Delphi-based Research into School Efficiency During an Earthquake Crisis

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Abstract

Purpose: Because of the important role schools play in the lives of children and in responding to post-crisis problems, and given the recent earthquake in Kermanshah province, the current study aimed to identify the indicators of an efficient school.

Methodology: Using a qualitative method, this study was performed in classic Delphi and phenomenological phases on a research population comprising all workers and experts in the field of education in Sarpol-e Zahab city, Iran, who had worked from 2017 to 2019 in the city. In the first (phenomenological) phase, 15 city employees in the field of education were chosen using purposive sampling. In the second phase of the study, the sample comprised 11 people of Sarpol-e Zahab who were deemed education experts by education employees in the region, had worked in the city from 2017 to 2019, and had witnessed the earthquake.

Findings: After documenting the interviews conducted with the participants, 290 codes were conceptualized and then categorized into four general indices (students; school teachers and staff; school facilities, structure, and environment; and family). Based on the codes extracted from phase one, an 82-item questionnaire was designed for the second research phase (Delphi study). Ultimately, after three rounds of responses, 23 questions were removed, and the expert panel agreed on 59 questions.

Conclusions: Based on the results, it can be concluded that an efficient school is one that can consider the four dimensions of students school teachers and staff, school facilities and structure, and environment and family in designing the school.

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1. Introduction

Throughout history, nature has shown its violent forces with destructive phenomena such as floods, volcanic eruptions, cyclones, storms, wildfires, and earthquakes, reminding humans that these events are a continuous part of life on Earth. One should not think that it is possible to prevent those (Williamson & Courtney, 2018). In general, natural disasters, particularly earthquakes, cause not only physical harm, but also psychological trauma. Due to the severity of hazards caused by earthquakes, the resultant psychological problems are usually long-lasting. Iran is considered an earthquake-prone region in the world, and given the old structure of the majority of buildings in both rural and urban areas and the high earthquake casualty rate in the country; this phenomenon is deemed one of the most stressful possible disasters to occur in Iran. Its psychological and physical impacts give it added importance (Novia, Hariyanti, Yuliatun, 2020).

The Japan International Cooperation Agency has stated that disasters have serious impacts on educational services, such as not only the deaths of teachers and students, but also the sudden disruption of the education process and mental disorders among students (Mehr Aeen Nazdik & Kazemi, 2016). Half of Iran's population today consists of children and teenagers, who form one of the most important groups subjected to disasters and accidents (Mehr Aeen & Kazemi, 2016). Earthquakes can also change the attitude of students toward school and education, particularly when they are kept away from school for a very long time (Yeon, Chung, Im, 2020). They also cause physical and mental harm and cut off educational services (Baytiyeh, 2017; Trip, et al, 2018). During the post-earthquake period, students' performance in school may drop, resulting in a lack of concentration and poor grades. Moreover, students may demonstrate worrying behaviors (e.g., acting immaturely or becoming unable to use skills they had earlier) or complain about physical symptoms (e.g., headache or stomachache) (Siswa Widyatmoko, et al, 2011).

Unlike any other natural disaster, earthquakes are not avoidable. The only way to decrease damage caused by an earthquake is to prepare to effectively deal with problems arising in such a crisis. Therefore, the issue of the impact of natural disasters on schools and their staff, their short- and long-term social consequences, as well as the awareness of school staff of post-earthquake conditions and their abilities to deal with them must be considered (Seyle, Widyatmoko, Silver, 2013; Pourreza, Tohidi, Rafiee, 2009). Appropriate interventions must be considered based on the unique developmental needs of children and teenagers (Liu, et al, 2019).

During an earthquake crisis, schools not only play an important role in the recovery of students and solving their problems, but also can be effective in dealing with the social consequences and problems caused by the crisis (Clettenberg, et al, 2011). Schools are an important part of local communities and can offer a potentially quick and long-term response after a crisis. For example, schools can provide a physical space for storing and distributing resources (Gerstner, et al, 2020). Moreover, schools are effective in raising awareness about earthquake hazards in their corresponding societies and can potentially play a fundamental role in the communities' resistance against disasters (Naja, Baytiyeh, 2015).

