

## Article

# Development and Application of Self-made Multifunctional Emotion Teaching Aids

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**Abstract:** A multifunctional emotion-teaching aid was developed in this research to teach “Know the types of emotions”, “Understand the causes of emotions”, “Guide to express negative emotions”, and “Inspire positive emotions of gratitude”. The aid helped young children learn, understand, and express their emotions actively. The teaching aid enabled children to express negative emotions and trigger positive emotions of gratitude. Through teaching aids, children learned the six emotions of “happy, angry, sad, grateful, sorry, and afraid”. After the development of teaching aids was completed, the advantages and disadvantages of emotional education toys on the market were compared with those of the developed teaching aids. Quantitative and qualitative research was carried out to understand the effectiveness of the product. In terms of quantitative research, a questionnaire was created to test its reliability and validity. Another 100 education and security personnel were invited as research objects for the survey of satisfaction after the practical application of traditional emotion teaching toys and the developed teaching aids. The effectiveness of new teaching aids was validated with the result. The application of the research results and suggestions were presented for future related research.

**Keywords:** Gratitude, Positive emotions, Negative emotions

## 1. Introduction

In kindergarten, children express their emotions positively. They often express their emotions in the form of anger, crying, or hands-on. For example, young children often express themselves by crying because they often do not agree with the situation. Parents also use words like “don’t cry anymore” to tell their children. Some parents often deny their children’s emotions, which often makes children have emotions out of control.

A parent with three children was observed. Her youngest child just entered kindergarten. The child was unhappy, dropped things. However, parents felt that the teacher was responsible for such behavior. When teachers taught children, the teacher believed that parents must cooperate to have consistency between parents and teachers in education. Parents did not know how to respond to and guide their children’s emotions. Therefore, most of them approached young children in a submissive way. Due to the excessive negative emotions of children, teachers’ burdens and difficulties become obvious.

Chaung et al. (2017) pointed out that “the richness of material life did not improve children’s spiritual level relatively. On the contrary, students only used external materials to compare and measure, lack of gratitude and satisfaction manner”. Therefore, a curriculum for positive emotions in primary schools was designed. Researchers believed that we were used to gratitude in today’s society. When drinking water, one must not forget its source. However, most of us are not used to being grateful for others’ help. Thus, it is necessary to cultivate a good sense of gratitude in children from an early age by learning the “knowledge” of gratitude and practicing the “action” of gratitude, which will allow a personal advantage and a lasting presence in life.

In recent years, more educational toys for practicing emotions are sold on the market as picture books. Teaching toys only allows a single type of play. Therefore, we developed a set of diversified and multi-functional teaching aids to enhance children’s understanding, expression, and empathy for emotions and let children understand the positive emotions of gratitude, and develop young children’s exploratory thinking and action. In addition, children also can learn to recognize other people’s emotions in facial expressions, body, and speech. On the one hand, children are taught to be aware of their emotions toward themselves and others in different situations. In addition, they can improve emotional awareness and understand the causes of emotions to express their

emotions. To inspire positive emotions in children through positive thinking, encouragement, acceptance, and love, this research was carried out with the following purpose.

- (1) Collecting emotional-related literature to find out the main connotation of emotion-teaching aids. Through the “Mind Mapping Method”, the relationship between concepts was clarified, and the main direction of the emotion-teaching aid design was found. The design was proposed to make a multi-functional emotion-teaching aid.
- (2) Conducting quantitative research, compiling questionnaires, and establishing reliability and validity with 34 preschool teachers. After the practical application of traditional emotion-teaching aids and made multi-functional emotion-teaching aids, the satisfaction and the effectiveness of the product were investigated with statistical methods.

## 2. Materials

From the perspective of innovation and diversity, 10 games were invented, namely “Flip, Boom!”, “Puzzle Game”, “Emotional Koala”, “Emotional Monopoly”, “Imitate Expression Game”, “See Yourself”, “Emotional Little Game” “Secrets”, “Koalas Fighting”, “Thanksgiving is the Best”, and “Discovering the Exit of Emotions”. Children of all ages can play the games. While playing, children can recognize and express their emotions, which is the ultimate goal of this research.

