

# Research on the Boost of Development on Young Children's Fine Motor by Folk Games

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## Abstract

As Chinese traditional folk culture, folk games have unique educational value which can boost the development of young children's fine motor. Based on previous investigation of fine motor skill of children in Nanchong, Sichuan Province, the researcher chose a middle class in public city kindergarten A with lower survey score as the study object. The class with lower level on fine motor skill was set as an intervention group and the other class as a control group to conduct a 3-month educational activity about folk games. During the process, the researchers, being the teachers themselves, used qualitative research method to study the process of educational activities about folk games targeting at the boost of development on young children's fine motor skills, by tracking and observing children, and physical analysis of their painting and handwork. The research results indicate that there is an overall improvement of fine motor skills of young children from the intervention group in kindergarten A and their performances on pinching, touching, drawing and cutting all surpass children from the control group.

**Keywords:** folk games, young children, fine motor

## 1. Introduction

After the survey of fine motor skills of 330 children aged from 3 to 6 in junior, middle and senior classes from 11 kindergartens in three districts in Nanchong, Sichuan Province, it is found that compared with the content about health in *Guideline of learning and development of children aged from 3 to 6*, children's fine motor skill is less favorable especially being weak on drawing, cutting and folding; children's fine motor skill level from private kindergarten is higher than those from public kindergarten; children's fine motor skills from rural kindergarten is better than those from urban kindergarten (Xia, 2016). Therefore, it has been the primary issue for the researcher to focus on how to efficiently improve children's fine motor skill level in urban public kindergarten.

As a typical form of folk culture, folk games carry historical tradition, own unique cultural trait, have educational value and function. There was the research that discovered folk games being able to advance the development of children's large and small muscles, facilitate multiple basic motions of walking, running, jumping, squatting, boring and climbing, improve feet standing jumping, single-foot jumping, physical balance and ability on pushing, hooking and lifting, and also promote practice on strength, speed, endurance and agility. (Gong, 2016). However in reality, there is not adequate attention on the effect on children's growth and development by folk games, whose rich educational value and function have not been fully applied. Past researches mainly unearthed the educational value of folk games on large muscle development, while paying less attention on the influence on fine motor of children's small muscle. Many folk games such as "Cat's Cradle", "Cut Window" and "Paper Folding of East, South, West and North", "Embroidery" can also develop children's fine motor skills of picking, cutting, folding and stringing. So it has been the researchers' key focus to explore the educational value of folk games on children's fine motor development.

From the above factors, the research team had selected a public urban kindergarten to launch a practical teaching activity of folk games based on children's fine motor development for a semester, to develop courses about folk games which are suitable for children's fine motor development during the teaching activity, and advance children's fine motor skills through team effort and promote researchers' and educators' professional development during the action.

## 2. Research Method

### 2.1 Research Object

Based on survey results before, it took a public urban kindergarten A with low average score in the fine motor survey as study object. In consideration of difficulties in contents of folk games curriculum, children aged from 4 to 5 in middle class had been chosen as the object of teaching activity. Children from two middle classes in the kindergarten had been randomly selected for primary survey, the class with lower average score being the experiment group and the other being the control group.

### 2.2 Research Design

It mainly uses single factor experiment design combined with survey before and after intervention, as well as observance in the process of intervention. During the single factor experiment design, all children in experimental group and control group from middle classes in kindergarten A had been arranged with primary, intermediate and post surveys of fine motor. In addition, children's fine motor performance had been observed and recorded during each activity in the intervention period. Specific contents of observance were children's postures while using scissors and drawing pens, coordination between hands and eyes as well as motor accuracy.

### 2.3 Research Method

#### 2.3.1 Experiment Intervention Method

In this research, six post graduates of early childhood education who have been trained conducted the intervention of fine motor teaching activity toward children from the experiment group. The intervention started from beginning of April and ended at the end of June when the summer semester was over, taking three months in total. There were three times of teaching intervention weekly and each intervention took 40 to 50 minutes. Due to various attendances of each object, they had different actual interventions ranging from 26 to 30 times. The design of folk games activities (refer to Table 1 for teaching topic) to promote children's fine motor development was only under application after careful revised by kindergarten principle, kindergarten teachers and professional teachers in university. Each teaching activity was also well practiced by the team and revised by post graduates after two micro-teachings inside the campus and finally applied in kindergarten A. According to children's performance during each teaching activity of folk games, the researcher adjusted activity forms and difficulties to ensure the effectiveness of teaching activity intervention.

