

## PRIMARY SCHOOL TEACHERS KNOWLEDGE LEVEL ABOUT USE OF ICT FOR ENHANCING DISASTERS AWARENESS AND PREPAREDNESS IN SKARDU DISTRICT

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### ABSTRACT

Natural disaster is abnormal events caused by natural process which lose lives and damage properties. This study investigated the awareness and preparedness of in-service primary school teachers about natural disasters. During the study, the level of knowledge, awareness and preparedness of in-service primary school teachers about natural disaster awareness and preparedness by using ICT was assessed. Quantitative method was utilized. Research tools was a five-point Likert scale. The sample of the current study was selected through multistage sampling from in-service primary school teachers of disaster-affected sub-division of the Skardu district. Data was analyzed through Statistical package for Social Science (SPSS) calculated descriptive statistics. The finding of this study showed that the primary school teachers who are now employed have limited knowledge about awareness and preparedness of natural disasters by using ICT. So, there are need to conduct training programs for in-service teacher on preparedness and awareness of nature disaster and need to aware teacher how to use ICT to teach topics related to nature disaster.

**Keywords:** Disaster, Natural Disaster, Disaster Education

### INTRODUCTION

Climate is changing day-by-day which cause flood, heavy snow fall and landslides in Skardu district. Research revealed that children are more vulnerable, unsafe, and endangered during disaster (Paci-Green et al., 2020; Shah et al., 2018; Aitsi-Selmi et al., 2015). It is the responsibility of teacher to be aware, and prepare children to deal with any disaster risk. So, researcher conducted research to assess level of knowledge, awareness and preparedness of in-service primary school teachers about natural disaster by using ICT. Disasters are abnormal activities that happen on earth and damage the entire

system of that particular area. (United Nations International Strategy on Disaster Reduction, 2004). Therefore, disaster education is playing an important role either mention in curriculum or co-curricular activities due to the change of climate across the world. (Delicado et al., 2017). Disaster education means educating all individuals in society about the nature of their geography and norms and the consequences of their relationship with the environment and culture bringing changes and conflict in their society. (Shah et al., 2020).

In 1990, researchers revealed different disaster situations around the world and took a discussion on it within the international community. Disasters are classified into two categories, one is natural disasters like floods, earthquakes, and volcanos etc. While second is human-made disasters like war, conflict, and genocides (Nicholai & Obura, 2003). Financial issues, pandemics, and the increasing rate of children in street are also included in disaster (Pigozzi, 1999) these challenges are being faced by people around the world. For that purpose, disaster education projects were launched around the world to save children. Nicholai & Obura, (2003) identified that maximum communities of the world are providing disaster education to deal with both human-made and natural disasters but it is a reality that every disaster has different nature of consequences. So far, there is no absolute way to succeed well (Sinclair, 2002, p. 26). In April 2000, World Education Forum conducted a meeting in Dakar whereby the Framework for Action purpose was introduced to achieve education for all, consisting of all those children who suffered from war, conflict, flood, earthquake, and instabilities.

There are slow and fast ways to educate, prepare and aware stakeholders about natural disaster. Integration of disaster risk education in the curriculum at all levels from preschoolers to higher levels is one of the slowest ways to aware and prepare an individual for disaster and disseminate information through advertisement, poster, signboard, video clips, serious games, disaster story, toys, and documentaries are quick process to train the individual for disaster risk. (Shaw et al., 2011).

## Research Objective

To assess the primary school teachers' knowledge about natural disasters.

## Research Questions

How much do primary school teachers who are currently teaching know about natural disasters?

How do in-service primary school teachers perceive awareness and preparedness for disaster situations?

How do primary school teachers who are currently in service see the application of ICT to improve awareness, and preparedness for disaster situations?

## Literature Review

According to Pakistan Poverty Alleviation Fund, 2015 disaster as, the destruction of a community in which whole system of that society destroys including societal life, educational life, and a financial, natural, and artificial habitat which paralyzes catastrophe-affected communities. (Pakistan Poverty Alleviation Fund, 2015). According to Van Westen (2000) natural disasters are an occasion that is done due to natural situations there is no human interference cause for human community destruction. i.e. floods, landslides, heavy snowfall, and earthquakes are types of natural disaster.

