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The Use of Cutting Kit in Improving Young Children's Scissor Skills

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Abstract

Scissor skills are one of the fine motor skills that need to be mastered by young children. Mastering the skills in a right way can help children improve other fine motor skills as this activity involves limb control and hand-eye coordination. Therefore, this study was conducted aimed to identify the level of scissor skills of young children before and after the intervention of Cutting Kit. This qualitative action research involved a study sample of 3 children aged 6 years old. This study used purposive sampling technique involving participants who had no experience using scissors. This research used document analysis based on the scissor skills checklist. The checklist was analyzed in percentage form to compare children's scissor skill levels as a result of the Cutting Kit intervention. Result showed that there was an improvement in cutting skills among participants. This improvement involved scissor grip and cutting motion. The findings of this study can be a reference for teachers to implement this intervention as an alternative to help improve children's cutting skill. The skills can be improved if appropriate interventions are given to stimulate children's fine motor muscle.

Keywords: Scissor Skills, Fine Motor, Hand Eye Coordination, Children, Preschool

Introduction

Early childhood education involves various domain development such as cognitive, social, affective and psychomotor. Psychomotor development is among the skills that influence the readiness of children to develop to the next level (Syafrimen et al., 2018; Yusof et al., 2013; Hairol et al., 2021). According to Izzaidah et al (2017), at children's preschool age, their motor development can be well-shaped and trained. Engagement in activities such as busy board and art has proved to benefit children's motor skills (Hisham et al., 2021; Halim & Tahar, 2020). This is aligned with the aim of Malaysian preschool education that is to provide the necessities for the children to master basic skills as a preparation for Year 1 (Ministry of Education Malaysia, 2019). However, in ensuring that children can develop optimally, there are hurdles for them to master the knowledge or skills appropriately. UNICEF (2018) also opined that although education goes on for life, the level of development of children is different at their early age. This difference between children's development level can be fixed if they are exposed to suitable activities hence stimulating their development so they are at the same level with other children.

Fine motor skill is one of the skills that is hard to master by preschoolers. The skill that involves manipulation of tool such as cutting skill is difficult to be mastered by children especially those who did not receive early exposure of cutting activity. The problem that occurs during cutting can be overcome if children are given suitable approach and guides. The weakness of mastering this cutting activity involves the ability of fine motor skills of children in producing shape with the correct position of body parts. This motor skill development influences the achievement of children in the future (Pagani and Messier, 2012). A good control of motor skills also impacts cognitive development and the level of readiness of children at school (Grissmer et al., 2010). The National Pre-school Curriculum Standard (2017) also highlighted the ability of children to use fine motor skills through activities that involve tools. This standard also highlights young children's hand-eye coordination as important skills to be mastered through a variety of activities.

Teachers play a crucial role in helping children to master motor skills. Hence, teachers need to take into consideration the children's level of motor skill along their development process (Robinson et al., 2011). Besides, early exposure regarding cutting activity needs attention by all parties involved with children be it directly or indirectly. Environmental factors such as family and community support have been found to influence the development of children (Wan & Garry, 2019a). Guided cutting activity is also able to train children's motor skills as well as enhancing their confidence level in trying something new.

Following that, this study on the scissor skill that involves the use of *Cutting Kit* was conducted to help children master the skills besides developing their fine motor skills in order to master other skills. This kit is an intervention to help children who experience difficulty to master scissor skill. A good mastery of scissor skill can lead to domination of bilateral coordination. This coordination involves the movement of body parts on the left and right sides together. Children's competency in controlling this coordination can support their cognitive development. This research was conducted to study the effectiveness of the use of Cutting Kit in enhancing the skill of cutting among pre-schoolers.

Children's Fine Motor Skills

Motor development that develops well enables children to adapt to their physical and social environment. Venetsanou and Kamba (2011) found that children's motor development progresses at preschool. The level of motor development among children varies according to the exposure from environment (Gallahue et al., 2011). Lindsay et al (2020) stated that children who are engaged actively in various activities are those who master motor development well. This statement is supported by Cho (2014) who found that children who do not dominate motor development will tend to distant themselves from physical activities due to the low confidence level. Memisevic and Macak (2014) agreed that there is a connection between motor development and children's involvement in daily activities. However, Singh et al (2015) discovered that fine motor is more challenging to be mastered by children compared to gross motor skills. Wan and Garry (2019) stated the factors of age, physical, health, interest and motivation influence the motor skills of children. Children's motor development is also influenced by the culture in their surrounding (Uesugi et al., 2009; Karasik et al., 2010; Angulo-Barroso et al., 2010; Saccani & Valentini, 2011).