Table1. Schedule of folk games teaching activities to develop fine motor in kindergarten A (2016.4-2016.6)

| Time    | Tuesday                                 | Wednesday                   | Thursday                                     |
|---------|---|-----------------------------|--|
| Week 1  | Flexible Fingers                        | Fingers' Change             | Sugarcoated Haws on a Stick                  |
| Week 2  | Paper Folding Change                    | Cut Window                  | Paper Folding of East, South, West and North |
| Week 3  | Paper Balls' Making with Old Newspapers | Paper Cutting-lanterns      | Noodle's Making                              |
| Week 4  | Dumplings' Making                       | Weaving Snails' Houses      | Magic Tangram                                |
| Week 5  | Colorful Kites                          | Making Shuttlecock          | Picking Small Sticks                         |
| Week 6  | Making Little Windmill                  | Painting Facial Makeup      | Lovely Puppet                                |
| Week 7  | Pinching Clay Figurine                  | Cat's Cradle                | Making Colorful Candy Wraps                  |
| Week 8  | Making Bamboo Dragonfly                 | Embroidery: Fan's Making    | Clamping Beans                               |
| Week 9  | Interesting Shadow Figures              | Colorful Umbrella Oil-paper | Blue and White Porcelain Plate               |
| Week 10 | Making Dragon Boat                      | Making Zong Zi              | Pretty Embroidered Shoes                     |

#### 2.3.2 Observational Method

By using the action research featured by nature, action and role integration, teachers being practitioners and

researchers, integrated research and action, theory and practice, value and facts that are separated artificially under the tradition of “scientific rationality” (Chen, 2003). In the process of research, participatory observational method was used to take video footage and wonderful shoot of moments about teaching activities on folk games, to keep detail record of what being observed in the way of diary for the first-hand information that is real and reliable. When the observation of teaching activity was over on the very day, videos and photos were sorted and recorded and teachers gave in-time conclusions about specific feelings and the biggest achievement to form private teaching reflection and have unified coding, logging in and classification when doing analysis.

### 3. Process of Teaching Activity of Folk Games

#### 3.1 Teaching Activity of Folk Games in Trial

In order to conduct interesting training activity of children’s fine motor, the teaching team had created a series of games (refer to Table 1) about traditional folk culture. In the initial stage of activity, each activity paid key attention to individually fine motors of pinching, drawing, and cutting and folding to give design and implementation, in the process of which, the researcher found that part of children’s drawing and cutting abilities were weak in the overall class performance. And during a long time observation it was found that those children had problems to different extents using drawing brush and scissor.

For example, the gesture of holding pens of children in picture 1 and 2 belongs to palmar supinate grasp: holding the pen in the palm, the entire hand in a fist with wrist bend a bit and palm upward inclined, and the whole arm moving together. There’re researches indicating the pen grasping gesture is an immature fine motor in early stage, mainly appeared before age 4. It belongs to early-stage grasping that is rigid with forearm suspended. Operating a pen needs linkage between wrist, arm and body but fingers are not flexible. The grasping gesture for pen operation in the mature stage depends on wrist and it mainly uses the strength of hand muscle so that fingers can control the pen operation in a flexible way (Wang & Guo, 2009). The grasping gesture of children in picture 1 and 2 does not help fingers flexibly control pen operation. So during drawing, they often showed uneven coloring, out-of straight drawing and drawing beyond the graph outline.