Iran is an earthquake-prone country. The recent earthquake in Kermanshah clearly demonstrated how vulnerable children and teenagers are to these natural disasters. It is noteworthy that the Department of Education had no clear or predefined protocol or measures for schools after an earthquake. A review of domestic and international papers in this field clearly revealed a lack of studies on the indicators of the post-earthquake efficiency of a school that can decrease the phenomenon's harmful psychological impacts on students. In foreign literature, some studies, such as Baytiyeh in 2017, investigated the importance of promoting school flexibility for the safety of children and their continued education for the improvement of post-earthquake effectiveness. They stated that the promotion of social solidarity by improving the quality and security of school buildings and the abilities of school staff to handle changes in teaching methods and online learning during school disruptions and shutdowns are some key points in the recovery of societies damaged by an earthquake crisis.

In 2018, Schmidt identified a set of deficiencies related to teaching methods and today's student needs and offered some suggestions for improving the plans and, consequently, the earthquake preparedness level among students and their families. Seyle, Widyatmoko, et al (2011) showed a negative correlation between a teacher's depression and his effective classroom behaviors and also showed a significant relationship between post-trauma stress of teachers and general beliefs about the effectiveness of teachers. Considering the above issues, the important role schools play as the primary source of dealing with crises, and the importance of identifying, developing, and establishing the indicators of post-earthquake school efficiency, the present research aimed to identify such indicators.

2. Methodology

This descriptive study utilized the two qualitative methods of phenomenological and Delphi research. In the first (phenomenological) phase, the objective was to extract the indicators of an efficient post-earthquake school through examining the life experiences of the participants and prepare the required items for the second phase of the research, namely designing the Delphi questionnaire and having the expert panel verify and validate the results. In the Delphi method, the researcher must consult with experts in a particular subject to achieve agreement (Ranjbar, et al, 2012). The inclusion criteria in this phase included interest in cooperating, adequate ability and motivation to complete the questionnaire several times (as identified and decided by the researcher), employment in the field of education in Sarpol-e Zahab from 2017 to 2019, and being popularly considered as efficient under post-earthquake conditions (as indicated by the personnel of the city's Department of Education). The exclusion criteria included incomplete questionnaire completion and extreme delay in delivering the completed questionnaires. The expert panel had 11 members: 6 females (54%) and 4 males (46%). The mean age of the experts was 34.6 years (minimum 25 and maximum 49 years) and mean duration of work experience was 11.6 years (minimum 5 and maximum 23 years). Overall, 9 (81%) experts held a bachelor's degree, and 2 (2%) had a master's degree.

In qualitative research, sampling is done to determine particular groups of individuals with certain traits and/or those individuals who live in social phenomena similar to the one being studied and to generate rich information about the research case (Jalali, 2012). Hence, in the first (phenomenological) phase, 15 individuals including managers, teachers, and educational consultants who worked in Sarpol-e Zahab from 2017 to 2019 and were identified as "efficient and effective" during and after an earthquake by education employees comprised the sample. Before the start of the research, permission to visit the schools of Sarpol-e Zahab was obtained from the city's Department of Education. To comply with all ethical issues, permission to record the interview was obtained from all participants before the interviews, and all participants were assured of the privacy and confidentiality of their information.

The interviews were analyzed using Colaizzi's (1978) method of data analysis. After each interview, the dialogue was transcribed and reviewed multiple times. The data was broken down into semantic units in the form of sentences or paragraphs related to the original meaning, and the semantic units were reviewed multiple times. Next, appropriate codes for each semantic unit were written, and the codes were categorized based on conceptual similarity (Hsieh, Shannon, 2005). Ultimately, from all interviews, 290 codes and 4 main indicators (students, school teachers and staff, school structure and facilities, and environment and family) and 12 sub-indicators were extracted.

Based on the codes extracted from the first research phase (phenomenological study) and the studies performed, an 82-item questionnaire was designed to implement the Delphi method. For each item in the questionnaire, there was a quantitative section (Likert scale), where participants were asked to identify how much they agree or disagree with the corresponding indicator, and a qualitative section where respondents were asked to identify the reason for their agreement or disagreement and ultimately write down their suggestions for establishing post-earthquake efficiency in schools.

3. Findings

From the analysis of the interview data in the phenomenological phase, 290 open codes were acquired. Next, the open codes were categorized based on the similarities of 12 sub-indicators (i.e., adaptive-functional, mental, educational, training, personal, aid, equipment, planning, coordination duties, financial, psychological, physical-structural) and ultimately 4 main indicators, (students, school teachers and staff, school structure and facilities, and environment and family) were named. After studying the extracted open codes and removing those with semantic similarities, a total of 82 components were acquired for use in designing the questionnaire of the Delphi phase.

