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Designing Clothing Patterns to Promote Fine Motor Skills: A Research and Development Project

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Abstract

Early childhood provides an opportunity for teachers to stimulate, guide, nurture, and plan learning experiences that are helpful in supporting children's abilities and skills. Presently, there is a need for more and varied experiences that are attractive and engaging for children. In this project, teachers provide learning experiences to nurture children's emerging abilities in fine motor skills. The purpose of this exploratory research and development project is to effectively design clothing patterns in order for children to engage in simple sewing experiences as an effective instructional medium for developing children's fine motor skills. In addition, it is important to consider the *product development* as well as the *method* when designing experiences for young children.

Keywords: Clothing Patterns, Simple Sewing, Early Childhood Fine Motor Skills

Introduction

Early childhood educators plan strategies to stimulate, guide, nurture, and provide young children with learning experiences to promote their developing abilities and skills. The age of birth-through-eight years is referred to as the golden age where all areas of development lead to children's maturity, one of which is the area of physical motor development (Barnett et. al., 2016; Febrianta, 2016).

The early childhood years provide important opportunities for children to grow in all areas of child development (Kustiawan, 2017). Children's developmental areas include religious and moral values, socio-emotional dimensions, cognitive abilities, physical-motor skills (gross and fine motor, physical health capacities), and language and artistic aspects. The many aspects of child development, however, cannot be separated out as independent because these areas influence one another.

For example, the development of children's body muscles appears when they perform various activities that hone their motor skills. In the early years, children evidence improved skills such as bouncing a ball, jumping on one and two legs, and going up and down stairs (Febrianta, 2016). Yet, the combination of children's physical activity as well as a physical skill set contributes to children's intellectual abilities such as creativity and imagination (Sujiono et.al., 2014).

Thus, children remain complex individuals. Every aspect of a child's development is interconnected. Motor skills become a component of the developmental aspect. Every aspect of development affects other aspects to form an individual entity, so that developments that occur in the motor aspect automatically affect other areas of development, including creativity which is part of mental development. The existing literature indicates a positive and significant correlation between perceptual motor development and individual creativity; motor activity can be a means to stimulate creativity (Shahbazia & Tahmasebi, 2011).

In addition to fostering intellectual capacity, linearly, the increase in physical abilities in kindergarten children can increase physical motor activity. For example, when a child develops the skill to jump, he or she proceeds to jump more often. The consequences of learning to jump increases a child's jumping activity. In addition, jumping more frequently optimizes the child to become a better and more skilled jumper. Children's physical motor development cannot be understated or ignored as it affects children's later lives as adults.

Physical motor development is also closely related to motor intelligence in children. Early childhood physical motor development is defined as the development of elements of maturity and control of body movements in children (Larson et al., 2014). Physical motor development affects children's lives directly and indirectly. Fitriani (2007) describes physical development as growth and changes occurring in the human body. Human physical development occurs following the cephalocaudal principle, namely that the head and upper part of the body develop first so that the upper part appears larger than the lower part (Merriam-Webster, 2021). According to Aghnaita (2014), physical development is the growth and changes that occur in a person's body across time. It is the foundation for progress to the next developmental level. When the physical body is developing well, it allows children to further develop their physical

skills and enables children to explore the environment without adult help. Physical development also determines a child's skills in movement.

Physical motor development is divided into gross and fine motor skills. Yamin and Sanan (2010) believe children's gross motor skills develop according to the child's age. This means adults cannot compel children's motor growth. For example, children, age six months, cannot sit alone and, therefore, the child is not obliged to sit independently in a chair. Some activities clearly support children's gross motor skills development including walking up and down stairs as well as playing in tunnels.

Meanwhile, fine motor skills represent the ability to develop the motion of the fingers, especially the index and thumb (holding, grasping, tearing, and cutting). Additionally, fine motor skills include the use of tools for work and the incorporation of small objects or control of results (such as typing and sewing) (Surianti, 2012). Thus, children's physical development including gross and fine motor skills evidence different characteristics.

The use of appropriate learning methods in kindergarten can support children's progressive motor development. However, the opposite can occur. If children find the methods and materials provided by the teacher less attractive, they may quickly become bored and lose interest in the learning experience. The appearance of symptoms of children's boredom can be caused by different factors. In order to invite and engage children's interest, it is critical teachers vary methods/materials and create attractive instructional theory/models. Additionally, if a teacher's implementation is passive, not allowing for active involvement, children become less likely to participate.

Alternatively, learning methods/materials that engage children's interest and involve playfulness develop children's imagination and thinking; children experience the freedom to think and explore. It is important for teachers to showcase creative and innovative learning methods. Teachers often choose enjoyable instructional methods around a specific learning theme (Purnamasari et al., 2014). Kustiawan (2013) argues in learning activities, children enjoy repetition, so teachers often intentionally plan learning that uses materials that involve repetitive movement. Learning materials that are theme related, such as sewing clothing, support and stimulate children's sustained interest and engaged attention. Thus, students, motivated by their thoughts and feelings in the process, become better able to achieve learning goals (Kustiawan, 2017).