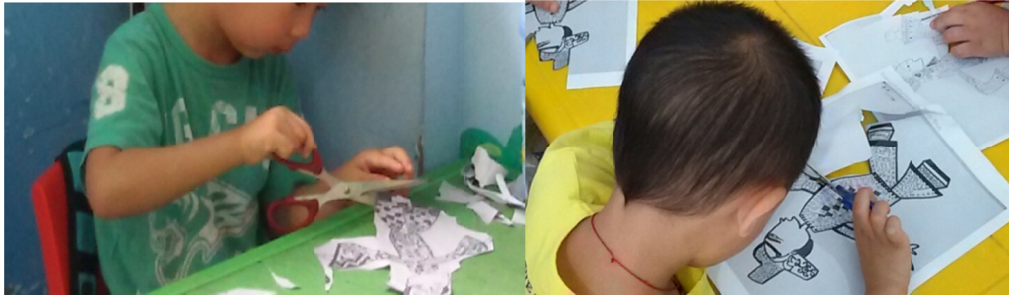
Besides pen grasping, the researcher found during the paper cutting activity that children had varying gesture holding scissors, such as cutting with half of the scissor (picture 3), holding scissor with backhand (picture 4, 5 and 6). It is found in the observation that actions of children in picture 3 always led to tattered graphs losing original outline and design. The child who uses scissor with backhand in the picture did that mostly due to the cutting position being far from their own body, then they turned their own hands to adapt to paper, but it was not convenient for using their muscle’s power. Hence, it’s often seen that outlines are cut roughly and unsmooth by children who use scissor with backhand. If children cut paper through rotating it, it would be easy to coordinate hands and eyes while cutting with scissor.

In the trial of folk games teaching, the research team found that incorrect pen and scissor grasping gestures is adverse to children’s better operation of fine motor. So before each specific operation in initial stage, teachers would give children demonstration and guidance of using operation tools to better practice their fine motor.



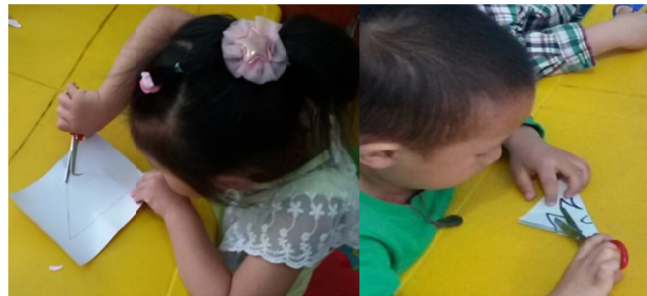
Picture 1

Picture 2



Picture 3

Picture 4



Picture 5

Picture 6

### 3.2 Teaching Activity of Folk Games in Improvement

#### 3.2.1 Integration of Teaching Content

In the initial period of practice of folk games teaching, with an aim to obtaining integrated and balanced development of children's fine motor, the research team arranged classes with key attention to development of various fine motor skills when setting up curriculum each week. For instance, paper folding was mainly about the motor of folding without expecting development of other skills and paper cutting also highlighted cutting. But the researchers found during the practice that children like to draw on papers after they finished folding and also habitually fold or paint on papers before they started cutting. Regarding this, researchers began to think about diversity of curriculum content. Wang Yi and others believe "curriculum integration is not only a macro design, but also more importantly the integration presented in specific activities. Only when an activity can achieve various goals, can the diversity of curriculum content be finally put into practice of curriculum integration focusing on children's experience." (Wang, 2006).

Based on this, the research team started to adjust overall curriculum goals and contents by integrating goals of different fine motor skills development into one teaching activity of folk games. For example, "Weaving Snails' Houses" (picture 7), a handwork extended from the folk game of braiding hair. In this activity, children would experience processes of drawing a nail, weaving a nail shell, tangling a nail house and sticking the nail house. It can practice fine motors of drawing, weaving, cutting and sticking during the whole process. And "the magic blue and white porcelain plate" is a handwork class carried by Chinese traditional craft with folk traits. It's mainly about coloring the porcelain plate and designing patterns on the plate (picture 8). But if only targeting at that, children can only practice drawing. In order to enrich the activity and promote children's fine motor skills on a comprehensive level, researchers with their brainstorm, asked children to cut one corner of the paper plate after drawing the blue and white porcelain plate. The corner size was decided by children themselves and they pasted the cut corner behind the paper plate to make it like a little fish (picture 9). Children not only practiced skills of drawing, cutting and pasting in this activity creation, but also had fun in the changes of paper plate.



