

# Reconstruction Ema for Rehabilitation of Children's Mind

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**Abstract:** Reconstruction Ema Project was designed for children's rehabilitation from the great east Japan earthquake. In this activity, Ema was made of wasted carton boards which were reused for sending some relief supplies from non-stricken area. For reconstruction children draw their wish by picture, and write their wish by words. The project was conducted for 289 children at Sendai City Kita-Rokubancho Elementary School as a case study. After activity a questionnaire research was conducted for all children and the following results were obtained: 1) About enjoyment for activity, a positive answer is 92.0%, and a negative answer is 1.9%. Thus we would like to judge that almost children could enjoy this activity and children's mind could be rehabilitated. 2) The positive answer from 3rd and 4th year grade is the highest. From this result the focus of this program was proper. 3) The high rank factor of enjoyment is their handwork and getting sense of an accomplishment, and the low rank is an indirect and a side works. 4) About total number of 'enjoyment', there was the most is the lower year grade, the second is middle year grade, and the third is higher year grade. 5) Total number of 'not enjoyment' is 157, and the most is 26 of 'Could not draw a picture satisfied'. It needs some improvement in this point. 6) As 96.2% of children had a positive answer, we would like to judge this environmental education was very effective. Especially it was the most effective for 3rd and 4th year grade children.

**Key words:** *The great east Japan earthquake, Reconstruction Ema, Rehabilitate children's mind, Elementary School, Questionnaire research*

## 1. Introduction

Due to Tohoku earthquake and tsunami have occurred on March 11th 2011, some coast areas of Miyagi, have had huge damage. They say that it will need a long time. So the reconstruction of these area, it needs not only adult's power but also children's power who will be a re-constructor. But we think the first theme is to take rehabilitation of mental rehabilitation of children due to their mind have not rehabilitated enough still now. The other hand, in this disaster we learn the importance of energy and some products and goods as we could not use them enough. From this background, the project of rehabilitation votive tablet (Reconstruction Ema, fig.1) was designed to rehabilitate of children's mind and to make Ema to reuse a wasted carton board which was used for shipping some emergency goods from out of disaster area.

## 2. Methodology

### 2.1 Flow of activity

This study was conducted for 289 of first-grade pupils (6 years old) to sixth-grade pupils (12 years old) at Sendai City Kita-Rokubancho Elementary School as a case study. On 18th of May a lecture about a history and

meaning of Ema, a purpose of this activity, a value of reusing carton board and connection with environment were conducted. Ema is a wooden votive tablet drawn a horse picture. Ema is dedicated when people make a wish at a Shrine or a Temple, or gratitude when a wish came true. It is a Japanese unique custom since about 1000 years ago.

After that children planed their wish and a picture during 2 months. On 12st of July making Ema and on 13th of July drawing Ema were conducted (fig.2, 3). Their picture was drawn on the front side of Ema (fig.4), and their wish was written on the back side of Ema. On 26th October Ema was prayed at The Sendai Toshogu Shrine (fig.5). On 11th November Ema was decorated in a Sendai City Fukuzawa Civic Center (fig.6). After this activity questionnaire research was conducted for all children and all teachers and it was evaluated.



Figure.1 Reconstruction Ema



Figure.2 Draw a picture of wish



Figure.3 Draw a picture of wish



Figure.4 Wish of family happiness



Figure.5 Pray at Sendai Toshogu Shrine



Figure.6 Exhibition at Sendai City Fukuzawa Civic Center

## 2.2 Questionnaire Research

Questions are follows; Q1 Did you understand a history and a meaning of Ema? (select 1 from 5 answers), Q2 Did you think to make Ema using a reused carton board? (select 1 from 5 answers) , Q3 Did you write your wish as your image? (select 1 from 5 answers), Q4 Did you make your Ema satisfied? (select 1 from 5 answers), Q5 Did you enjoy this activity? (select 1 from 5 answers), Q6-1 In this activity, what is your enjoyment? Select from next list (Select as you like from 20 answers), Q6-2 Why did you select it? (free write answer), Q7-1 In this activity, what is not your enjoyment? Select from next list (select as you like from 13 answers), Q7-2 Why did you select it? (free write answer).