**Table 1.** Production of emotion-teaching toys and the design description of emotion-teaching toys.




Game	Activity Goal	Content	Instructions for Use of Emotion-teaching Toys	Emotional Toys Pictures
“Flip, Boom!”	1. Become familiar with the six different emotions	1. There are 30 cards in total, “24 of six expressions, including 6 thunder cards”	Number of players: 2–4 people How to play: 1. First shuffle the cards and put them in the middle, and decide the first person to flop the cards first. 2. Go on. 3. The first to collect six different expressions wins. If the card is turned over in the middle, the card of the person who has been turned over will be turned over and the card of this person will be returned to the middle card.	
“Puzzle Game”	1. Know every emotion 2. Train small muscles	1. 6 Emotional Puzzles	Number of players: 1 How to play: 1. Frame the puzzle. 2. Instruct them to spell 6 different expressions.	
“Emotional Koala”	1. Express your emotions. 2. Express your inner emotions.	1. A base map, with six big trees of different colors as the base map. 2. Each tree has 3 leaves. 3. Koala and monkey mud. 4. Dice.	Number of people: 2–4 people How to play: 1. Each color represents a different emotion, and the dice are rolled to 1 or 2. Represents the number of steps to be taken. When the dice reach the brown origin, the monkey can help collect the leaves of the large tree that has not been visited yet. 2. Collect six leaves of different colors to win.	

Table 1. Cont.








Game	Activity Goal	Content	Instructions for Use of Emotion-teaching Toys	Emotional Toys Pictures
<p>“Emotional Tycoon”</p>	<p>1. Guide children on how to deal with their emotions in the face of things. 2. Able to resonate with the game. 3. Guide children to develop positive emotions through games.</p>	<p>1.6 koalas 2. A dice 3. Chance Card 4. Situation Cards</p>	<p>Number of players: 4–6 people How to play: 1. The player takes a koala first. 2. After the order is decided, the first player rolls the dice. Go to the red one to draw a situation card. The green one has to draw a chance card. Go to the yellow step back. When you reach the purple one, you will be able to take two steps forward. 3. Draw Situation Cards and Opportunity Cards. Talk about how to express your emotions and emotional problems, you can move forward.</p>	
<p>“Imitative Expression”</p>	<p>1. Expressive awareness of meaning. 2. Become familiar with how each emotion is expressed.</p>	<p>1. Cards: 36 cards “six expressions in six groups”</p>	<p>Number of players: 2–4 people How to play: 1. Each player is dealt three cards first, the first person imitates the expression of one of the three cards, and the person who guesses right can get the card in the player’s hand, and so on. 2. The one with the most cards wins.</p>	
<p>“See yourself”</p>	<p>1. Look at the expression of self-emotion. 2. Mimic is the expression of emotion.</p>	<p>1. A mirror. 2. Six koalas with different emotions.</p>	<p>Number of players: 1 Play 1: Assign one of six expressions and have your child imitate it in the mirror. Play 2: Let the children see their emotions in the mirror and ask them to speak.</p>	
<p>“The Little Secret of Emotions”</p>	<p>1. Improve children’s understanding of the causes of emotions. 2. Guide children on how to express their emotions.</p>	<p>1. 20 question cards. 2. 12 Mood Cards.</p>	<p>Number of players: 1–2 people, Adult: 1 person How to play: 1. Draw a question card first, answer the question, and turn over the next card after answering the question. If you flip two different emotes, you have to flip him back and then switch to the next person. When you turn to the same face, you can get the card back. 2. Turn over the most identical cards to win.</p>	

Table 1. Cont.

