

The Development Of Learning Achievement On The Topic “Learning Theory” Of Student Teachers, Faculty Of Education, Suan Sunandha Rajabhat University By Using Problem-Based Learning (Pbl) Along With Game-Based Teaching Method

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Abstract

This research is a quasi-experimental research aimed at the development of fine motor skills among Kindergarten 2 students at Early Childhood Development Center, Faculty of Education, Suan Sunandha Rajabhat University, in order to enhance their fine motor skills and to compare their fine motor skill abilities before and after participating in beading art activities. The target group of this research consisted of 6 students in Kindergarten 2 from Early Childhood Development Center, Faculty of Education, Suan Sunandha Rajabhat University, who were studying in the first semester of the academic year 2025. selected through purposive sampling. they exhibited weak fine motor skills, such as coloring without proper pressure, incomplete coloring, coloring outside the lines, inability to trace dotted lines accurately, and light handwriting pressure. The research instruments included lesson plans for Threading Art Activities, which were evaluated to be at the highest level of appropriateness ($\bar{x}=2.29, S.D.=0.22$), and a fine motor skill assessment form with an index of item-objective congruence (IOC) ranging from 0.67 to 1.00. The statistics used for data analysis were the mean and standard deviation. The results showed that: 1. After participating in the beading art activities, students fine motor skills improved, with one student achieving a fair level and five students achieving a good level overall. This indicates that the beading art activities effectively enhanced students' fine motor skills. 2. The students' fine motor skills after participating in the beading art activities were higher than before the implementation for all participants.

Keyword: Fine Motor Skills, Threading Art Activities, Early Childhood

1. Introduction

At present, early childhood education emphasizes the holistic development of children and their readiness in all aspects (Chongcharoen, et. al., 2024). Promoting fine motor skills in early childhood is essential for daily living and fundamental for further education. The Early Childhood Curriculum (2017) is designed for children aged 3–6 years, aiming to develop them according to their age and potential and to ensure readiness for future learning. The curriculum sets objectives for children to develop their gross and fine motor skills, coordination between muscles and the nervous system through daily activities, and to foster health care, hygiene, good habits, and safety (Ministry of Education, 2017: 26, 35). Strengthening fine motor muscles enables children to perform various tasks effectively and prepares them for writing, which is a crucial foundation for literacy. Hand dexterity is closely related to children's writing ability (Weerakit, 2019: 79). The movement of fingers and the coordination between the eyes and hands are significant aspects of children's physical development. Children must use their hands and hand-eye coordination in daily activities such as grasping objects or performing routines. In writing, they must first learn to control their hands and fingers to hold a pencil properly. Therefore, the development of fine motor skills and hand-eye coordination forms the foundation for children's writing and reading abilities (Krachapngern, 2019: 173). The researcher, serving as a teacher at Early Childhood Development Center, Faculty of Education, Suan Sunandha Rajabhat University, which provides education from pre-kindergarten to kindergarten 3, observed that this center serves as a learning and research laboratory for early childhood education students and other disciplines. It functions as a place for observation, experimentation, and innovation in early childhood education, supporting children's development in physical, emotional, social, and intellectual domains (Waiyarop and Khan, 2024). Moreover, it serves as a demonstration and training site for in-service teachers and related organizations. During the first semester of the 2025 academic year, 6 students in Kindergarten 2 have weak fine motor skills. They displayed characteristics such as insufficient pressure while coloring, incomplete coloring, coloring outside the lines, inability to trace dotted lines accurately, and light pencil strokes. These issues should be addressed urgently to ensure that children can perform self-help activities and develop foundational writing skills. From reviewing relevant literature, the researcher found that Threading Art Activities are effective in developing children's fine motor skills. Such activities engage small muscle groups and promote coordination between the eyes and hands, areas which are not yet fully developed in early childhood. Through play and art-based learning, children can enhance hand and visual readiness in an enjoyable way. Manipulating small materials helps them learn proper pencil grip and develop strength for writing. Activities that promote hand-eye coordination include beading, threading, stringing flowers, sewing buttons, zipping, sorting colors, arranging clothespins, and hammering nails (Ministry of Education, 2017). This approach aligns with Gesell's (1940) theory of physical development (Puyaban, 2022: 2), which explains that children's growth is reflected in their physical behaviors. Physical development refers to a child's ability to manipulate objects—such as playing with balls or drawing which requires coordination between the eyes and hands supported by neurological and muscular growth. The essential feature of development at this stage involves changes in movement, the functioning of the neuromuscular system, and the ability to control and coordinate body parts.

