

Training Teachers on Disaster Risk Reduction in Developing Countries: Challenges and Opportunities



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SUMMARY:

This paper discusses issues related to training school teachers in the developing countries on the Disaster Risk Reduction (DRR) problems. Various teacher training techniques are mentioned in this paper with emphasis on in-service training. Teachers with dissimilar backgrounds need to be taught different materials in the same course in order to reach the same level of disaster preparedness and the required related knowledge. In this regard, the paper tries to discuss challenges and propose opportunities briefly. In the first sections of the paper, the key issues in in-service training for adults are addressed. Then, interactive methods that can be used for in-service training are briefly explained. After that, the case study of Iran as a sample of developing countries is presented, and the basic issues in training teachers on DRR are discussed. At the end, the challenges in training teachers are presented and recommendations are provided.

Keywords: Teachers, Training techniques, Disaster risk reduction, Education

1. INTRODUCTION

Teachers play a crucial role in class especially in aspects of disaster education. In educational planning, the role of human resources is of great importance. In other words, organizational planning means choosing useful personnel and resources and put them in an appropriate place. It is also important to establish an interactive link between them in order to gain the educational goals and objectives. Teachers as human sources play an important role in educational planning and their knowledge and skills should be evaluated regularly.

In teacher training, there are different kinds of teaching:

- Training before service: This kind of training is usually undertaken in short or long teaching period and offers general expertise to the personnel.
- Training at the time of starting the service: It is to familiarize teachers with the environment and the facilities that will be offered to them.
- In-service training: This kind of training is of high importance. It consists of a combination of teachings which familiarize the teachers with new and updated knowledge and information. One of the methods used in in-service training for adults is Training of Trainers (TOT). Due to the large number of teachers and human resources which are working in schools and educational systems, a group of teachers from specified areas are chosen and will be taught about a particular subject. These trainings can be in various methods that will be presented later in this paper. At the end, teachers will be assessed and after being recognized as qualified teachers, they will be given the responsibility to hold educational courses and train a majority of other teachers. In this manner, the new information will be disseminated to other teachers in various branches and they can get the information in a cost-effective way and less time.

In the following sections of this paper, first the key issues in in-service training for adults are

addressed. Then, the interactive methods that can be used for in-service teaching are briefly explained. The case study of Iran is presented and the basic issues in training teachers are discussed. At the end, the challenges in training teachers on (DRR) are presented and recommendations are provided by the authors.

2. KEY ISSUES IN IN-SERVICE TRAINING FOR ADULTS

As noted earlier, one of the methods that is used in in-service training for adults is TOT, the main goal of which is to provide the necessary knowledge for teachers as well as to increase their educational skills. In TOT, the target audience is usually a group of teachers or instructors which plan to disseminate what they have learned to other teachers in the near future. In fact, the target audience belongs to adult groups. Their main characteristics are listed briefly (USAID 2006):

- Adults and their teaching do not need intense control and direction as in case of children.
- Adults usually have enough experience and can link and connect between the new knowledge and what they have gained before.
- Adults usually prefer to play an active role in training and take responsibilities and not to act merely passive.
- Learning is a long term process for most of the people.
- The learning process should include both the intellectual as well as emotional components.
- Adults prefer the kind of educational environment which is not very formal.
- The incentives for adults should be various using all senses such as hearing, feeling, seeing, etc.

The educational cycle that is used for training teachers consists of four steps including experimenting, reflection, generalization and application which will be described briefly (USAID 2006), see Fig.2.1. Also, the use of each cycle in case of teaching about disasters, such as earthquakes, is also highlighted hereafter.