3 kinds of study programs were prepared for their learn level. They are that a lower year pupils (1st and 2nd year grade pupils), a middle year pupils (3rd and 4th year grade pupils) and higher year pupils (5th and 6th year grade pupils). For example, for a lower year pupils, we use only Hiragana not use Kanji (Chinese character), use easy sentence, and so on. Questionnaire research was conducted at every class after praying at Sendai Toshogu

Shrine (26th October) during one week. After that simple analyze and cross analyze were conducted by Hideyoshi Pro 2000 (PC soft).

### 3. Results and Discussion

#### 3.1 Effect for children's rehabilitation

It is difficult to clear how decide children's mind was rehabilitated. In this point we discussed many time, and when children think this activity is enjoyable, we decide their mind are rehabilitated by questionnaire research no.5. Table 1 is the result of cross analyze between year grade and enjoyable (Q5).

Table.1 Evaluation for enjoyable by grade year

up : number, down : %	Total	Positive			Negative	
		Yes	Soso Yes	Even	Soso No	No
Total	263	198	44	16	2	3
	100	75.3	16.7	6.1	0.8	1.1
1st year-grade pupil (7 years old)	45	41	1	3	0	0
	100	91.1	2.2	6.7	0.0	0.0
2nd year grade pupil (8 years old)	50	34	10	4	0	2
	100	68.0	20.0	8.0	0.0	4.0
3rd year grade pupil (9 years old)	44	39	5	0	0	0
	100	88.6	11.4	0.0	0.0	0.0
4th year grade pupil (10 years old)	40	33	6	1	0	0
	100	82.5	15.0	2.5	0.0	0.0
5th year grade pupil (11 years old)	47	29	13	3	1	1
	100	61.7	27.7	6.4	2.1	2.1
6th year grade pupil (12 years old)	37	22	9	5	1	0
	100	59.5	24.3	13.5	2.7	0.0

$\chi^2 : 34.4, P : 0.0233$

Sum of Yes (75.3%) and So so Yes (16.7%) which is a positive answer is 92.0%. The other hand, sum of No (1.1%) and So so No (0.8%) which is a negative answer is 1.9% (5 children). As a result, it is judged that almost children could enjoy this activity.

Next we discuss the cause from table 1. First we would like to pay attention that character is shown every year grade not in year grade order. As first point, year grade which is the highest percentage is the 3rd year grade (100%), and next is 4th year grade (97.5%). Before planning this activity, we discussed where should put the focus. Ideas which change contents by every year grade were discussed, but we did not decide that because it may not compare each year grade. As a result, we decided the study level set 3rd and 4th year grade as a middle year grade. Thus we judged this result was excepted and generally successful.

The year grade which is the lowest percentage is the 6th year grade (83.8%). 6th year grade is the highest percentage of 'even' as 13.5%, and about other 4 questions it is higher than total 'even'. From this result for 6th year grade this activity may be boring contents. But if this program is focused on them, conversely it may be difficult program for lower and middle year grade. It needs more discussion for next activity.

#### 3.2. Factor of enjoyment

92.0% of children had the opinion that is positive. According to discuss the factor by a year grade, it continue to plan the future program. The results of cross analyze of a year grade and Q6-1 were shown as table 2.

