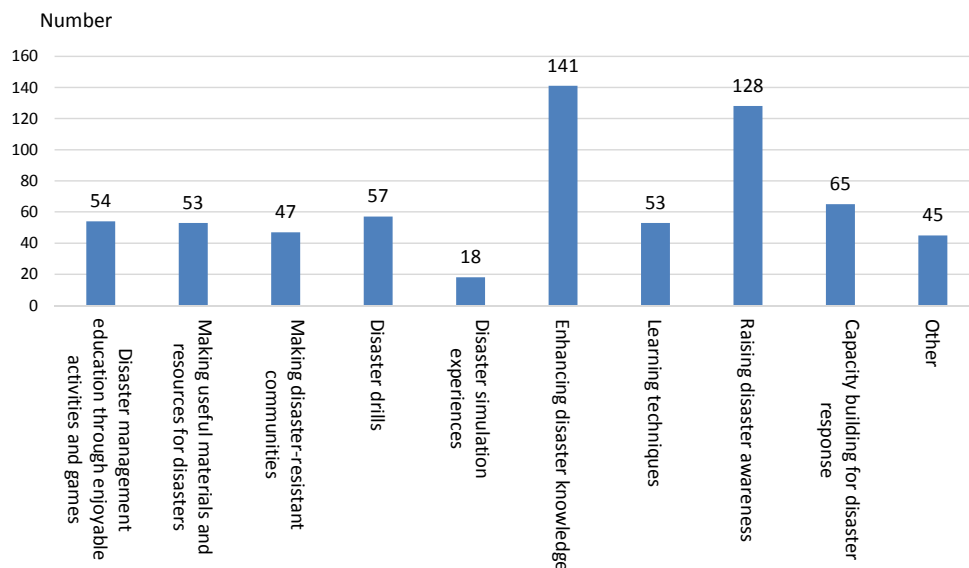
3.1. Initial Analysis

Figure 1 represents the number of programs according to the types of implementing entity. For both the Introductory Challenge and the General Challenge initiatives, the programs implemented by schools and Educational organizations were the most numerous. Programs implemented by volunteers, NPOs, and nongovernmental organizations (NGOs) were the second most numerous. Taken together, these data suggest that schools and other educational organizations, volunteers, NPOs, and NGOs are leaders in the field of disaster management education. Most of the programs were designed to target students, especially those in elementary school and local residents (Fig. 2). This was followed by programs that were designed to target parents, PTAs, teachers, school staff, and nursing staff, or in other words, people who have a close connection to students. Interestingly, while the majority of these programs focus on students and local residents, the number of programs that target people requiring assistance during a disaster, including foreigners and people



N=212

Fig. 2. Distribution of programs according to their target audiences.



N=212

Fig. 3. Distribution of programs based on their educational focus.

with disabilities, was notably low. When the programs were analyzed according to their purposes, the vast majority were focused on “enhancing disaster knowledge” and “raising disaster awareness” (**Fig. 3**). Programs that were focused on “disaster simulation experiences” were the least common. This could be attributed to the fact that simulating disaster conditions requires comprehensive knowledge of disasters and involves massive preparation.

The disaster educational programs practiced under the DMECP were identified based on the type of disaster that they covered. **Fig. 4** shows the yearly change in the number of disaster educational programs for the different types of disasters. It should be noted that many of the single programs targeted multiple disaster types. A relatively

high number of programs targeted earthquakes, tsunamis, and disasters in general. In the fiscal year 2012, one year after the Great East Japan Earthquake, there was an increase in programs related to earthquakes and tsunamis. On the other hand, the number of educational programs for floods and storms was relatively low despite the frequency of their occurrence.