For the questionnaire of the first round of the Delphi study, 82 questions were designed. An analysis of the quantitative data resulted in the extraction of some indicators such as agreement percentage (Keeney, Hasson and McKenna, 2012). The decision-making criterion for the validation of each item was that any suggested item with a general agreement of less than 30% would be removed. Items receiving a general agreement percentage greater than 70% were accepted. Cases where the agreement percentage was between 30% and 70% were left for evaluation in the second round along with new cases recommended by the experts (Sadoghi, Nasiri, Langarizadeh, 2014)

Table1. Descriptive information of the first round of the Delphi study

index	Percentage of respondents to each option							Percentage of agreement	Decision
	Very much	Much	Above average	Average	Less than low	Low	Very low		
1 Help alleviate confusion caused by earthquake conditions	54.5	18.3	-	27.3				72.8	Accepted
2 Help eliminate student academic failure	36.4	36.4	18.2				9.1	72.8	Accepted
3 Give students time to adapt	36.4	45.5	18.2					81.9	Accepted
4 Solve curriculum planning problems in earthquake conditions	36.4	27.3	9.1	27.3				72.8	Accepted
5 Encourage students to attend class regularly	36.4	27.3	27.3	9.1					Referred to next round
6 Consider the facilities necessary for students' travel	27.3	27.3	18.2	18.2		9.1		54.6	Referred to next round
7 Establish school-specific transportation	27.3	27.3		27.3		18.2		54.6	Referred to next round
8 Identify students with earthquake stress and anxiety	54.5	36.4	18.2					81.8	Accepted
9 Acknowledge students' efforts	36.4	27.3	9.1	27.3				63.7	Referred to next round
10 Do not allow students' academic procrastination	45.5	36.4		9.1		9.1		81.9	Accepted
11 Identify students with depressed moods	27.3	18.2	36.4	18.2				45.5	Referred to next round

#	Item								Total	Status
12	Lower the difficulty level of the exams	27.3	27.3	27.3	9.1	9.1			54.6	Referred to next round
13	Reduce the volume of educational content	27.3	9.1	27.3	27.3		9.1		36.4	Referred to next round
14	Prevent students from dropping out	27.3	54.6	18.2					81.9	Accepted
15	Encourage absent students to attend school	36.4	45.5	18.2	18.2				81.9	Accepted
16	Identify students facing academic failure	18.2	45.5	18.2	18.2				63.3	Referred to next round
17	Hold a recreational camp outside the earthquake zone	36.4	18.2	27.3	9.1	9.1			54.6	Referred to next round
18	Get help from smart students as teacher assistants	36.4	36.4	9.1	9.1				72.8	Accepted
19	Hold earthquake memoir review sessions	9.1	54.5	9.1	9.1		9.1	9.1	63.6	Referred to next round
20	Give students hope for the future	45.5	36.4	9.1				9.1	81.9	Accepted
21	Positive and empathetic communication	45.5	24.3	27.3					72.8	Accepted
22	Give students hope for the future	63.8	27.3	9.1					91.9	Accepted
23	Provide earthquake safety education	63.8	27.3	9.1					91.9	Accepted
24	Promote student resilience through counseling	27.3	45.4	9.1	18.2				72.8	Accepted
25	Use religious teachings to reduce stress	45.5	9.1	36.4		9.1			54.6	Referred to next round
26	Refer students with severe physical or psychological disorders	27.3	27.3	18.2	9.1			18.2	54.6	Referred to next round
27	Provide timely and strong notification of the start of school	30.7	27.3	26.4					84.4	Accepted
28	Identify students who intend to commit suicide	27.3		36.4	9.1			27.3	27.3	Rejected
29	Understand the anxiety and intellectual concerns of teachers by school staff	36.4	27.3	27.3	9.1				63.7	Referred to next round
30	Use professional counselors	18.2	36.4	18.2		27.3			54.6	Referred to next round