Game	Activity Goal	Content	Instructions for Use of Emotion-teaching Toys	Emotional Toys Pictures
“Koala Jigsaw”	1. Recognize six different emotions.	<ol style="list-style-type: none"> <li>1. Turntable</li> <li>2.4 pair of eyes</li> <li>3.3 mouths</li> <li>4. Koala face</li> <li>5. Blush</li> </ol>	<p>Number of players: 1</p> <p>Play 1: Which emotion the dial points to, you have to spell out how that emotion is expressed.</p> <p>Play 2: You can also ask your child to name emotional feelings that exist.</p>	
“I’m the best for grateful”	1. Improve children’s understanding and classification of the six emotions.	<ol style="list-style-type: none"> <li>1. 6 cups of different colors</li> <li>2. 6 ping pong balls</li> </ol>	<p>Number of players: 1</p> <p>How to play:</p> <ol style="list-style-type: none"> <li>1. Ask the children to put the thanksgiving box in.</li> <li>2. And ask the children to say something they are grateful for.</li> </ol>	
“Discovering the Emotional Exit”	1. Let children know how to solve emotions, not just one. If you think about it from another angle, there are different ways to deal with it.	<ol style="list-style-type: none"> <li>1. A chassis</li> <li>2. Koala flags (36 in total)</li> </ol>	<p>Number of players: 2~4 people</p> <p>How to play:</p> <ol style="list-style-type: none"> <li>1. Arrange the koala cards into the grid.</li> <li>2. An emotional round card can be taken if there are two exits.</li> <li>If there are several cards with the same emotion, there are two exits. Then, you can take all-around cards with two exits with the same emotion.</li> <li>3. The first to get six round cards of the same mood wins!</li> </ol>	

### 3. Research Methods

We invented a multi-functional emotion-teaching aid, the emotional koala in this research. A phase-dependent sample experimental design was adopted for which the research subjects were invited to try the traditional emotion-teaching toys and fill out a questionnaire. We explained the emotional aid and showed a demonstration. Then, the research subjects were asked to try the multi-functional emotion-teaching aid and fill out a questionnaire.

For the “Children’s Emotion Teaching Tool Scale” used in this research, 100 adult women over age 20 were invited to conduct a pilot test. After the pre-test, the Pearson correlation analysis between each item and the total score was carried out. Variables with correlation coefficients below 0.3 at a significant level of 0.05 were deleted. Then, the highest and lowest 27% of scores were removed from the data. The rest data were divided into two groups of high and low scores. An independent sample t-test was performed for the groups. All variables showed a t-score above 3.5.

To obtain the appropriateness of the variables, the KMO test was conducted. The higher the correlation of the variables, the more suitable for factor analysis (Wang, 1999). The KMO in this research was 0.92 which met the decision criteria. The Bartlett Sphere test was conducted. The result was used to select common factors among the correlation matrices which were suitable for factor analysis (Wang, 1999). In the following factor analysis, factor loadings were extracted by principal component analysis. With factor loadings greater than 0.30, eigenvalues greater than 1 were chosen as the criteria for selecting factors (Wang, 1999). The



summary of the factor analysis is shown in Table 4. According to the analysis results, the eigenvalue of factor 1 was 7.78, the variation was 64.86%, and the loading value was between 0.71–0.81. The first factor was named “the inspiration of teaching aids to children’s emotions”. Factor 2 showed an eigenvalue of 0.90, its explained variance was 7.53%, and the loading value was between 0.60–0.80, which was named “the function of teaching aids”. The total variance explained by factor 2 accounted for 72.39%.

In the reliability analysis and the internal consistency, Cronbach’s  $\alpha$  coefficient was used. The reliability of “the inspiration of teaching aids to children’s emotions” and “function of teaching aids” was 0.93 and 0.90. The full-scale reliability was 0.95. The internal consistency of the questionnaire was acceptable.

**Table 2.** Summary table of factor analysis of children’s emotion-teaching aid scale.

Number	Content	Factor1	Factor2
7	Teaching aids allow young children to identify different emotions	0.81	
6	Teaching aids can trigger emotional awareness in children	0.80	
1	Teaching aids allow children to perceive the emotions of others	0.80	
3	Teaching aids can help children find different ways to express their emotions	0.80	
8	Toddlers can imitate emotional expressions on teaching aids	0.74	
9	Teaching aids allow children to express their emotions	0.71	
11	Teaching aids can promote children’s thinking skills		0.80
5	This teaching aid is in line with the physical and mental development of children aged 2-6		0.79
2	Teaching aids are easy to store and let the child clean up by himself		0.79
12	Teaching aids can improve children’s recognition skills		0.72
10	Through the operation of teaching aids, children can improve the ability of their muscles		0.65
4	Diversification of teaching aids and games		0.60
Eigenvalues		7.78	0.90
Explainable variance (%)		64.86	7.53
Cumulative explained variance (%)		64.86	72.39

#### 4. Results

Table 3 presented the traditional and invented emotion-teaching aids. The mean score and standard deviations of each item in the component “Emotional Inspiration of Teaching Aids to Children” are shown in the table.