This could be because the Great East Japan Earthquake raised the nation’s interest in earthquakes and tsunamis. Typically, when a natural disaster leaves behind extensive devastation there is an increased interest in that particular type of disaster and education designed specifically to address that type of disaster is promoted. However, this is not a desirable outcome because it leads to low interest in other types of disaster and it disproportion-

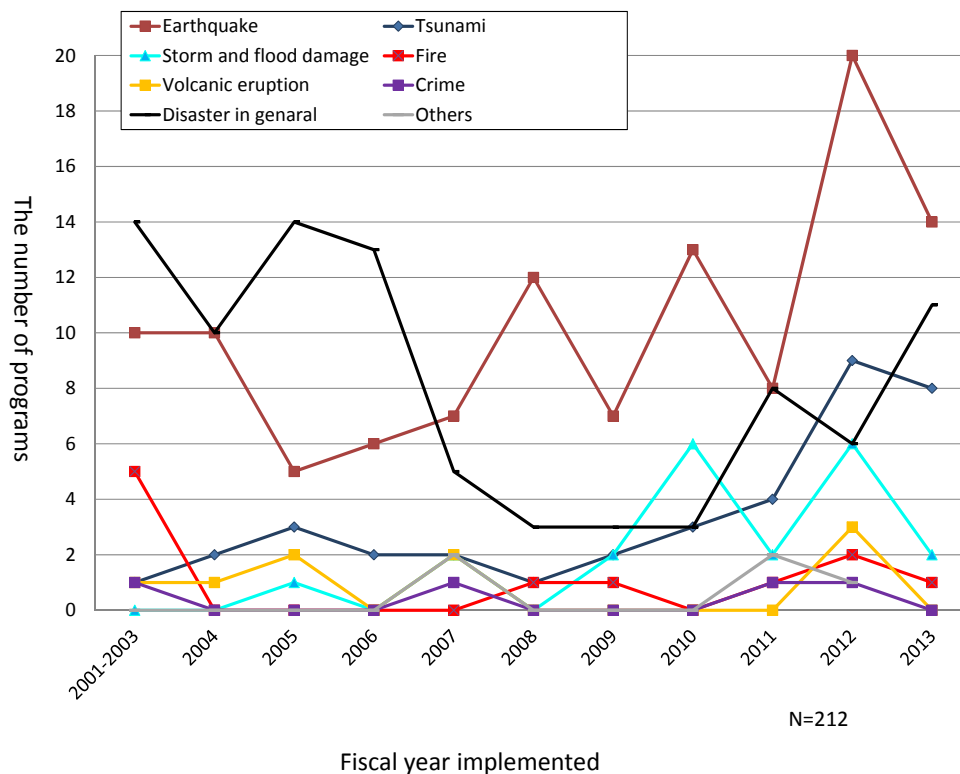


Fig. 4. Yearly changes in the number of educational programs for various disasters (2001–2013).

ately limits other types of disaster management. While increased interest in disasters can drive further educational programs in disaster management, a variety of programs should be supported rather than simply promoting education designed for particular types of disasters.

3.2. Typifying Disaster Educational Programs by Cluster Analysis

The study used cluster analysis (Ward's method) to organize the current disaster educational programs into distinct types based on variables that represent the characteristics of the programs. The dendrogram created by the cluster analysis suggested that the programs could be classified into four types: (1) practices to enhance disaster knowledge and awareness focused primarily on elementary schools, (2) school-led technical training and capacity building for disaster responses, (3) fun practice activities using events, functions, and subject studies, and (4) less frequent and unique practices (**Fig. 5**). The latter practices were further divided into four groups: those involving high school volunteers, water-related disasters in Chugoku, Shikoku, and Kyushu regions, delivery classes and disaster simulations, and people requiring assistance during a disaster. The details and model cases for each type are described below.

3.2.1. Practices to Enhance Disaster Knowledge and Awareness Focused Primarily on Elementary Schools

Practices to enhance disaster knowledge focused primarily on elementary schools; they included disaster ed-

ucational programs that centered on raising awareness at elementary schools, and equipping citizens with knowledge that could be a prerequisite for having the capacity to overcome disasters.

The 2012 Grand Prize for Disaster Management Education was awarded to the Nechi Elementary School in Itoigawa City, Niigata Prefecture for their disaster educational program called "Nechi School Original! 2012 Local Disaster Management Education Taking Place in the Wilderness of Geopark." This program focused on the elementary school as a center for disaster management education and tried to raise requirements for local disaster readiness involving students, their parents, and local community members. The program curriculum is designed to improve the level of disaster awareness at elementary school as well as to encourage the acquisition of basic knowledge regarding the mechanism of disasters by exploring the types of natural disaster that are most likely to occur in the areas in which they live.