#									Total	
31	Perform individual and group counseling for students	36.4	27.3	36.4					63..7	Referred to next round
32	Perform individual and group counseling for parents	27.3	18.2	9.1					45.5	Referred to next round
33	Hold teacher consultation meetings	27.3	18.2	27.3	27.3				45.5	Referred to next round
34	Hold teacher consultation meetings	36.4	18.2	9.1	27.3	9.1			54.6	Referred to next round
35	Use efficient counselors outside the earthquake zone	36.4	9.1	18.2	27.3	9.1			45.5	Referred to next round
36	Provide school staff from outside the earthquake zone	27.3	18.2	9.1	18.2	9.1			45.5	Referred to next round
37	Teach only the important contents of the book	36.4	27.3	27.3		9.1			63.7	Referred to next round
38	Provide suitable accommodations for school staff	27.3		27.3		9.1	9.1	27.3	27.3	Rejected
39	Offer continuous training on safety before and after an earthquake	18.2	9.1	27.3	9.1	9.1	9.1	18.2	27.3	Rejected
40	Ease evaluation	27.3	27.3	27.3	18.2				54.6	Referred to next round
41	Hold exams in a shorter period of time	18.2	36.4	18.2	18.2	9.1			54.6	Referred to next round
42	Eliminate less important lessons (by the school)	18.2	18.2	18.2			18.2	27.3	36.4	Referred to next round
43	Provide more strictness for studying	9.1	18.2	9.1	27.3	27.3	9.1		27.3	Rejected
44	Pay attention to the psychological aspect of students	27.3	9.1	45.5	9.1	9.1			54.6	Referred to next round
45	Allocate time and space for students' mental evacuation	9.1	27.3	27.3	27.3			9.1	36.4	Referred to next round

										Total	
46	Provide for basic needs of students	45.5	27.3	18.2	9.1					72.8	Accepted
47	Perform fun entertainment for students	36.4	27.3	27.3			9.1			63.7	Referred to next round
48	Hold extracurricular classes	36.4	18.2	36.4	9.1					54.6	Referred to next round
49	Create internal and external motivation for students	36.4	18.2	36.4	9.1					54.6	Referred to next round
50	Provide educational technology	27.3	18.2	9.1	27.3			9.1	9.1	45.5	Referred to next round
51	Hold online classes	9.1	36.4	9.1	18.2				27.3	45.5	Referred to next round
52	Paint conex homes	18.2	36.4		18.2			9.1	18.2	56.6	Referred to next round
53	Open dedicated bank account for each school	9.1	36.4		18.2			9.1	18.2	45.5	Referred to next round
54	Hold a classroom in a school-like space	45.5	27.3	9.1	9.1			9.1		72.8	Accepted
55	Create a study conex	18.2	18.2	9.1	18.2			27.3	9.1	63.7	Referred to next round
56	Provide classroom conditions in conex homes	36.4	27.3	9.1	9.1	9.1		9.1		63.7	Referred to next round
57	Play happy songs while exercising	27.3	27.3	9.1				9.1	27.3	54.6	Referred to next round
58	Create a place for students to exercise	27.3	27.3	9.1	18.2				18.2	54.6	Referred to next round
59	Supervise school construction	54.5	18.2		27.3					72.7	Accepted
60	Perform cultural activities	36.4	9.1	36.4	9.1				9.1	45.5	Referred to next round
61	Organize the school quickly	27.3	18.2	36.4	18.2					45.5	Referred to next round
62	Prepare of university entrance exam books	27.3	27.3	18.2	27.3					54.6	Referred to next round
63	Encourage top students in science and sports	27.3	18.2	9.1	34.4			9.1		45.5	Referred to next round