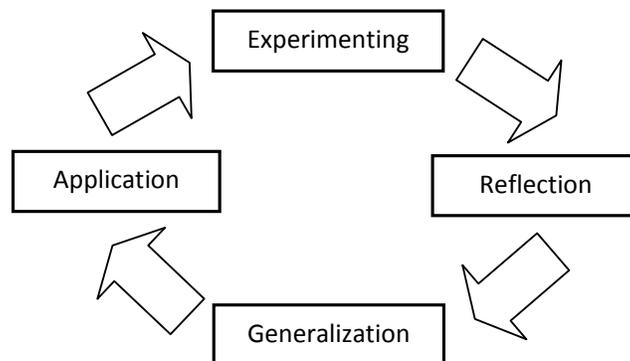


Figure 1. Different steps of educational cycle

Experimenting: In this step, few activities can be done including group problem solution, case studies, case scenarios, field visits, skills practice, role playing and team work. The trainer needs to act as a guide in this step and to introduce his/her practical objectives as well as time frame. The information that will be given in this step should be comprehensible to all trainees and to stimulate them for learning. With regard to the group activities, a guideline should be given to all trainers showing their responsibilities. Each trainer can choose his/her group members or ask for volunteers and divide the various tasks between them, such as writing notes, guidance, time management and writing reports. In regard to earthquake and safety issue, the trainer should choose one of the introduced activities. The group should talk about their past experience. For example, if someone has experienced an earthquake, or has already taught about earthquake issues, he/she can explain it to the class or write it down on the board. Then, the trainer can pose questions and make others to get focused on the subject. For example, "What is your idea about teaching earthquake issues in the class" or "What educational methods can be used for teaching earthquake issues?"

Reflection: The trainees will explain the information and experience they have acquired to other members of the group. When they talk about their experiences, the key points should be clarified. In this step, the trainer/instructor should direct the discussion and emphasize on the key points. In regard to earthquake and safety issue, the process is the same. When a person talks about his/her experience about earthquakes, the trainer should ask about key questions such as: "What was your feeling about this experience?", "Do all agree with this?" and then guide the whole discussion. If someone has experienced a special teaching in his/her class about earthquake and safety and explain for the group, the trainer/instructor can ask this from other members of the group: "Do you agree with this educational method?", "What are the strengths and weaknesses of this method?", and so on. In this way, the discussion will be guided and the key points will be identified.

Generalization: In this step, the participants should identify what they have talked or discussed about in the previous step. In this step, the instructor should help the participants to focus on their experiences, and in the meantime help them to recognize that they have learned the new issues. It is necessary that the trainer/instructor know about the earthquake and safety issue properly and can be regarded as a reliable and useful resource for other members of the group. In regard to earthquake and safety issue in this step, a short explanation about the educational method that was discussed in reflection part will be provided. The key points will be discussed and a short explanation of the earthquake and safety method and its positive and negative aspects will make the trainees ready to get into results.

Application: The participants need to link between what they have learned and the real world. They can use their knowledge in performance. For example, in case of earthquake and safety issue, a class can be hold and to ask one of the trainees to explain what he/she has learned to the whole class. The role playing for correct sheltering in class can be one of the examples. In this performance, the trainer/instructor can act as the guide and stimulate others to use and apply what they have learned.

In the next section of the paper, some interactive training methods mentioned in the educational cycle are explained one by one.

3. INTERACTIVE TRAINING METHODS

Among the various methods which are used for training about DRR issues, the interactive ones seem to be more appropriate for teacher training. A list and brief description of these methods is provided as follows (Ghoorchian 2006, Ratiani et al. 2011):

- Group discussion,
- Demonstration,
- Conference,
- Excursions,
- Role playing, and
- Learning while doing.

Group discussion: A discussion is used to review different approaches, ideas and problems within a group and is an effective method for developing a number of different skills. These skills include logic, active listening, the formulation of arguments and the ability to listen and respect a differing opinion.

Demonstration: This method is based on observation. People usually learn their special skills through observation. Demonstration has got four main steps: preparedness, explanations, demonstration and assessment.