## Natural Disaster in Pakistan

Pakistan is a third-world country facing a lot of challenges one of them is natural disasters like earthquakes, floods, landslides, heavy snowfall, glacier melting, etc. Pakistan has faced highly destructive natural disasters in its history. Pakistan has faced twenty-two high frequency floods since its inception and lost more than 11,893 precious lives during the destructive event of floods. The first life-snatching flooding happened in 1950 in which two thousand lives were lost and 10,000 villages were affected after that 1976 flood took 425 important lives. In 1992, a flood killed 1000 people and damaged 13,208 villages. (Shah et al, 2019). It is observed that in the 2010 flood in Pakistan, the intensity level was highest than the previous flood in the history of the country. According to Federal Flood Commission (FFC), Khyber Pakhtunkhwa province (KP) was the most affected province regarding death rate and infrastructure damage about 60% of people were affected including 197 primary schools (King & MacGregor, 2000). But the 2022 flood in Pakistan was highly destructive and damaging than the 2010 flood. According to, National Disaster Management Authority (NDMA) around 33 million people have been affected, and 8 million were displaced between June and August 2022. Around 1,700 people including one-third of children lost their precious life in this flood.

Recently one of the deathliest Natural disasters happened in Pakistan due to heavy snowfall in Murree. Pakistan's mountainous town of Murree is located 30 kilometers northeast of Islamabad. On

Friday, January 7, 2022, about 10,000 people and 1000 vehicles moved towards Murree to enjoy the snow but about 22 people never came back due to heavy snowfall which block the road and snow piled onto the roofs of cars. The reason for death was cold and carbon monoxide poisoning, which releases by car heaters. (Meo, 2022)

Pakistan has been facing an earthquake since day one but on 8 October 2005, Pakistan faced the historical strongest earthquake. The earthquake caused a destructive effect on human social, professional, and economical lives. The most affected region of the 2005 earthquake was Muzaffarabad, Mansehra, Batagram, Bagh, and Poonch. Approximately 90,000 individuals lost their precious lives, 79,000 were injured, and 3.5 million people were displaced. According to the government, 19,000 children never came back home due to the collapse school building in the 2005 earthquake (Maqsood & Schwarz, 2008).

## **Natural Disaster Awareness and Preparedness**

As literature showed that, disasters are becoming a part of our lives as the climate is changing around the world so, there is a need to be aware and prepare people for both types of disasters (natural and manmade disasters).

Adiyoso and Kanegae (2013) said, awareness about disaster can be described if somebody thinks about the disaster, discuss the disaster and talk about disaster management with their companion means they have awareness of the disaster. And if an individual has a disaster plan, keeps phone numbers with them, stores food for a bad time, gets information, and learns disaster drills means he or she is prepared for disaster management. Furthermore, Kariadi et al. (2020) described, disaster preparedness as pre-disaster activities the purpose of these activities is to develop rescue skills among individuals which would be helpful during and after a disaster to prevent loss and help communities to lose their lives and their properties.

Education is a broad source to be aware and prepares individuals for disaster. Marla and Yasamin (2008) identified that children can prepare for disaster through both formal and informal education. Formal education by integrating disaster management topics in all levels of the curriculum and through informal education can teach children disaster management by

engaging children in enjoyable activities like games, speeches, videos, dramas, documentaries, stories, toys, posters, and writing competitions are ways to aware and prepare children to deal disaster challenges. Schools in Nowshera and Charsadda districts of Khyber Pakhtunkhwa are located at highly flood-affected areas that's why they are properly aware and prepare students for different types of disasters through drills and showing videos and properly told them whom to call during a disaster, how to contact parent and neighbors and do not cross the bridge in flood situation because these are the part of their curriculum. (Shah et al., 2020).

Like ICT plays important role in our daily life, ICT proved itself successful in the time of disaster especially for early warning, during a disaster, and after a disaster to help in recovery. Good use of ICT in early warning and communication with the people of the sensitive area can be helpful to save precious lives. (Asio & Cagasan, 2014). Now a day's people use different technology sources to be aware and prepare for disaster. Kaufhold & Reuter (2016) explored that, during disasters, social media including Twitter, Facebook, and Google Maps are frequently used by disaster-affected people to coordinate or communicate for government and volunteer aid.