64	Hold a camp outside the quake-stricken area for students with university entrance exams	27.3	36.4	9.1		9.1		18.2	63.7	Referred to next round
65	Obtain the support of non-governmental educational institutions to help mine students	45.5	27.3	18.2	9.1				72.8	Accepted
66	Create space between classrooms to prevent sound transmission	27.3	27.3	9.1	18.2		9.1	9.1	54.6	Referred to next round
67	Use a conex home that is soundproof	36.4	18.2	18.2	9.1		9.1	9.1	54.6	Referred to next round
68	Have a prefabricated conex home depot	45.5	18.2	27.3	27.3	9.1			63.7	Referred to next round
69	Shorten class time	36.4	18.2	36.4			9.1		54.6	Referred to next round
70	Perform earthquake maneuvers	36.4	36.4	27.3					72.8	Accepted
71	Provide a relaxed environment for teachers and students	27.3	54.5	18.2					81.9	Accepted
72	Give counselors ample time to counsel	27.3	36.4	36.4					63.7	Referred to next round
73	Use the experience of people involved in earthquakes	45.5	9.1	27.3	18.2				54.6	Referred to next round
74	Distribute aid based on a specific mechanism	45.5	18.2	18.2	9.1		9.1		63.7	Referred to next round
75	Obtain parental consent for children to attend repaired schools	27.3	18.2	36.4	9.1		9.1		45.5	Referred to next round
76	Get help from various organizations	27.3	9.1	9.1	45.5	9.1			36.4	Referred to next round
77	Pay attention to the effect of stereotypes and gender on students	27.3	27.3	36.4			9.1		36.4	Referred to next round
78	Understand the developmental stage of students	45.5	9.1	27.3	18.2				54.6	Referred to next round
79	Pay attention to cultural and ethnic-religious differences	27.3	9.1	36.4	18.2		9.1		36.4	Referred to next round
80	Hold a memorial service	27.3	45.5	18.2	9.1				72.8	Accepted
81	Provide first aid training	36.4	36.4	18.2	9.1				72.8	Accepted
82	Strengthen the relationship with the Parent-Teacher Association	45.5	36.4	9.1	9.1				81.9	Accepted

The results shown in Table 1 indicate that out of the 82 questions which were evaluated in the first round of the Delphi study, 24 questions acquired an agreement percentage of 70 or higher; 58 questions acquired an agreement percentage between 30-70 percent and were chosen for evaluation in the next round. In the questionnaire designed for the next round, a brief description of the results of the previous round of the study was first presented along with the reasons offered for agreeing or disagreeing with each item during the last round's questionnaire to facilitate the evaluation using 58 questions on an 8-point Likert scale (from very low to very high) based on the comments offered by others.

Table2. Descriptive information of the second round of Delphi study

Question number	Percentage of respondents to each option							Percentage of agreement	Decision
	Very much	Much	Above average	Average	Less than low	Low	Very low		
5	50	30	20					80	Accepted
6	40	40		20				80	Accepted
7	50	40	10					90	Accepted
9	20	10	20	20	20		10	30	Rejected
11	20	40	20	20				60	Referred to next round
12	40	10	20			30		50	Referred to next round
13	10	40	30	20				50	Referred to next round
16	30	30		30	10			60	Accepted
17	10	10		20	10	30	20	20	Rejected
19	40	40	20					80	Accepted
25	10	20		50	10		10	30	Rejected
26	20	60	10	10				80	Accepted
28	20	30		30			20	50	Referred to next round
29	20	50	20			10		70	Accepted
30	50	30	20					80	Accepted
31	20	50	20	10				70	Accepted
32	10	40	30	20				50	Referred to next round
33	20	50	10	20				70	Accepted
34	10	40	40	10				50	Referred to next round
35	10	40	30	10				50	Referred to next round
36	20		60	20				20	Rejected
37	20	60	10	10				80	Referred to next round
38	30	50	20					80	Referred to next round
39	20	40	20	40				60	Referred to next round
40	40	40	20					80	Accepted
41	20	50	20	10				70	Accepted
42	30	50	20					80	Accepted
43	10		40	30	20			10	Rejected
44	30	50	20					80	Accepted
45	40	40	20					80	Accepted

47	10	10		30	40		10	20	Rejected
48	10	50	30	10				60	Referred to next round
49	40	30	20		10			70	Accepted
50	30	40	30					70	Accepted
51	50	30	20					80	Accepted
52	10	50	30	10				60	Referred to next round
53	10		30	30	10	20		10	Rejected
55	30	10	30	30	10	20		40	Referred to next round
56	30	40	20		10			70	Accepted
57	50	30	20					80	Accepted
58	40	40		20				80	Accepted
60	40	30	20		10			70	Accepted
61	20	50	20		10			70	Accepted
62	60	20		20				80	Accepted
63	30			30	10	30		30	Rejected
64	40	40	20					80	Accepted
66	30		40	30				30	Rejected
67	20	50	30					70	Referred to next round
68	10		40	40	10			10	Rejected
69		30	50	10	10			30	Rejected
72	40	40	20					80	Accepted
73	40	30		20	10			70	Accepted
74	60	10	20		10			70	Accepted
75	20	50	20	10				70	Accepted
76	40	30	10		20			70	Accepted
77	20	50	30					70	Accepted
78	40	30		30				70	Accepted
79		20	30	40	10			20	Rejected