Conference: This method is different to lecturing. In lecturing, the trainer provides the trainees with the information, but in the conference, information is gathered by trainees themselves. In this method,

an active situation is created for the trainees. In this learning process, all trainees can be active and present and share their ideas and experience to the others. In this method, experiences, ideas and thoughts are focused on a specific subject. The trainer's role in this method is guidance, management, control and discussion. For conference, following issues need to be prepared: facilitator, facilities, group, time schedule, and resources related to the subject.

Excursions: A group visit to an institution or an organization in order to learn about its function is normally called excursion. During an excursion or a site visit, trainees will be provided with an opportunity to observe work processes in its real environment and to receive first-hand information about its characteristic features.

Role Playing: Role play is accompanied with performing. This method can be used in individual and group teaching. During role play, trainees stage a real situation, act-out certain roles and thus receive theoretical knowledge and practical experience. Role play is an active form of teaching, during which the trainees can be both mentally and physically active.

Learning While Doing: This is a practical method during which trainees receive not just information, but the exact instructions necessary for the experiment or simulation. The goal is for trainees to carry out actions that will develop their knowledge or skills. During the practical work, the teacher must intensively use feedback in order to ensure its effectiveness.

In addition to the above interactive methods, lectures can also be used. A mini-lecture is a brief lecture aimed to provide certain information to the audience. Lectures of this type provide learners certain knowledge but do not develop their skills. During a mini-lecture, no special technical equipment is needed. However, visual materials such as diagrams, photos, charts and tables can be also used. This method is appropriate for teaching in big groups and the focus will be on very important and precise points. The shortcoming of this method is that the trainees are not very active. The sense of cooperation between trainees could not be gained in this method. Also, the lecturer should have certain skills to present his/her words.

4. SAMPLE CASE STUDY: IRAN

One of the important issues that had been undertaken in Iran is "In-service training" in earthquake and safety issue. This theme has been inserted in various educational school levels such as fifth elementary level and third secondary level curriculum. It has also been performed through holding nation-wide "Earthquake and Safety" drills in November annually in all schools of the country. Therefore, with regard to the importance of this subject, a representative group of teachers should be trained on how to teach other teachers in order for the latter to get familiar with the earthquake and safety issue as well. As was mentioned in the introduction section, one of the methods used for in-service training is TOT. In coincidence with the thirteenth nation-wide "Earthquake and Safety" drill in 2011 in Tehran, the Tehran office of Ministry of Education (MOE) announced that self-relief training will be held with participation of 65 thousand teachers as well as 105 thousand of retired teachers in Tehran. Also with an agreement between Iran National Disaster Management Organization and Red Crescent Society of Iran, 35 hours in-service training has been arranged for teachers and related personnel in education section on self-relief and confronting disaster issues (Jam Online Website 2011). Two courses of TOT have been held in Iran for the teachers in 2011 (IIEES Website 2011). As noted, sometimes these courses are also organized for those teachers who have already been retired with the aim that their experience can be used and shared more effectively since they have more free time.

In general, a proposed project for teacher training should cover the whole country. In Iran, a self-study book has been designed and is in use by secondary school teachers in "Defense Preparedness" which provides them with guidelines on how to teach earthquake issues, see Fig. 4.2. In this book, teachers will get familiar with the safety measures and emergency response activities in case of disaster events such as fire, earthquakes and so on.



Figure 2. Teacher book for boys in "Defense Preparedness"

At the moment, the "Defense Preparedness" book is published with a detailed chapter on earthquakes. This book is published in two versions, one for boys and one for girls. In order to get familiar with the contents of this book, teachers should attend an educational class before the school term starts. They also can use this book which contains all the education tips for these lessons step by step.

5. BASIC ISSUES IN TEACHER TRAINING

In each training program, the first step is to point out the main issues in training which are:

- Target trainees
- Training needs
- Training objectives
- Training strategy.