If we talk about the use of ICT in the classroom for the awareness and preparedness of children for disasters. Winarni et al, (2021) found that ICT is used in different forms to teach children about a disaster like PowerPoint presentations, slides, videos, pictures, simulation, and learning games. A research was conducted by Winarni et al. (2021) on disaster awareness and preparedness by using learning games. For that purpose, they provided software to the student to use to play an earthquake game in one group of classrooms and other taught by lecture method. The earthquake game was consisting of a video and a game, video helps to give awareness for students about earthquake and the game helps to prepare students for earthquake practically by an animation that prepare students for before earthquake planning, implementation of planning during an earthquake, how to save our self and what to do after an earthquake. The result showed that students who used an android-based earthquake game are more prepared for an earthquake than those who did not.

There are many challenges regarding disaster preparedness which are including the lack of planning, willingness, and action before, during, and after a disaster. (Mileti et al., 2002). If we talk about Pakistani school safety and disaster preparedness which are optional, not compulsory. Literature shows that Pakistani schools and especially Khyber Pakhtunkhwa province schools are witness which had faced more than one natural disaster like earthquake and flood etc. but still schools do not have any safety plans or activities to save the precious lives of children. (Shah et al., 2018).

## Research Methodology

### 3.2 Population

In-service primary school teachers of the district Skardu Gilgit Baltistan was the population of this

study. There are four sub-division of district Skardu, Gultari, Roundu, Gamba and Skardu. There are 328 primary schools in district Skardu and total number of primary school teachers are 830. There are 13 primary schools and 40 primary school teachers in Gultari, 85 primary schools and 151 primary school teachers in Roundu, 74 primary schools and 93 primary school teachers in Gamba and 156 primary schools and 546 primary school teachers in Skardu. Sample was taken from most disaster affected sub-division of Skardu district which are Roundu and Gultari.

**Table 3.1: Sample of Study**

| S. No | Name of sub-division | Primary Schools | Primary Teachers | Sample Numbers |
|-------|----------------------|-----------------|------------------|----------------|
| 1     | Gultari              | 13              | 40               | 10             |
| 2     | Roundu               | 85              | 151              | 20             |
| 3     | Gamba                | 74              | 93               | -              |
| 4     | Skardu               | 156             | 546              | -              |

### Sampling

Multistage sampling was used to conduct this study. First purposively selected annually natural disaster affected sub-division of Skardu district. Then selected 30 in-service primary schools' teachers, i.e. 10 from sub-division Gultari and 20 from sub-division Roundu who are easily available, can give time and want to participate in the study.

### Research Approach

Quantitative method was used as a research approach. Five-point Likert scale questionnaire was used which was consist of three parts all parts have ten items. First part of questionnaire assessed the knowledge level, second part of questionnaire assessed awareness and preparedness level and third part of questionnaire assessed awareness and preparedness with use of ICT of in-service primary school teacher. Research tools was validated by research supervisor and three PhDs. The tools were

modified according to expert suggestion like questionnaire was dichotomous but changed into five-point Likert scale and modified some items. Pilot testing helped prepare for tool reliability same schools of other district. The tool's language and scale shape underwent certain alterations as a result of the tool's pilot research. Some sentences were problematic for in-service teachers to understand, they were altered into easy sentences and translate each item into Urdu for better understanding of research participants.

### Quantitative Data Analysis

Data was analyzed through Statistical package for Social Science (SPSS) calculated descriptive statistics for the data collected through questionnaire. The quantitative data's mean and percentage were determined using SPSS.