In this stage, based on Keeney, et al (2012), if an agreement had been reached for all questions, the Delphi study would have been stopped; however, only 34 questions acquired an agreement percentage of 70% or higher and 24 questions acquired an agreement percentage of between 30% and 70% and were chosen for reevaluation in the next round. In the questionnaire designed for the fourth round, a brief description about the results of the previous round was first presented. The results of the qualitative analysis were offered in the form of agreement or disagreement, and the expert panel was asked to reevaluate the 24 questions on a 7-point Likert scale (ranging from very low to very high).

Table3. Descriptive information of the third round of Delphi study

Question number	Percentage of respondents to each option							Percentage of agreement	Decision
	Very much	Much	Above average	Average	Less than low	Low	Very low		
9	20			30	20	10	20	20	Accepted
11		20	40	40				20	Accepted
12			20	40	20	20		-	Accepted
13	10	40	30	20				50	Rejected
16	10		20	30	30	10		10	Referred to next round

17	10		20	40	10	10	10	10	Referred to next round
25			30	30	10	10	20	-	Referred to next round
28		40	40	20				40	Accepted
32	10	40	30	10	10			50	Rejected
34		10	10	40	30	20	10	10	Accepted
35	20	50	20	10				70	Rejected
36	10	20	30	10	10	20		30	Accepted
39			20	50	20	10		-	Referred to next round
43			20	30	20	30		-	Accepted
47			30	40	30			-	Accepted
48			10	50	20	20		-	Accepted
52		20	50	30				20	Referred to next round
53		30	40	20	10			30	Accepted
55		30	40	30				30	Referred to next round
63		40	20	30	10			40	Referred to next round
66		40	40	10	10			40	Rejected
68	10	40	30	10	10			50	Referred to next round
69			10	40	30	20		-	Referred to next round
79	10	30	30	20	10			40	Referred to next round

Only one question acquired an agreement percentage of over 70%, and 23 questions acquired an agreement percentage of 30% to 70%. The research was paused in this stage, because the above questions could not gain the acceptance of the expert panel in the reevaluation (Keeney, et al, 2012). By the end of the Delphi study, the experts decided that out of the 82 questions extracted from the first round's qualitative analysis, 59 questions matched the post-earthquake efficient school indicators.

4. Discussion

The indicators acquired from the Delphi study can be categorized into the same four main items extracted from the first research phase which included students, school teachers and staff, school structure and facilities, and environment and family. One of these main indicators which require special attention is students. Students as people who will shape the future are sensitive individuals with unique traits whose main personality takes form during their teenage years in school classes. Paying special attention to the unique and general traits of students and the creation of a suitable platform for their education during a post-earthquake crisis can solve many future problems. A post-earthquake efficient school is one that prioritizes students, tries to have children return and adapt to the new and special conditions of the school, and can motivate the students to return to the school.

After an earthquake, students are left with confusion that may take a long time to end and may cause them not to know what to do in different situations. Students' lack of awareness and the unpredictability of events will result in continued social and psychological problems for students, and consequently, they will be inefficient in school. If a school can take measures to raise awareness among students, create order, and eliminate their confusion, it can hope to implement plans successfully; otherwise, students' problems will not be solved. One member of the expert panel (male, 40 years old) stated that "many students suffer from stress and anxiety after an earthquake. School teachers and staff can play a significant role in reducing this stress and anxiety so the school can recover its original state and be efficient. An efficient school must use

psychologists and consultants to identify this stress and anxiety in students and take the necessary measures to eliminate them. With the presence of stress and anxiety, the efficiency of students drops, and the school will divert from its main function." Dineh, et al (2006) performed a study following a report from teachers, parents, and schools about suspicious behaviors demonstrated by students after a disaster, which showed the cognitive, social, and emotional consequences in students; therefore, it is necessary to pay special attention to students after an earthquake.

The second indicator consists of teachers and the executive staff of a school who play an important role in how efficient a school can be after an earthquake. Each teacher and staff member is a role model for students and can play an important role in encouraging them and establishing schools. As the most important source of education with which students spend half their days, teachers play a direct role in training the different educational, social, and ethical as well as other aspects of students. A teacher plays a vital role as the creator and shaper of the personality of students, so teachers followed by other school staff members must be mentally mature. A good teacher represents a good education. The presence of compassionate teachers and personnel is necessary, particularly during an earthquake crisis.