Skill is an ability or talent (Green, 2011) and cutting is a technique that requires the control of fingers and hands using cutting tool to produce a variety of shapes (Irma, 2018).

Therefore, cutting skill is an individual ability to produce shape involving manipulation of tool such as scissors. The importance of cutting skill in influencing fine motor skills is stated by Hasnida (2014); Amel (2015); Bhatia et al (2015) who suggested that cutting activity is implemented among children to help their fine motor development. Hand-eye coordination can also be developed through cutting activity (Sarina et al., 2017). Sumantri (2005) identified the ability of children to control their fingers and hand movement while cutting to ensure that the shape can be cut according to the correct line.

There are three fine motor activities that could not be mastered by preschool children based on the findings from Irma et al (2019) which are coloring, cutting and pasting activities. According to Wei (2016), children of age 3 to 6 do not have the skills to grip and use scissors correctly. As a result, these children also have weak fine motor skills in drawing and folding paper. Among the problem of cutting skill experienced by children are irregular size of cutouts, tear in cutouts and unable to balance the hands while cutting (Ratcliffe, 2013). Cutting skill has been found as a skill that requires emphasis as compared to other fine motor activities (Nurazira & Mokhtar, 2020, p. 129).

Scissor Skills of Young Children

Previous studies that examined scissor skills among children investigated the children's ability of cutting appropriately and neat cutouts as well as the influence of gender upon the scissor skills of children (Karr, 1934). Ratcliffe et al (2009) conducted a cutting skill program on preschoolers aged 4 to 6 and found that children who did not master scissor skills were among those who did not receive early exposure to cutting activity.

Study done by Asmira (2015) implemented the method of cutting line, zigzag and wave to help increase scissor skills of children. Scissor skills are mastered by children when they are able to cut a straight line and many kinds of shapes neatly (Raharjo et al., 2014). Keifer (2015) suggested that cutting activity is conducted to help fine motor development of preschoolers. This is because, children aged 3 to 5 are supposed to dominate the skills of cutting (Scharf et al., 2016). While achievement indicator in *Peabody Development Motor Scale* (Folio & Fewell, 2000) showed that at the age of 2, children can open and close the scissors and next at age 2 to 5 years old, children are able to cut a straight line and wavy line.

Anggra and Elisabeth (2014, p. 2) opined preschool children can involve themselves in fine motor and hand-eye coordination activities such as cutting and writing. Other skills such as writing skills can be trained through cutting activity besides enhancing the focus and confidence among children (Suratno, 2005). Apart from assisting to enhance cutting skills, the intervention involving this cutting activity is able to increase fine motor skills and self-management of children (Sezici et al., 2020). Children need early exposure regarding how to grip stationery and cut shapes (Yulia et al., 2013). Innovation involving cutting activity was suggested by Anggra et al (2014, p. 5) to help increase cutting skills and fine motor skills among children.

Children's motor development is influenced by how an intervention is implemented. Intervention that comes with guidance and practice from adults can stimulate the development of children at the age of 3 to 6 (Verburgh, 2013). Guidance and examples which happen throughout intervention enable the right cutting action followed by the children.

Learning according to Lyons and Berge (2012) is the ability of an individual to think and act as a result of observation and imitation. The process of imitation is a form of learning that is most effective to develop children's skills (Bandura, 1986). The effectiveness of imitation process through observation also depends on the individuals surrounding the children such as parents and teachers.

Methodology

This study used qualitative approach involving planned intervention to help children develop and overcome problem in learning environment (Hine, 2013). This study was conducted at a preschool in Johor Bahru district which is located in an urban area. The participants involved 3 children aged 6 years. The participants were selected based on sampling technique to fulfil the pre-determined criteria. They comprised of the children who are not competent in cutting activity. These children also did not receive early exposure on using scissors while at home. The difficulty of cutting is shown through actions such as the awkwardness when gripping scissors, the cutouts do not follow the line, cutting position that is unstable and failure to cut out shapes.

Cutting Kit

Cutting Kit is a learning kit that involves children's fine motor skills through cutting activity. This kit is provided to help preschoolers master cutting skills. There were four parts of cutting that the participants had to do in a four-week period. The parts comprised of concrete elements, lines, curves and many types of shapes. Each part had four different activities which were done by the participants according to the planned schedule. Each of these activities came with the manual to ensure that this cutting activity was conducted accordingly. To ensure that this activity is more meaningful, the cutouts made by the participants will be kept again in the kit following the space provided in the various forms of artwork such as collage, mat, patchwork, and lace. This is aligned with Ohl et al (2013) who found that fine motor activities alongside other varied activities can enhance children's fine motor skills.