Furthermore, this concept corresponds with the findings of Waiyarop (2010), who developed an instructional model for art education among early childhood education students by emphasizing creativity and small-group collaboration. The study showed that this process enhanced students' creativity in designing art activities for children, reducing anxiety about producing “beautiful” work and instead valuing imagination and self-expression—key components of creative art experiences for young children.

In addition, Yimwilai (2021: 263) studied the development of hand muscle usage skills in early childhood through creative art activities and found that 37 Kindergarten 2 students demonstrated continuous improvement, with an overall class progress rate of 40.5 percent.

Therefore, the researcher became interested in studying the development of fine motor skills among Kindergarten 2 students at the Early Childhood Development Center, Faculty of Education, Suan Sunandha Rajabhat University, to explore whether beading art activities could enhance fine motor skills among young children. The aim is to promote students' development in accordance with the standards and learning indicators specified in the Early Childhood Curriculum B.E. (2017).

2. Objective

1. To study the development of fine motor skills among Kindergarten 2 at Early Childhood Development Center, Faculty of Education, Suan Sunandha Rajabhat University, in order to enhance their fine motor abilities.

2. To compare the fine motor skill abilities of Kindergarten 2 at Early Childhood Development Center, Faculty of Education, Suan Sunandha Rajabhat University, before and after participating in threading art activities.

3. Methodology

1. Target Group

The target group of this study consisted of 6 students in Kindergarten 2 from Early Childhood Development Center, Faculty of Education, Suan Sunandha Rajabhat University, who were enrolled in the first semester of the 2025 academic year. The participants were selected using purposive sampling because they exhibited weak fine motor skills, as observed through light coloring pressure, incomplete coloring, coloring outside the lines, inability to trace dotted lines accurately, and light pencil strokes.

2. Research Instruments

The instruments used in this study included:

1. Threading Art Activity Plans, and
2. A Fine Motor Skills Assessment Form.

2.1 Procedures for Developing and Validating the Threading Art Activity Plans

- 2.1.1 Study relevant concepts, theories, and research related to the Early Childhood Curriculum, early childhood development, types of creative art activities, and the process of designing threading art activity plans.

- 2.1.2 Develop six threading art activity plans aimed at enhancing fine motor skills. The activities included 1) Leaf Threading Activity 2) My Cereal Activity 3) Rainbow Pasta Mobile 4) Transforming Straw Activity 5) Tube Jellyfish Activity 6) Necklace from Reused Materials Activity

- 2.1.3 Each plan consisted of the following components: activity title, objectives, activity procedures, materials and equipment, and assessment and evaluation methods.

- 2.1.4 The six activity plans were reviewed by 3 experts for appropriateness using a 5-point rating scale. The overall appropriateness level was very high ($\bar{X} = 2.29$, $S.D. = 0.22$). The plans were then revised according to the experts' recommendations.

- 2.1.5 The revised activity plans were implemented with the target group.

2.2 Procedures for Developing and Validating the Fine Motor Skills Assessment Form

2.2.1 Study relevant concepts, theories, documents, and research related to the Early Childhood Curriculum B.E., early childhood development, fine motor skills, and the process of developing assessment tools.

2.2.2 Construct the assessment form based on the reviewed literature and related research.

2.2.3 Scoring Criteria for the Fine Motor Skills Assessment:

3 points = Coloring and tracing are well-pressured and complete.

2 points = Coloring and tracing are adequately pressured and partially complete.

1 point = Coloring and tracing lack pressure and are incomplete.

2.2.4 Assessment Criteria Levels

2.34 – 3.00 = Good level of fine motor skills

1.67 – 2.33 = Fair level of fine motor skills

2.2 – 1.66 = Needs improvement

2.2.5 The Fine Motor Skills Assessment Form was reviewed by 3 experts One Kindergarten 1 teacher from the Early Childhood Development Center, Faculty of Education, Suan Sunandha Rajabhat University, and two Kindergarten 2 teacher from Rajini School, who are experienced in assessing content validity and coverage based on research objectives. The Index of Item-Objective Congruence (IOC) ranged between 0.67 – 1.00.