The choice of particular learning methods and materials become integral in children expressing and creating unique ideas as well as using their imaginations in works that are meaningful and personally relevant (Rismayanti, 2013). Therefore, it becomes critical for early childhood practitioners to intentionally plan motivating and engaging instruction as well as support children's use of learning methods and materials that promote their physical development, including fine motor skills.

The Research and Development Project

In order to investigate the viability of the method and materials for sewing clothing as an interest engagement for children, thus impacting their fine motor development, authors initiated this current Research and Development (R&D) project. The authors developed a clothing pattern design to be used by children in three kindergartens in the Bandulan village, Sukun district, Malang city, Indonesia during the Covid-19 pandemic. The purpose of the project was to create a workable and interesting clothing design that was easy to use and would support children's emerging fine motor skillset.

This research and development project resulted in the product "Learning Methods Design for Clothing Patterns" to be used in simple sewing experiences that can develop fine motor skills for young children. Clothing pattern design learning methods is the development of clothing patterns which are usually made of thick yellow cartons (deluang) and typically the size of human clothing.

For this project, the design was modified and reduced in size. Mini dress patterns were made from duplex paper, decorated using wrapping paper and sewn together using ribbon as thread. The result of this activity is the formation of mini-sized 2-dimensional clothes made of paper.

This action research demonstrates the process of developing clothing patterns and the methods adapted to create usable tools to meet children's individual needs. The products developed include clothing patterns in the form of shirt and trouser as well as hat, bag, and shoe patterns made of thick duplex paper covered with wrapping paper. The decorative motifs are adjusted to the shape of the clothing pattern. The tools for sewing are cloth ribbons of various colors and threading ribbon adjusted for differently sized patterns. This clothing pattern is two-dimensional in shape which is used as a medium for learning how to sew simple clothes according to the learning themes in kindergarten institutions. This is in line with the opinion of Sudjana and Rivai (2010) who suggest learning methods are not an additional function, but a tool to create effective learning.

Thus, instructional methods are an integral part of the overall learning context. This means, it is important for teachers to consider learning methods/materials as a critical element in effective instruction. Learning methods/materials are designed and made to be used as an attractive and interactive early childhood tool.

Simple sewing methods/materials support the development of children's fine motor skills. This is in accordance with Hasanah (2019) who believes educational experience is a form of a learning activity as carried out using particular methods or tools. Children's educational experiences become strategically designed for the purpose of improving a developmental aspect. Sukmaningrum (2015) describes how the increase in fine motor skills of children improve when sewing activities are implemented. Schools and teachers can provide a crucial role in promoting children's physical development (Sukmawati, 2018).

The authors field tested the clothing product with young children, and made changes as needed. The Research and Development (R&D) protocols (Borg & Gall, 1983; Rahimah &

Izzaty, 2018) were used to measure the product effectiveness. The authors identified the steps that were most appropriate for the Covid-19 pandemic parameters. The steps included: 1) reviewing literature and classroom observations; 2) planning, which included defining skills, goals, and determining teaching sequences; 3) developing forms for the initial dress pattern product which would be evaluated by experts; 4) conducting a small group trial with a class of four to six children due to the pandemic; 5) Revising the initial sewing product according to experts' suggestions during the first trial group; 6) implementing a larger group trial with six to ten children; 7) making product revisions based on suggestions from the second field test.

Results

The clothing pattern product developed in this research and development (R&D) project was designed to support fine motor skills in young children by using the method and materials of children engaged in simple sewing skills. The following summarizes the findings and indicates the experts' evaluation, results of small group trials, and findings of field trials (large groups).

First, reviews from the experts were used as the basis for making an initial revision to the pattern design of the clothing product. The review was conducted by three experts, namely one early childhood learning expert, one early childhood learning media expert, and one early childhood physical-motoric expert. The purpose of the expert reviews determined the suitability of the product being developed with existing needs in the field.

Experts' Evaluation. From the overall response from the experts' evaluation of the eligibility criteria, 86.80% concluded that the simple sewing pattern was determined to be "very" valid or suitable for use.

Small Group Trial. The results of the small group trials on the initial product clothing patterns for learning simple sewing were obtained from observations regarding aspects of convenience, attractiveness, and child safety. Classroom teachers implemented the trial using a clothing pattern for simple sewing learning. The participants consisted of four to six children.