Picture 7

Picture 8



Picture 9

### 3.2.2 Focus on Differences of Teaching Objects

During the teaching activity of folk games, researchers found children's fine motor development were at different levels and existing surveys about current situation of fine motor skills had indicated girls' fine motor skills are higher than boys' (Xia, 2016). The Kindergarten Education Program Guideline suggested that "education in kindergarten should respect the rules and learning features of children's physical and mental development with focusing on individual difference to advance children's personality development." (Basic Education Division of the Education Minister, 2010) Therefore, the research team made adjustment and creation of material supply and contents set up with regards to children at different level of fine motor skills. For instance, in the folk game activity of "Making Shuttlecock", considering that girls are more proficient than boys while using scissors and some children felt difficult in cutting curved graphs, researchers set up difficulties when providing paper material. Children with weaker ability cut straight lines and those more capable cut curves (picture 10). In this way, children with weaker level overcame their fear of difficulty and on the other hand, those more capable fully practiced their skills. The Guideline pointed out that "it's necessary to fully understand and respect individual difference in the process of children development and support and guide them to a higher level" (Li & Feng, 2013). The research team spared no efforts to let each child get further development and improvement of fine motor by constantly discussing and perfecting material supply and content creation, which meanwhile improved the teaching-design ability of teachers in the team.



Picture 10

Picture 11



### 3.3 Teaching Activity of Folk Games in Cooperation

During the folk games teaching, there are many chances for children to operate. During the observation, it is found that some children would go to teachers for help, besides they would invite more capable children to assist them to finish the task when they could not finish the operation task alone. For example, in many sticking activities, they need clear tape to stick the work, but the tape was wrapped, it's difficult for a child in middle class to cut a small piece and stick with it. So in the activity of "Paper Balls' Making with Old Newspapers", some children went together on their own will so that one opened the tape and the other helped to cut it; or one drew out the tape and the other wrapped the paper ball (Picture 11). They not only finished the operation in this kind of cooperation, but also felt the power and fun of cooperation and established good friendship. "Companion cooperation can promote development of children's cognition and language abilities; help them establish good companion and group relations; and develop correct self-awareness, interaction and communication ability, consciousness of understanding others and consciousness of rules" (Zhang, 2006). So in later period of teaching practice, in addition to children's free combination, teachers would consciously guide children helping each other and improve their fine motor skills level in mutual assistance.

## 4. Research Result and Analysis

### 4.1 Comparison of Differences of Fine Motor Skills

#### 4.1.1 Comparison of Overall Differences of Fine Motor Skills of Children in Middle Class

The pre-test result (Table 2) showed that the intervention class is 0.04 lower than the control class on general average score of fine motor skills. The two classes were tested of fine motor in intermediate stage after one month's teaching intervention and the result suggested that the general average score of the intervention class was 1.01 and the control class is 1.07. Fine motor skills of the intervention class had been improved. After 3 months' teaching activity of folk games aiming at fine motor development, the post-test result (Table 3) indicated that fine motor skills level of the intervention class has gained obvious improvement with 0.09 higher than the control class, which was showed by the result of fine motor test.

Table 2. Comparison of pre-test result of fine motor skills of children of the intervention class and control class in kindergarten A

|                    | Pinch | Touch | Draw | Cut  | Fold | String | General average score |
|--------------------|-------|-------|------|------|------|--------|-----------------------|
| Intervention Class | 1.72  | 3.04  | 0.09 | 0.03 | 0.23 | 0.75   | 0.98                  |
| Control Class      | 1.71  | 3.42  | 0.10 | 0.06 | 0.26 | 0.82   | 1.02                  |

Table 3. Comparison of post-test result of fine motor skills of children of the intervention class and control class in kindergarten A

|                    | Pinch | Touch | Draw | Cut  | Fold | String | General average score |
|--------------------|-------|-------|------|------|------|--------|-----------------------|
| Intervention Class | 2.24  | 3.7   | 0.10 | 0.07 | 0.26 | 0.98   | 1.23                  |
| Control Class      | 1.79  | 3.62  | 0.09 | 0.06 | 0.27 | 1      | 1.14                  |

#### 4.1.2 Comparison of Various Fine Motor Skills of Children in Middle Class

From Table 1, it can be noticed that before the folk games teaching started, the general score of all other fine motor skills of children in the intervention class were lower than the control class except the "pinch". And differences of "touch", "cut" and "fold" were particularly obvious. In the middle period of the test, motors of "touch", "cut" and "fold" were at 3.26, 0.05 and 0.24. These data indicate that the level of fine motor development has improved compared to the pre-test, despite it was still lower than the control class (scores of "touch", "cut" and "fold" were 3.29, 0.06, 0.25 in the control class). It is found in post-test result that the intervention class's average scores of all fine motors were higher than the control class except folding and stringing, which did not have obvious difference from the control class.