2.2.6 The assessment form was revised based on the experts' recommendations and then administered to the target group.

3. Experimental Design

This study employed a quasi-experimental research design. The researcher used a One-Group Pretest–Posttest Design

Pre – test	Treatment	Post – test
O ₁	X	O ₂

O₁ = Assessment before participating in the activities

X = Implementation of the threading art activities

O₂ = Assessment after participating in the activities

4. Data Collection Procedures

4.1 The researcher personally collected the data because she also served as the class teacher of the target group.

4.2 The researcher assessed the fine motor skills of Kindergarten 2 using a fine motor skills assessment form developed and validated by the researcher. The pre-assessment was conducted before implementing the threading art activities.

4.3 The researcher conducted the threading art activities over a period of 3 weeks, on Mondays and Wednesdays during the creative art activity period from 10:30 to 11:00 a.m. Each session lasted 30 minutes, totaling six sessions.

4.4 After completing the three-week intervention, the researcher reassessed the students' fine motor skills using the same assessment form as in the pretest to measure their post-activity performance.

4.5 The data obtained from the pretest and posttest assessments were analyzed using statistical methods to compare students' fine motor skill development before and after participation in the threading art activities.

5. Data Analysis and Statistics Used

The researcher analyzed the collected data using **descriptive statistics**, which included mean and Standard Deviation

4. Results

The development of fine motor skills among Kindergarten 2 students at the Early Childhood Development Center, Faculty of Education, Suan Sunandha Rajabhat University through threading art activities yielded the following results:

Table 2 Mean and Standard Deviation of Fine Motor Skill Ability among Kindergarten 2 Students at the Early Childhood Development Center, Faculty of Education, Suan Sunandha Rajabhat University after Participating in Threading Art Activities

Evaluation Items	Student 1	Student 2	Student 3	Student 4	Student 5	Student 6
Coloring with appropriate pressure	3	3	3	3	3	3
Coloring within the given lines	3	3	3	2	3	3
Completing coloring within the picture	3	3	3	2	3	3
Tracing straight lines accurately	2	3	2	2	3	3
Drawing with proper pressure	3	3	3	2	3	3
Total	14	15	14	11	15	15
Mean score	2.80	3.00	2.80	2.20	3.00	3.00
Standard Deviation	0.45	0.00	0.45	0.45	0.00	0.00
Level of ability	Good	Good	Good	Fair	Good	Good

From Table 2, it was found that all 6 students demonstrated fair to good levels of fine motor skill ability after participating in the threading art activities. This indicates that the threading art activities effectively enhanced the students' fine motor skill development.

Table 3 Comparison of the Mean and Standard Deviation of Fine Motor Skill Ability among Kindergarten 2 before and after Participating in Threading Art Activities

student	Pre-test			Post-test		
	$\bar{X}$	SD.	Level	$\bar{X}$	S.D.	Level
1	1.80	0.84	Needs Improvement	2.80	0.45	Good
2	2.00	0.71	Fair	3.00	0.00	Good
3	1.60	0.55	Needs Improvement	2.80	0.45	Good
4	1.20	0.45	Needs Improvement	2.20	0.45	Fair
5	2.00	1.00	Fair	3.00	0.00	Good
6	2.00	1.00	Fair	3.00	0.00	Good
Total	1.77	0.23	Needs Improvement	2.80	0.25	Good

From Table 3, it was found that all students demonstrated higher fine motor skill ability after participating in the threading art activities than before the intervention. Overall, the students' fine motor skill ability before the implementation of the activities was at the Needs Improvement level ($\bar{x} = 1.77$, S.D. = 0.23), while after the implementation, their ability increased to the Good level ($\bar{x} = 2.80$, S.D. = 0.25). This indicates that the threading art activities effectively enhanced the fine motor skill development of Kindergarten 2 at Early Childhood Development Center, Faculty of Education, Suan Sunandha Rajabhat University.

5. Conclusion And Future Work

This research The Development of Fine Motor Skills of Kindergarten 2 at Early Childhood Development Center, Faculty of Education, Suan Sunandha Rajabhat University threading Art Activities, the researcher provides the following recommendations

1. Teachers should organize threading art activities in combination with various types of creative art activities that promote the development of fine motor skills, while still incorporating elements of threading art.

2. When implementing threading art activities, teachers should take into consideration the duration of data collection, ensure that the activities are age-appropriate, and align with the developmental stages of the children

Recommendations for Future Research

1. Further research should explore the development of fine motor skills through art activities combined with simple paper-folding exercises.

2. Further research should investigate the development of fine motor skills through the use of soft fabric books (cloth books).

Acknowledgements

I would like to express my sincere thanks to Suan Sunandha Rajabhat University for invaluable help throughout this research.

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