**Table 3.** Mean scores and standard deviations of “teaching aids to children’s emotional inspiration.

Group	Inspiration Subscale for Children’s Emotion-teaching Aids			
	Traditional emotional toys		Homemade Multifunctional Emotion-teaching Aids - Emotional Koala	
	Average	Standard Deviation	Average	Standard Deviation
1. Teaching aids allow children to perceive the emotions of others	3.08	0.76	4.42	0.60
3. Teaching aids can help children find different ways to express their emotions	2.95	0.74	4.32	0.66
6. Teaching aids can trigger children’s perception of emotions	3.22	0.92	4.39	0.64
7. Teaching aids can help children identify different emotions	3.27	0.87	4.45	0.60
8. Children can imitate emotional expressions on teaching aids	3.27	0.90	4.42	0.64
9. Teaching aids allow children to express their emotions	3.19	0.94	4.32	0.66

Table 4 showed the average score and standard deviation on the “Function of Teaching Aids” of the traditional and *invented* emotion-teaching aids.

**Table 4.** Mean scores and standard deviations of “teaching aid function”.

Group	Teaching Aids Function Subscale			
	Traditional Emotional Toys		Homemade Multifunctional Emotion-teaching Aids - Emotional Koala	
Topic	Average	Standard Deviation	Average	Standard Deviation
2. The teaching aids are easy to store, and the children clean up by themselves	3.14	0.79	4.34	0.58
4. Diversification of teaching aids and games	3.27	1.15	4.5	0.56
5. This teaching aid is in line with the physical and mental development of children aged 2-6	3.27	0.87	4.42	0.60
10. Through the operation of teaching aids, children can improve the ability of small muscles	3.19	0.66	4.32	0.70
11. Teaching aids can promote children’s thinking skills	3.22	0.85	4.29	0.69
12. Teaching Aids to Improve Your Child’s Ability to Identify Emotions	3.22	0.75	4.39	0.59

The dependent sample t-test result of “the inspiration of teaching aids to children’s emotions” showed a p-value of 0.05. This implies that the invented emotion-teaching aids can be used to teach children to be aware of other people’s emotions and let them find different ways to express their emotions, raise children’s awareness of emotions, and let children recognize different emotions. Children imitated the emotional expressions on the teaching aids. The teaching aids allow children to describe their emotions significantly better than the traditional emotion-teaching toys. The result of the dependent sample t-tests of “Function of Teaching Aids” showed a p-value of 0.05. This means that the invented emotion-teaching aids can be used to help children clean up their emotions by themselves and diversify the games. The aids meet the physical and mental development of children aged 2–6. They also improve children’s ability to develop small muscles, promote children’s thinking ability, and improve children’s ability to identify emotions.

**Table 5.** Related sample t-tests for subscales.

Subscale	Mean of Traditional Emotion-teaching Toys	Average Number of Multifunctional Emotional Toys	Standard Deviation of Traditional Emotional Toys	Standard Deviation of Multifunctional Emotion-teaching Toys	T Value	p Value
Internal function	3.16	4.37	0.70	0.71	7.578*	<0.001
Overall characteristics	3.21	4.36	0.55	0.54	7.831*	<0.001

$p < 0.05$

### 5. Conclusions

Focusing on the six emotions of “happy, angry, sad, fearful, grateful, and sorry” for the “self-made multi-functional emotion-teaching aid”, we developed the “self-made multi-functional emotion-teaching aids” that contain 10 games for recognizing, perceiving, expressing, understanding, adjusting, and finally developing complex and high-level emotions. The questionnaire survey results show that the emotion-teaching aids were significantly better than the traditional emotion-teaching toys to teach how to “know the types of emotions”, “understand the causes of emotions”, “guide to express negative emotions”, and “inspire positive emotions of gratitude”.

## 6. Patents

The self-made multi-functional emotion-teaching aids were patented for invention patent and was awarded the bronze medal in the Green Concept International Invention Competition.

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