The programs involve distinctive activities that incorporate game style learning in order to further motivate elementary school students to learn, and disaster management roundtables in which parents and local community members participate.

3.2.2. School-Led Technical Training and Capacity Building for Disaster Response

School-led technical training and capacity building for disaster responses include the type of educational programs that focus on learning through being trained in specific techniques that are useful in the face of disas-

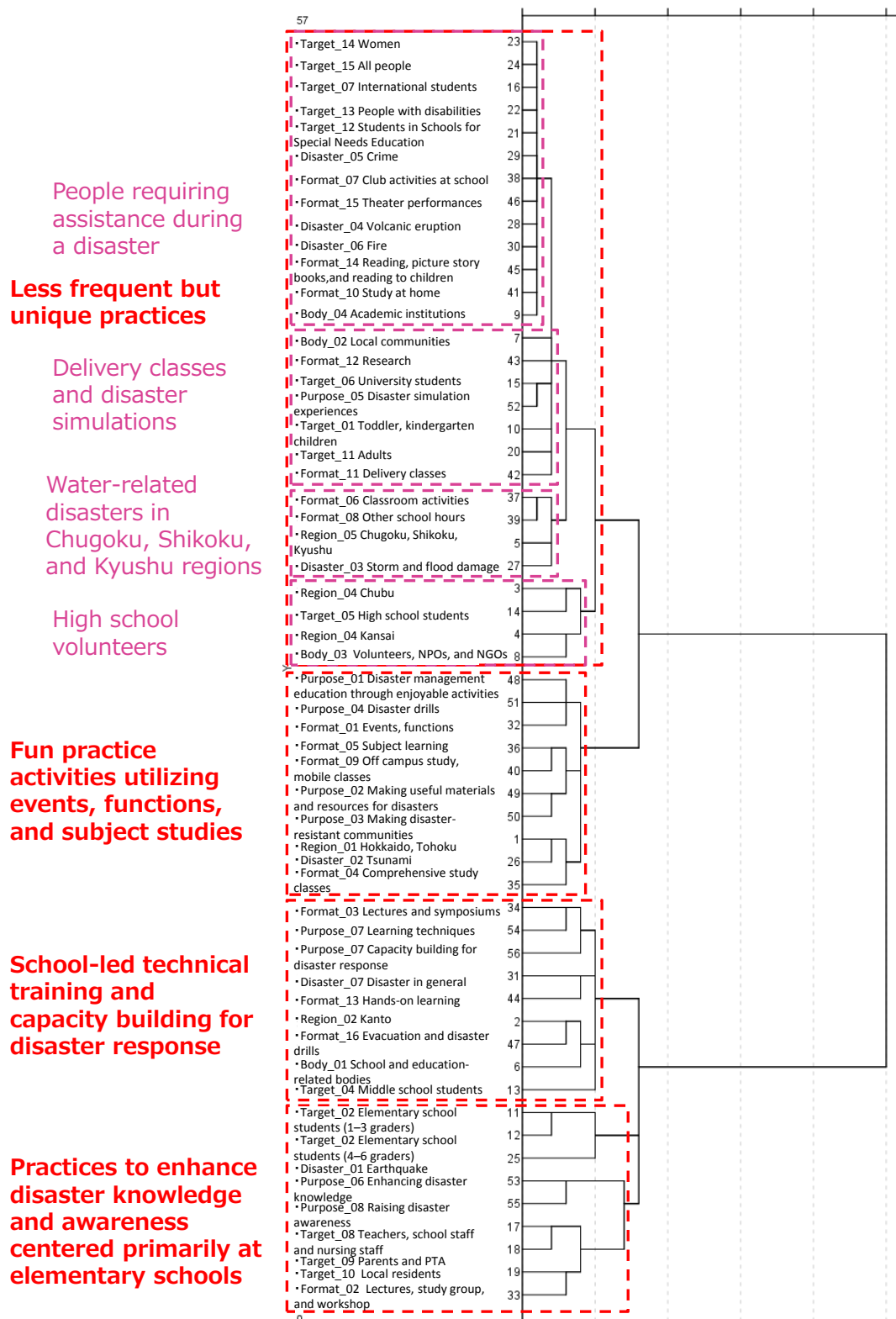


Fig. 5. Cluster analysis of disaster educational programs.

ters, building disaster response capacity, improving disaster awareness, and acquiring basic knowledge about disasters.