**Table 4.2 Percentage of basic knowledge about Natural Disaster**

| Statements  | Strongly agree | Agree | Neutral | Disagree | Strongly disagree | Means |
|---|----------------|-------|---------|----------|-------------------|-------|
| I can define disaster.  | 29.6%          | 29.6% | 3.7%    | 33.3%    | 3.7%              | 2.52  |
| I think I know the disaster types in general.                             | 22.2%          | 40.7% | 11.1%   | 22.2%    | 3.7%              | 2.44  |
| I have experienced different nature disaster.                             | 14.8%          | 18.5% | 22.2%   | 29.6%    | 14.8%             | 3.11  |
| I mostly know disaster types that cause material damage and loss of life. | 29.6%          | 25.9% | 3.7%    | 29.6%    | 11.1%             | 2.67  |
| I think disasters can happen anywhere, anytime.                           | 25.9%          | 37.0% | 7.4%    | 18.5%    | 11.1%             | 2.52  |
| I think nuclear and chemical accidents are actually natural disasters.    | 11.1%          | 44.4% | 11.1%   | 25.9%    | 7.4%              | 2.74  |
| I think I can predict the sign of different nature disaster.              | 18.5%          | 11.1% | 22.2%   | 37.0%    | 11.1%             | 3.11  |
| I have knowledge of the risky disasters in my region.                     | 14.8%          | 25.9% | 18.5%   | 33.3%    | 7.4%              | 2.93  |
| The concept of natural disaster reminds me only of earthquakes.           | 22.2%          | 44.4% | 11.1%   | 18.5%    | 3.7%              | 2.37  |
| I think that I need some general information about disasters.             | 29.6%          | 48.1% | 7.4%    | 11.1%    | 3.7%              | 2.19  |

Ten questions about understanding of natural disasters make up this section of the questionnaire. Participants in the study completed a calculating questionnaire, which allowed researchers to learn more about the fundamental understanding of natural disasters among teachers who are teaching at primary level. In-service primary school teachers of district Skardu have limited knowledge about natural disaster were reported. By analyzing the percentages, appear that there is little knowledge of in-service

primary school teachers about natural disaster. Because majority of participant shown the agreement about need of general knowledge and understanding about natural disaster. This conclusion is concerning because it shows that District Skardu's in-service primary school teachers were unaware of natural disasters.

**Table 4.3 Percentages of Awareness and Preparedness about Natural Disaster**

| Statements   | Strongly agree | Agree | Neutral | Disagree | Strongly disagree | Means |
|--|----------------|-------|---------|----------|-------------------|-------|
| I am prepared for disaster may happen any time.          | -              | 11.1% | 3.7%    | 55.5%    | 29.6%             | 3.59  |
| I think first aid training is important in for students. | 40.7%          | 44.4% |         | 11.1%    | 3.7%              | 1.93  |

|  |       |       |       |       |       |      |
|--|-------|-------|-------|-------|-------|------|
| I think destructive effects of disasters should be shown to students.              | 33.3% | 48.1% | 7.4%  | 3.7%  | 7.4%  | 2.04 |
| I find the scope of disaster education given in schools inadequate.                | 18.5% | 66.7% | 7.4%  | 7.4%  | -     | 2.04 |
| I think some of the disasters' arrival times can be predicted beforehand.          | 7.4%  | 48.1% | 14.8% | 24.9% | 3.7%  | 2.07 |
| I have done planning and preparation with family and school members for disasters. | 11.1% | 18.5% | 14.8% | 55.6% | -     | 3.15 |
| We have Disaster and Emergency kits in our school.                                 | 3.7%  | 7.4%  | 22.2% | 59.3% | 7.4%  | 3.59 |
| I know how I will be informed during disaster and where to stay.                   | 7.4%  | 29.6% | 11.1% | 48.1% | 3.7%  | 3.11 |
| I think I am good enough about controlling students during and after a disaster.   | 7.4%  | 25.9% | 22.2% | 33.3% | 11.1% | 3.15 |
| I know which government agency to contact after a disaster.                        | 3.7%  | 29.6% | 29.6% | 29.6% | 7.4%  | 2.93 |

This section of questionnaire consists of ten questions related to awareness and preparedness about natural disaster. Study participants responded on assessment questionnaire which help researchers to assess awareness and preparedness about natural disaster of in-service primary school teachers about natural disaster.