After three-month folk games teaching, the fine motor skills of children in the intervention class in Kindergarten A has gained overall improvement and its fine motor skills in "pinching", "touching", "drawing" and "cutting" exceeded children in the control class.

## 5. Reflection and Suggestions

### 5.1 Experience of Teaching in Practice

In this research, the research team itself is the survey tool and researchers played double roles in the process of teaching activity of folk games, both as action researcher and implementer. They harvested some teaching experience during their own practice in the teaching process regarding children's operation behavior in the practice.

First of all, they selected teaching content delicately. The Kindergarten Education Program Guideline suggested that the selection of educational content should reflect the principle of "suiting children's current skills and also being challenging to a certain degree" (Basic Education Division of the Education Minister, 2010). Therefore, based on the aim to developing children's fine motor skills, the research team, when choosing contents of folk games, followed the traits of age developing of children in middle class to decide activity content that corresponds with children's original experience and also advances children's initiative construction. For example, "Making Dragon Boat" (picture 2) and "Making ZongZi" (picture 3) are handworks extended from recognition of traditional Dragon Boat Festival. The children are familiar with the paper boats. In order to stimulate children's further eager to learn and explore, researchers did not remain on the level of folding a paper boat, but asked children to cut pre-drawn lines before inserting and pre-color the paper. After drawing and cutting, folding and mounting the paper boat to make a dragon boat; inserting a small stick on one side of the boat and pasting a graph of dragon head that was drew earlier. In the activity of "Interesting Shadow Figure" (picture 4 and 5), children not only need to color shadow figures, but also need to cut along the outline and paste two small sticks to imitate the shadow play. This increased activity interest, and took into account of children's "zone of proximal development" at the meantime.



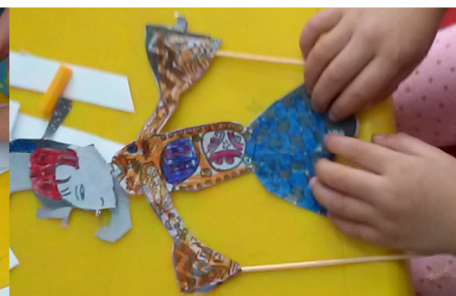
Picture 12



Picture 13



Picture 14



Picture 15

Secondly, they researched and developed teaching material elaborately. Sufficient material preparation can ensure successful realization of teaching objectives. To make it easy for children's activities and teacher's organizations and to meet demands of development of different children's skills, the research team, in the step of material preparation, had made careful consideration and personal production during the teaching program pre-set, and pre-operate with some children to have repeat verification of its feasibility and effectiveness. For instance, in the activity of "Pretty Embroidery Shoes" (picture 16 and 17), traditional embroidery is done with needle and thread. In consideration of actual operative safety, the research team finally took "punching on paperboard" as the way to operate the game, so as to practice children's stringing ability and meanwhile presenting folk art. Children can use their skillful small fingers to pinch the end of thread going through several

irregular small holes previously punched. The order and way of stringing are decided by children during the activity. Children will have various embroidery patterns through different stringing orders and ways. Considering that some children are less capable to string, there would be different punching positions on embroidery shoes. Generally, pattern punching for children less capable is at the edge of embroidery shoes and the pattern is simple, which would be easy for children less capable to operate and control.



Picture 16

Picture 17

### 5.2 Research Inadequacy and Prospect

Levels of children's fine motor skills will be influenced by multiple factors such as children's own physical status, families and kindergartens. This research paid attention to only the influence of teaching activity of folk games on the development of children's fine motor in Kindergarten A. Additionally, the entire teaching activity of folk games only lasted three months, the time is not long. Therefore, its effect on the development of children's fine motor cannot be overstated. Implementing folk games teaching in kindergarten is only one of the influencing factors. The researcher will take account of the relationships between other factors and the development of fine motor in the further research.

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