Nechi Elementary School in Itoigawa City, Niigata Prefecture organized a disaster educational program called “EAST-Rescue,” which was awarded the Special Prize for

Reconstruction Education in 2012. This program is not only meant to equip participants with the ability to protect their lives through evacuation drills during earthquakes and tsunamis, but also to develop techniques and the capacity to assist others during these disasters. Their slogan is “from the one who is saved to the one who saves.” It

is distinctive because elementary and middle schools engage in joint tsunami evacuation drills while promoting the educational goal of middle school students taking the initiative to guide younger elementary school students.

3.2.3. Fun Practice Activities Using Events, Functions, and Subject Studies

Fun practice activities using events, functions, and subject studies included educational programs that provided opportunities for people to get together to acquire new knowledge about disasters while, for example, creating materials on disaster management.

Kochi Higashi High School in Kochi Prefecture organized a program called “From School to Local Communities and Schools: A Project to Spread Disaster Management Culture,” which won the 2008 Grand Prize for Disaster Management Education. This program focused on educating a wide range of people at special events and effectively used learning time during school hours for disaster management education. An example of one such event was a disaster awareness activity at a local festival (the Ichinomiya Exchange Festival) that included a mascot created by the Kochi Prefecture. As part of their efforts, the students also made disaster prevention items by hand during home-economics classes; these were later exhibited at the festival.

3.2.4. Less Frequent and Unique Practices

Less frequent and unique practices include the types of disaster educational programs that are less common in the Disaster Management Education Challenge Plan but respond to specific needs. These programs can be further divided into four subgroups including (1) programs by high school volunteers, (2) water-related disaster programs in Chugoku, Shikoku, and Kyushu regions to address events that occur in those regions, (3) delivery classes and disaster simulations in which classes take place at specific sites as requested, and (4) programs intended to address the specific needs of people requiring assistance during disasters. These less commonly practiced programs leave considerable room for being used to reinforce educational programs. In particular, the last program is a key priority of disaster management and one, therefore, we should focus on and enhance.

According to the “Evacuation Guidelines for Assisting People Requiring Assistance During a Disaster” [5] (published by the Cabinet Office Government of Japan in 2006), people requiring assistance during a disaster are “people who require support in a series of actions to protect themselves during a disaster such as evacuating themselves to a safe place.” A number of elderly people and people with disabilities reportedly fell victim to the Great East Japan Earthquake [6, 7].

Takatsu Regional Network Promoting Committee of Takatsu School for Special Needs Education organized a disaster educational program for people requiring assistance during a disaster. This program, “Community Disaster Simulation Drill for Assisting People with Disabil-

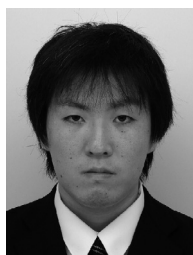
ities, Elderly People and Other People Requiring Assistance,” won the 2011 Outstanding Program Prize. The program organized a drill for students with disabilities in partnership with schools and local communities to identify how emergency shelters should be set up and managed to be accessible to people with disabilities, elderly people, and others requiring assistance. The aim was to raise disaster awareness among students with disabilities. Added benefits of the program were the revitalization of local communities through the opportunities provided for exchange between students with disabilities and local residents, and the deeper understanding of disabilities and the school that was fostered.

4. Conclusion

The study analyzed disaster educational programs in the DMECP and classified them into different types. The analysis assessed active programs dedicated to current disaster management education, the target of the programs and the purposes of education that they emphasized. The changes in the number of programs according to the type of disaster revealed how massive disasters could influence people’s interests in them. As a result of cluster analysis, the study was able to organize the disaster educational programs into four types based on their characteristics. The research also identified areas where disaster educational programs should be intensively reinforced. Overall, it is expected that citizens and workers who are engaged in disaster management responses will be able to launch further educational work in the future by referring to the past practice typology identified here.

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