Table.2 Enjoyment by every year grade

Up : Number, Down : %		Down : Number, Up : %																																																																														
		Total	Listening to the history of Ema and meaning of study				Having a questionnaire game of Ema				Looking demonstration of making Ema				Thinking wish				Thinking picture of drawing				Using drawing materials and tools				Making colors using paints				Drafting a picture by a pencil				Making a hole for through a paper rope				Painting colors by brushes and markers				Chatting with friends				Finishing drawing				Finishing making				When to pray at Toshogu Shrine				When to decorate in the school				When Ema was seen by family or friends				When to decorate in the civic center				When praised				Nothing				Total (except Nothing)	
Total	264	82	156	42	116	112	89	104	98	51	166	107	126	157	10	71	85	54	79	21	1705																																																											
100	31.1	59.1	15.9	43.9	42.4	33.7	39.4	37.1	19.3	62.9	40.5	47.7	59.5	3.8	26.9	32.2	20.5	29.9	8.0	645.8																																																												
1st YGP	45	16	33	0	33	21	28	0	24	1	40	23	31	32	0	26	20	8	18	1	354																																																											
100	35.6	73.3	0.0	73.3	46.7	62.2	0.0	53.3	2.2	88.9	51.1	68.9	71.1	0.0	57.8	44.4	17.8	40.0	2.2	786.6																																																												
2nd YGP	50	23	34	16	27	25	24	30	15	2	28	16	19	23	0	17	23	20	22	5	364																																																											
100	46.0	68.0	32.0	54.0	50.0	48.0	60.0	30.0	4.0	56.0	32.0	38.0	46.0	0.0	34.0	46.0	40.0	44.0	10.0	728.0																																																												
3rd YGP	44	15	33	7	18	20	11	22	17	12	26	11	16	29	0	10	13	11	12	0	283																																																											
100	34.1	75.0	15.9	40.9	45.5	25.0	50.0	38.6	27.3	59.1	25.0	36.4	65.9	0.0	22.7	29.5	25.0	27.3	0.0	643.2																																																												
4th YGP	41	15	20	9	14	20	10	22	19	14	28	23	26	31	1	12	16	9	13	1	302																																																											
100	36.6	48.8	22.0	34.1	48.8	24.4	53.7	46.3	34.1	68.3	56.1	63.4	75.6	2.4	29.3	39.0	22.0	31.7	2.4	736.6																																																												
5th YGP	47	8	21	6	12	17	12	17	14	15	31	20	22	29	1	4	8	4	10	2	251																																																											
100	17.0	44.7	12.8	25.5	36.2	25.5	36.2	29.8	31.9	66.0	42.6	46.8	61.7	2.1	8.5	17.0	8.5	21.3	4.3	534.1																																																												
6th YGP	37	5	15	4	12	9	4	13	9	7	13	14	12	13	8	2	5	2	4	12	151																																																											
100	13.5	40.5	10.8	32.4	24.3	10.8	35.1	24.3	18.9	35.1	37.8	32.4	35.1	21.6	5.4	13.5	5.4	10.8	32.4	40.7																																																												

More than 100 numbers (colored light blue) are 5 answers compared by 'total', and more than 150 numbers (colored deep blue) are 3 answers. According to answer rate of more than 150 numbers are about 60%, it is cleared that more than half of children answered. The highest answer is 'Painting colors by brushes and markers', and the second is 'Finishing making'. From this result children could feel enjoyment from their handwork and getting sense of accomplishment. The third is 'Having a questionnaire game of Ema'. The questionnaire is set for the reason that it is not a one-way learning, for promoting a participatory learning for children. We can also understand children's enjoyment from a follow result of Q1 of Yes (41.1%) and So so Yes (51.0%) were totally 92.0%. Next is preparing work like 'Thinking wish', 'Thinking picture of drawing' or not main work like 'Making colors using paints'.

Adversely lower answers are like indirect or supporting work as ‘Looking demonstration of making Ema’, ‘Making a hole for through a paper rope’ and ‘When to decorate in the civic center’. We guess from above results the number of ‘enjoyment’ is increase if we set direct and getting sense of accomplishment work in the activity.

Next, pay attention to number of every year grade. The lower year grade of the 2nd year grade (364) and the 1st year grade (354) are the most. Middle year grade of 4th year grade (302) and 3rd year grade (283) are many next, and higher year grade of 5th year grade (251) and 6th year grade (151) are many next.