As a whole, it can be noted that the educational goals should be identified based on the educational needs. The objectives of the sessions should be explained to the participants in order for them to be active. All educational methods and techniques should be used and the participants should be assessed at the end. After holding educational courses, feedback should be received based on the course and the knowledge and skills of the participants should be evaluated. The trainees should be asked to perform what they have learned in other groups. At this time, a connection link should be established between the trainer and the trainees in order that the latter could talk about their problems and challenges. This link can be organized every month or season based on the available facilities. Also the information of trainees should be updated regularly and be accessible for them to use.

In accordance to the mentioned issues, some of the major questions which this paper tries to deal with are:

- Who should be trained?
- What to teach?
- When to train?
- How to train? and,
- Who should train?

These issues are explained in the following sections of the paper briefly.

5.1. Who Should Be Trained?

The first issue is to choose the most appropriate group of teachers for training. Special attention should be paid to selecting those teachers with outstanding experience in teaching lessons related to disaster issues. With regard to the high number of teachers who should be trained, a selected group of teachers,

named as the core group, should be considered as trainees to teach the majority group of other teachers. For this purpose, teachers who have taught on lessons such as science, geography, skills, and similar lessons, are the most appropriate group. This group can be considered as the selected group. The process of choosing the selected group of teachers can be through various criteria. One can be by asking the school principals. They can inform about the background and interests of the teachers. Also the rich experience of teachers in this regard can be highly important in their selection process. The final selection of the core group teachers can be done based on some pre-designed tests. Also in selecting process, the motivation of the person is important (Jarvis 2000). There might be teachers who would like to act as volunteers which can be considered when the selection process is started.

5.2. What to Teach?

In general, the training contents can be divided into four main categories including: the causes and effects of earthquakes, what to do before earthquake for reducing the vulnerability, correct sheltering during earthquakes, and finally what to do after the earthquake as effective emergency response. With regard to the teacher's background, teachers of geology and geography can be taught on the causes of earthquakes. The science teachers can be taught on the damages to the built environment. Preventive measures and correct sheltering can be taught to skills teachers. Emergency response activities including first-aid also can be taught to the related groups of teachers such as biology and health science teachers. The training materials should provide useful information on the definitions, assessment, and classifications of several types of hazards, with references as well as a general index, figures and graphs. To create more incentives in trainees, it would be very useful to start the training with referring to cases of earthquakes in which people have survived and have saved others due to considering and applying safety measures.

In addition, various disaster scenarios should be prepared and introduced to the teachers in order to familiarize them with the situation. These scenarios can be scheduled in at least few occasions, such as school time, on the way to and from school and also at home. This can be practiced through different simulations and drills. In countries such as India (SEEDS 2008), Iran, Jordan (UNESCO Amman 2012) and similar countries, it is easy and practical to define these scenarios as natural hazards are frequent events. Procedures and role clarification as well as the exchange of knowledge would be useful to teachers participating in rescue and recovery activities. Also, action plan sessions seem very useful. Field visits such as seismic fault observations, visiting fire stations, etc... have to be arranged for teachers under training, so as to familiarize them with the disaster activities. Their observations can be discussed in a group session with all trainees in order to exchange experiences and views. Flexibility in the program and the levels taught is also a factor that should be considered.

5.3. When to Train?

Spending adequate preparation time and utilizing all available resources before a disaster occurs, is of high importance. Teachers should be prepared to allocate a certain period of their routine work to be trained on disaster issues. This can be a specific course of time, for example one month in a year, at the time of school holidays.

Also, a schedule, containing one hour per day during the working days of a week can be specified until the whole training hours is fulfilled. In addition, summer one or two days workshops have been acknowledged by various groups of people which have been trained for similar issues (Hosseini and Izadkhah 2008). Another opportunity can be the free hours that school teachers can share in order to gather in a specific place (the schools with more appropriate facilities) for training.

5.4. How to Train?

There are two main issues regarding how to train teachers: first, training the core group by the experts, and second training the majority of other teachers by the core group. The same materials in each category can be taught by various formats to keep its attractive to the trainees and to meet their

different tastes. Regarding that the main concern of this paper is TOT, part of the training methods are those mentioned in the interactive training methods section.