According to reports, in-service primary school teachers were not well-informed about or equipped to handle natural disasters. Analysis of percentage shown that majority of in-service primary school

teachers are not prepared for natural disaster which may happened any time. The results highlighted that they have little awareness and preparedness about natural disaster. Khyber Pakhtunkhwa province is more disaster effected province of Pakistan but still primary school teachers are not aware about safety plans or activities to save the precious lives of children. Shah et al. (2018). Ozmen (2006) & Kubicek et al. (2008) also mentioned the limited awareness and preparedness of schools. Where further attention and improvement may be necessary.

**Table 4.4 Percentages of Awareness and Preparedness about Natural Disaster by using ICT**

| Statements  | Strongly agree | Agree | Neutral | Disagree | Strongly disagree | Means |
|---|----------------|-------|---------|----------|-------------------|-------|
| I use ICT to warn students about disasters.   | 7.4%           | 22.2% | 18.5%   | 44.4%    | 7.4%              | 3.26  |
| I practice for disaster at school by watching videos.                                   | 3.7%           | 39.6% | 14.8%   | 40.7%    | 11.1%             | 3.26  |
| I teach topics related nature disaster by showing documentaries.                        | -              | 29.6% | 11.1%   | 48.1%    | 11.1%             | 3.41  |
| I use learning games to enhances learners' critical thinking about disaster management. | -              | 37.0% | 14.8%   | 37.0%    | 11.1%             | 3.22  |

|   |       |       |       |       |       |      |
|---|-------|-------|-------|-------|-------|------|
| I use videos in classroom to make easier to teach topics related to disaster preparedness.      | 7.4%  | 22.2% | 11.1% | 48.1% | 11.1% | 3.33 |
| I show short plays on disaster planning in classroom.   | -     | 29.6% | 11.1% | 44.4% | 14.8% | 3.44 |
| I practice children about how can they save themselves during disaster by using learning games. | 3.7   | 29.6% | 18.5% | 37.0% | 11.1% | 3.22 |
| I use videos and learning game to promote problem-solving skills of my students.                | -     | 29.6% | 11.1% | 55.6% | 3.7%  | 3.33 |
| I know the different sources of learning games and videos about natural disaster                | 11.1% | 22.2% | 11.1% | 51.9% | 3.7%  | 3.15 |
| I think I need some training about ICT base disaster awareness and preparedness.                | 51.9% | 48.1% | -     | -     | -     | 1.48 |

This section of questionnaire consists of ten questions related to the awareness and preparedness about natural disaster by using ICT. Study participants responded on assessment questionnaire which help researchers to get know the awareness and preparedness about natural disaster by using ICT of in-service primary school teachers about natural disaster.

In-service primary school teachers have lack of awareness and preparedness about natural disaster by using ICT. Overall, the responses showed that there is a little use of ICT in classroom to teach topics related to natural disaster. And in-service primary school teachers are passionate to learn awareness and preparedness about natural disaster by using ICT. Winarni et al. (2021) found that ICT can be used in classroom to aware and prepare students about natural disaster in the form of power Point presentations, slides, videos, pictures, simulation, and learning games.

Overall, the responses suggest that there is little use of ICT in classroom to teach topics related to natural disaster so there is need for improvement in utilizing ICT, videos, learning games, and other multimedia tools for teaching disaster-related topics.

### Findings and Recommendations:

By analyzing data, the results are appear that there is little knowledge, awareness and preparedness of in-service primary school teachers about natural disaster. In- service primary school teachers did not use of ICT in classroom to teach topics related to natural disaster. Majority of participants showed the agreement about need of general knowledge and understanding about awareness and preparedness of natural disaster.

On the base of result researcher found that there are need to conduct training programs for in-service teacher on preparedness and awareness of nature disaster and ICT play important role in teaching and learning so, teacher there is a need to aware teacher how to use ICT to teach topics related to nature disaster.

Current study was conducted with in-service primary school teacher about awareness and preparedness of natural disaster by using ICT in future researchers may be conducted research with elementary, secondary school and higher secondary school teachers.

Future research could compare the public and private primary schools in the Skardu district, as this study was carried out in a public primary school.

Future researchers can be conducted research on the role of policy maker to integrate natural disaster

awareness and preparedness by using ICT in teacher education program

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