As a result, it seems that there are many enjoyable works for lower year grade, but there are not so many enjoyable works for higher year grade. Especially the number of 6th year grade is a half of 1st year grade, and it is also connected to the previous result of the answer of 6th year grade's 'even' is many.

More than 60% answers were colored by orange on the table 2. From this point it was clear the difference between 1st year grade and 6th year grade. About 'Having a questionnaire game of Ema' as the third position, it is favorable for 1st to 3rd year grade, but is not so favorable for 4th to 6th year grade. Therefore about 'questionnaire

game of Ema' for higher year pupils, it may be necessary to discuss their contents. About 'Painting colors by brushes and markers' and 'Finishing making', it should be continued because it is favorable work not only 1st year grade, but also 3rd year grade to 5th year grade.

### 3.3. Factor of not enjoyment and rehabilitation method for children

It is difficult to make a study plan which evaluated 'positive' from all children, but it is necessary to decrease negative evaluation. It is also necessary to make a rehabilitate plan for children who evaluate 'negative'.

Table.3 Not enjoyment by every year grade

Up : Number, Down : %	Total	Could not answer for a questionnaire of Ema	Drying Ema after drawing	When spilt water of a bucket	Painted by one color after drafting picture	Could not make colors satisfied	Could not draw a picture satisfied	Could not finish until finish time	Carton boards were not clean	Could not finish Ema satisfied	Ema parts of carton board were not adjusted	Made a hole on the picture	Nothing	Total (except Nothing)
Total	264	16	17	4	13	9	26	11	15	19	19	8	200	157
	100	6.1	6.4	1.5	4.9	3.4	9.8	4.2	5.7	7.2	7.2	3.0	75.8	59.4
1st YGP	45	4	4	0	6	2	3	2	0	4	0	0	35	25
	100	8.9	8.9	0.0	13.3	4.4	6.7	4.4	0.0	8.9	0.0	0.0	77.8	55.5
2nd YGP	50	2	3	1	2	1	2	1	3	4	1	1	42	21
	100	4.0	6.0	2.0	4.0	2.0	4.0	2.0	6.0	8.0	2.0	2.0	84.0	42.0
3rd YGP	44	3	6	3	3	4	6	0	2	2	2	2	33	33
	100	6.8	13.6	6.8	6.8	9.1	13.6	0.0	4.5	4.5	4.5	4.5	75.0	74.7
4th YGP	41	2	0	0	0	1	7	1	0	3	1	2	34	17
	100	4.9	0.0	0.0	0.0	2.4	17.1	2.4	0.0	7.3	2.4	4.9	82.9	41.4
5th YGP	47	5	3	0	1	1	3	5	6	3	10	2	29	39
	100	10.6	6.4	0.0	2.1	2.1	6.4	10.6	12.8	6.4	21.3	4.3	61.7	83.0
6th YGP	37	0	1	0	1	0	5	2	4	3	5	1	27	22
	100	0.0	2.7	0.0	2.7	0.0	13.5	5.4	10.8	8.1	13.5	2.7	73.0	59.4

The results of cross analyze of a year grade and Q7-1 were shown as table 3. Total number is 357, but 200 (colored green) of them are 'nothing'. The remaining number of 157 is 9.2% against totally answer of 'enjoyment'. From this result generally this activity is enjoyable for children.

The answer that there was the most is 'Could not draw a picture satisfied' (colored orange), and it was selected from all year grade. For example, the improvement of this point is that contents are fit to a learning level of the subject of the art and craft. It is also effective that making a support system if children have some question, they can ask a question easier to volunteer staff and student staff.

Others, the answer that there was the most of 'Ema parts of carton board were not adjusted' was 10 (colored blue) from 5th year grade, and the next is 5 from 6th year grade. In this activity some carton boards were prepared as follows.

1<sup>st</sup> and 2<sup>nd</sup> year grade : parts were cut by 5th and 6th year grade pupils, and children used them.

3<sup>rd</sup> and 4<sup>th</sup> year grade : parts were cut by student staff, and children used them.