One effective activity that the executive staff of a school can conduct after an earthquake is to hold sessions for retelling memories and allocating time and space for emotional discharge. If emotions and memories related to an earthquake are not expressed, post-traumatic stress disorder and/or depression can occur among students. Expressing memories and emotions strengthens mental wellbeing (Prochaska & Norcross, 2018). Under conditions such as an earthquake crisis, students need to orally discuss their sadness and discharge their emotions to recover their healthy life. For this purpose, the help of consultants is needed, and they should be given adequate time and space to conduct their consultations. Above everything else, students must receive mental attention so a school can function as a school. A school where students are absent or have mental disorders cannot be efficient.

Similar to the study performed by Schmitt (2018), the results of this research emphasized the necessity and importance of teaching emergency protocols to teachers and managers to manage critical situations in schools. Most students learn about earthquake preparedness through practical training. On the other hand, aftershocks cause more casualties than the main earthquake. Therefore, holding continuous earthquake maneuvers as well as holding first aid training classes can help students protect themselves and take the necessary action in an earthquake or aftershock.

Another indicator important for the efficiency of a school after an earthquake is school structure and facilities. The educational space and facilities can be important factors in the development of a school's students. Consequently, for a school to be efficient after an earthquake, first the minimum educational facilities for the school and students must be prepared, and the school must have the equipment necessary for handling emergency cases, such as earthquakes. To be efficient during post-earthquake conditions, schools must consider the sub-indicators of "equipment, planning, and coordination tasks." A school can be efficient when it teaches, in addition to scientific concepts, other aspects such as the necessary skills for having a successful life considering the changes caused by the critical situation. To do this, the school needs to consider changes in its structure and facilities. One factor influencing the efficiency of a school is the availability of appropriate physical construction and complete facilities.

The expert panel believed that given the conditions created after an earthquake, attempts should be made to provide students with the essential primary facilities and tools, such as books, stationery, and clothing, to come to school. During a crisis, an efficient school must try to pay attention to the primary needs of students and coordinate with other entities to supply these needs. Another important point is that an earthquake's impacts may last months or even years. Thus, it is essential to pay attention to the physical and mental wellbeing of students so as to create happiness and a sense of cooperation and participation in them. Physical exercise leads to emotional discharge in students. It is essential that schools create the necessary space and facilities for post-earthquake conditions. Mehr Aeen and Kazemi (2016) evaluated the preparedness levels of

schools in terms of emergency resources and equipment as average. The sub-indicators identified in this research also demonstrated the importance of paying higher attention to a school's structure and facilities.

According to the experts participating in the research, another indicator that can play a role in the efficiency of a school after an earthquake is the indicator of environment and family. The institution of family, as the first place for education, is the creator of many of the attitudes of children regarding education. These attitudes can be either negative or positive. Because students are influenced by environment and family, in post-earthquake conditions the environment and family must also be considered. After an earthquake, a school needs the help of multiple entities in various forms, including the provision of primary tools for the school and students, consulting services, etc., to overcome post-earthquake conditions. An efficient school must be able to employ and organize all environmental resources to improve students during a crisis. Because the institution of family is the first and most essential base for the education and mental and emotional development of children, any problem that happens in a family will affect students.

A school is one of the most important social and educational institutions and the main base of education for children. It is a place that can play an active role in post-earthquake conditions, help students with mental improvement, offer training for post-earthquake conditions, and transfer this knowledge and training to families and the society through students. Based on the results of the current study, it can be concluded that an efficient post-earthquake school has some indicators which can be utilized to design essential plans and facilities for the efficiency of schools in post-earthquake conditions.

The present research dealt with some constraints, including the conditions and situation of the earthquake-stricken area, difficulty in finding the locations of schools, and the untimely cooperation of the expert panel. Education officials and decision makers are advised to use the results of the present study to design an executive document on the efficiency of their school after the earthquake. It is further recommended that the Ministry of Education implement stricter rules and better monitoring in constructing schools and provide the necessary items and training to students and teachers so they can even help people when an earthquake or other disaster occurs. It is suggested that quantitative methodology be used to validate the qualitative findings of this research, and other qualitative research techniques be used to better identify the indicators of a post-earthquake efficient school.

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