Figure 1 Small Group Trial Activities in Kindergarten Class B, Bandulan Village, Sukun District, Malang City

Figure 2 Small Group Trial Activities in Kindergarten Class B, Bandulan Village, Sukun District, Malang City

Based on observational data, 77.33% of the children using the clothing pattern design appeared to be able to easily use the pattern; it was convenient for the children to use. For the attractiveness aspect, 80% of children indicated interest in using the clothing pattern design. For the safety aspect, 100% of children were able to safely use the clothing pattern design. Based on the overall data from the small group trial results, 84.44% of the children appeared to find the clothing pattern design suitable for use by young children. Thus, it can be said that the clothing pattern in learning simple sewing is suitable for developing the fine motor skills of young children, and researchers can proceed to the field trial stage (large group).

Field Trials. The results of field trials (large groups) on the initial product of clothing patterns for learning simple sewing were obtained from observations about aspects of convenience, attractiveness, and child safety by the class teacher in three groups of children which consisted of six to ten children in each group of young children in the Bandulan sub-district, Sukun sub-district, Malang City.

In the attractiveness aspect, 93.33% of children were interested in using the clothing pattern design. In the safety aspect, 100% of children were found to safely use the clothing design when sewing. Based on the overall data from the results of field trials (large groups) 91.10% of the children sewing with the clothing pattern met the criteria to indicate that the clothing pattern design was “very” valid or “very” suitable for use in developing fine motor skills in early childhood.

Figure 3 Field Trial Activities in Kindergarten Class B, Bandulan Village, Sukun District, Malang City

Figure 4 Field Trial Activities in Kindergarten Class B, Bandulan Village, Sukun District, Malang City

Discussion

For the purposes of this Research and Development (R&D) project, the product in the form of clothing pattern design learning methods demonstrates a fairly long process. The process begins from initial research, making product designs until the final product is completed which requires several revisions from early childhood experts and then followed through by both small and large group field trials.

This process is critically important because each step will determine the validity of the research findings in the planning process and provide direction and guidance in the product development process. Accuracy in product design is a determinant of effectiveness in developing fine motor skills in early childhood. Every revision given by the experts is the basis for the high quality of the product being developed. Each of these research processes is important to be thoroughly followed in order to ensure the quality of the final product. Based on the results of preliminary research, a product design for the development of children's fine motor skills in learning simple sewing was compiled in the form of a learning method for clothing pattern design.

Early childhood expert data provided the following suggestions including: minimize the size of the clothing pattern design in order to lessen completion time; check the distance between holes

in clothing pattern (allow for the ease with which the child can insert the cloth ribbon into the hole in the edge of the clothing pattern); modify ribbon as a substitute for needle/thread; adjust the types of decorative paper motifs that cover the clothing pattern (the paper decorative motifs to coat the dress patterns become distinguished from the paper motifs for coating pants, bag, hat, or shoe patterns), and facilitate the child's movement by inserting the cloth ribbon into the hole so that the end of the cloth tape is wrapped (Fabric ribbon is loose and easy to fold).

The sewing process, which is achieved by inserting a ribbon into the holes on each edge of the pattern, is a form of eye-hand coordination exercise for children. Eye-hand coordination exercise is one form of stimulation of fine motor development. The child needs to coordinate the movement of the eyeball to look right at the hole and the movement of his or her fingers to be precise in inserting the ribbon string into the hole in the paper pattern. The repetition of this movement until all the pattern holes are sewn by the ribbon is most effective in training the eye-hand coordination ability, an aspect of fine motor development.

Not only in the sewing process, the process of making patterns is also important to note. The experience of making a personal pattern design provides children with a sense of self-confidence, which positively frames aspects of social and emotional development. The experience of making one's own clothing pattern design can also support children's personal creativity. This is because in the process of making patterns, children develop their own ideas about what clothing patterns to make, how to decorate them to make them look beautiful, then eventually create their ideas in the form of pattern design drawings to become pattern images that are ready to be sewn. All these processes become important toward stimulating creativity.

Future Research and Development

Generating from the results of the current small group trials, several revisions for future R&D projects include modifying the expected pattern so it is not too large and difficult, checking the number and spacing of holes, adjusting the position of the cloth ribbon, and finally, tidying the edges of the pattern. For the sewing pattern of the garment, tie the ribbon at the end of the stitch because it may still require teacher guidance.

This clothing sewing project is safe, enjoyable, and developmentally appropriate, and is offered as a choice activity for children's engagement with fine motor skills to support their continued physical development. Furthermore, authors provide this sewing experience as an example of the processes they followed as a Research and Development project in order to ensure a quality product in both the material and the process. When teachers choose various materials and particular instruction, it is important children's learning outcomes are of primary regard. In addition, it is important to consider the *product development* as well as the *method* when designing experiences for young children. This R&D project becomes a tool to create effective learning for young children with the instructional method becoming an integral part of the overall learning context, interconnecting with a child's varied aspects of development including small motor development and creativity.

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