5<sup>th</sup> and 6<sup>th</sup> year grade : parts were cut by themselves, and children used them.

Most of 5th and 6th year grade pupils used to use a cutter but some pupils have a hard time as a carton board is thick (about 1 cm). Some pupils did by themselves and the others were helped by staff. But as a result 15 of children could not cut a carton board, it may be better to prepare parts which were cut by staff. Other way, it is also better that if children could not finish better, it is Ok to change better parts which were made by student staff.

### 3.4. Effect of an environmental education

The results of cross analyze of a year grade and Q2 were shown as table 4.

Table.4 Effect of an environmental education

up : number, down : %	Total	Positive			Negative	
		Yes	Soso Yes	Even	Soso No	No
Total	262	224	28	7	2	1
	100	85.5	10.7	2.7	0.8	0.4
1st year-grade pupil (7 years old)	45	41	3	0	1	0
	100	91.1	6.7	0.0	2.2	0.0
2nd year grade pupil (8 years old)	49	39	8	1	0	1
	100	79.6	16.3	2.0	0.0	2.0
3rd year grade pupil (9 years old)	44	42	1	0	1	0
	100	95.5	2.3	0.0	2.3	0.0
4th year grade pupil (10 years old)	41	38	3	0	0	0
	100	92.7	7.3	0.0	0.0	0.0
5th year grade pupil (11 years old)	47	36	10	1	0	0
	100	76.6	21.3	2.1	0.0	0.0
6th year grade pupil (12 years old)	36	28	3	5	0	0
	100	77.8	8.3	13.9	0.0	0.0

$$\chi^2 : 41.2, \quad P : 0.0035$$

According to the result of a positive answer that sum of Yes (85.5%) and So so Yes (10.7%) is 96.2%, we would like to judge the environmental education reusing a wasted carton board is very effective. The factor of this effect will be discussed from a cross analyze.

First, the highest effect is for 4th year grade, and all children have positive answer (colored blue). The next highest effect is 3rd year grade as 97.8% (colored green) of children had positive answer, but only one pupil answered 'So so No'. As the level of this program is set for 3rd and 4th year grade, this result will be acceptable.

The other hand, 3 negative answers were shown from 3 pupils (colored red) from 1st to 3rd year grade. Return to the questionnaire paper of them, the reason was checked from free answer of Q7-2. As a result, there is comments that a method of painting and a completeness from 2 pupils. The other pupil checked all item of Q7-2, and we guess this pupil was not interested in this activity. Thus the reason against a negative answer of an environmental education was not identified.

The highest percentage of 'even' is 13.9% (colored orange) from 5 pupils of 6th year grade. This tendency is shown from other question; Q1 is 8.1% (total is 4.6%), Q3 is 10.8% (total is 6.1%), Q4 is 25.0% (total is 9.6%), Q5 is 13.5% (total is 6.1%). 6th year grade pupils are puberty, and not only an environmental education, as study main level was set to the middle year grade, there may be some 6th year grade pupils who is a pubertal have a little distance from this activity.

#### **4. Conclusion**

From what has been discussed above, we can conclude that. 1) About enjoyment for activity, a positive answer is 92.0%, and a negative answer is 1.9%. Thus we would like to judge that almost children could enjoy this activity and children's mind could be rehabilitated. 2) The positive answer from 3<sup>rd</sup> and 4<sup>th</sup> year grade is the highest. From this result the focus of this program was proper. 3) The high rank factor of enjoyment is their handwork and getting sense of an accomplishment, and the low rank is an indirect and a side works. 4) About total number of 'enjoyment', there was the most is the lower year grade, the second is middle year grade, and the third is higher year grade. 5) Total number of 'not enjoyment' is 157, and the most is 26 of 'Could not draw a picture satisfied'. It needs some improvement in this point. 6) As 96.2% of children had a positive answer, we would like to judge this environmental education was very effective. Especially it was the most effective for 3<sup>rd</sup> and 4<sup>th</sup> year grade children.

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