5.5. Who Should Train?

Various materials mentioned earlier need to be taught by related people with high expertise and knowledge of the field. One of the proposed ways is to form a training committee comprising all required experts, who are divided into various working groups. At first, skillful and knowledgeable representatives can be trained in order to teach a majority of groups involved in disaster-related activities and programs. In the second stage, this core group will teach other groups of teachers based on a scheduled pre-planned program.

A minimum qualification of a trainer is to have achieved an adequate standard of competency in both the emergencies field and the pedagogical one. First of all, the trainer should know appropriate parts of the academic and professional literature on emergency management, as well as the curricula that are commonly used in educational and training courses in these fields. Also, the trainer shall have undergone academic or professional training leading to a qualification in emergency management that is appropriate to the subject matter and techniques he or she has to teach. It can be also mentioned that those trainers who are very active and try to involve the whole course in earthquake related activities and discussions of the seismic issues is also useful in the course.

6. CHALLENGES IN TRAINING TEACHERS

The opportunities for training school teachers for DRR were discussed in the previous sections of this paper. However, there are some difficulties which can hinder the training process. The issues that need special consideration are:

- Lack of appropriate and adequate background knowledge, expertise and experience in disaster related issues - It is possible that there might be only few people in any country who have got an academic background or first-hand experience on various natural disasters. Therefore, it seems that training a core group of teachers is of great importance, since they will be able to train others in sub-groups.
- Insufficient time to train teachers mostly due to their daily commitments - They seem far too busy to get involved in these issues and activities. Therefore, there should be a specific time allocated to train them and the intervals for this training should also be identified.
- Lack of sufficient priority given to training of teachers in spite of the fact that this is a very important area which needs urgent attention.
- Lack of appropriate partnership between the teachers in various regions. The main reason behind this is the lack of enough interest and motivation of teachers to use the internet as one of the most appropriate tools for knowledge and experience sharing and transfer.
- Lack of enough motivation and incentives in many teachers due to the fact that they might not have received much benefit from their previous trainings.

7. RECOMMENDATIONS AND CONSLUSION

Reference to what was discussed in the previous sections of this paper, few suggestions are also provided:

- Training a core group of teachers with special techniques and teaching guidelines is vital in providing sustainable earthquake education. This requires immediate attention by the MOE and other involved organizations. It is believed that 'Teacher Orientation Workshops' should be conducted to secure the active participation of those involved in the definition and development of the content and approach of the textbooks and the special disaster lessons. After development of the teaching materials and guidelines, they should be incorporated in small-scale pilot implementation studies run by teachers in order to determine whether the approach assists in easier and more

- effective transmission of information from teachers to other teachers.
- Evidence has shown the manner in which teachers interact with other teachers to raise their awareness of disaster issues. Consequently, the first requirement should be to provide 'Awareness training' courses for the teachers. Teachers should be inducted into training programs conducted or organized by the appropriate authoritative institutions. These institutions can provide information about past disasters and the natural hazards within the country. Authoritative institutions should cooperate and coordinate in the provision of a special program to provide educational training and resources in respect of emergencies and disaster issues. It is believed that a communication system needs to be gradually implemented between teachers through schools and this process of communication and sharing of information should be more developed and structured.
 - There can also be "Summer Courses" for teachers while they are in their school holidays during the summer time. This opportunity can lead to the efficient use of time and space. More groups of teachers can get the opportunity to meet and exchange knowledge and experience. This can be arranged by the MOE. These courses can be held in multi-purpose complexes with suitable facilities which provide an appropriate space for drill performance. One of the benefits of holding summer school training for teachers is the possible presence of the related experts in the field. The capability of selected trainees for transferring the material to other teachers can be assessed through observation by the expert groups in order to evaluate the effectiveness of training courses.

To conclude, it is hoped that the proposed training scheme can be implemented in near future for all teachers in disaster-prone developed countries.

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