Research Instrument

There were two instruments used in this study which were cutting skill test and field notes. The cutting skill test used in this study comprised of two different pictures; a house picture and hand palm picture. The house picture had straight lines of different lengths. The participants had to cut in a straight line following the line surrounding the house. The second picture required the participant to trace their own hand palms and next to cut along the curve of the whole palm and fingers. This test was analyzed based on the scissor skill checklist as planned.

This scissor skill checklist was adapted from scissor skill study (Ratcliffe et al., 2009). This checklist was divided into three main parts which were how to grip scissors, how to use scissors and the time taken to cut out a shape. This checklist was used to analyse the pre and post-tests of children's scissor skill. This is because, the checklist is an instrument that comprises of behaviour and abilities that are intended to be observed (Trigueros et al., 2017). The instrument of checklist and cutting skill test used were translated from English to Malay.

To ensure the right sentence structure and grammar as the original instrument, the researcher had obtained the validation from two experts in preschoolers which were the

District Education Officer (Preschool Unit) and Preschool Main Coach Johor Bahru District. From the examination, there were no amendment needed for the items in this checklist. The instrument studied and validated by these two individuals was used in this research to analyze the outcome of preschool children's scissor skills. Next, the observations along the pre and post-tests were also recorded in field notes. The findings based on these notes were divided according to the themed codes which were action, positioning of body parts, way of gripping scissors, coordination and cutouts.

Data Collection Procedure

This research was conducted upon the consent of the management and the parents of the participants. The research began with the pre-test of cutting skill. This pre-test of cutting was followed by the use of Cutting Kit for four weeks and ended with post-intervention cutting test. The comparison of the data between pre and post-tests was analyzed based on the scissor skill checklist as planned. The analysis on the pre and post-test outcomes for each participant was compared in percentage to find out whether there are any differences in the scissor skills resulting from the administration of the intervention. The field note analysis can explain further regarding the condition and behavior of the participants during the cutting test.

Participants' background

The participants comprised 3 preschoolers of age 6. These three began their preschool at 6 years old. These participants did not have experience in learning formally at any institutions when they were 4 and 5 years old. The research participants also do not have the basic cutting skills and had never involved themselves in cutting when at home. Other skills which they do not master are writing skills, the ability to identify letters and reading skills.

Research Findings on Cutting Skill Development

The outcomes of pre and post-tests for the first child (P1), the second child (P2) and the third (P3) were stated based on two parts in the checklist which were the part of scissor grip and the way of cutting.

Scissor Grip Analysis

The following is the percentage on the findings of the part of scissor grip for the three participants. This scissor grip involved 13 items evaluated according to the scissor skill checklist used in this study.

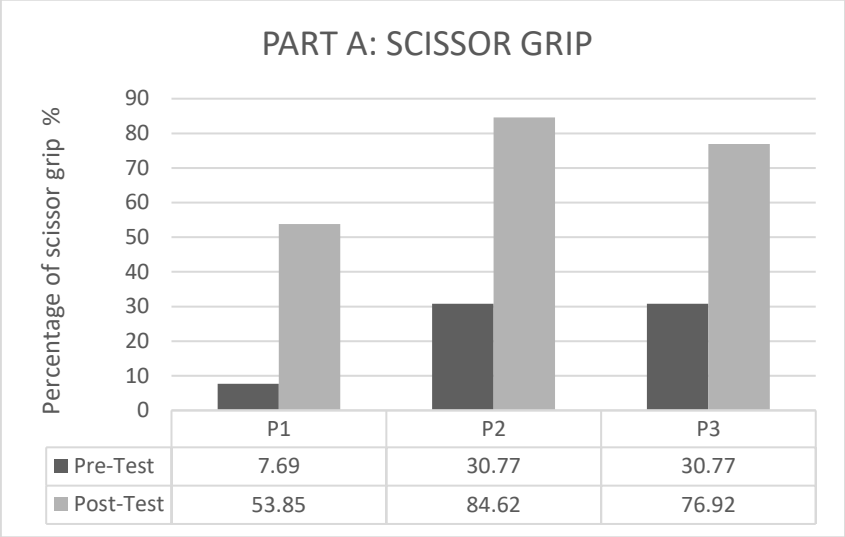

Figure 1: Percentage of scissor grip.

Analysis of Scissor Grip of P1

The final outcomes analysis for P1 showed increased percentage on scissor grip from 7.69% to 53.85%. During the pre-test, P1 was able to use non-dominant hand to hold paper and the dominant hand to grip scissors. As P1 did not have early exposure regarding cutting activity, P1 could not place the hand at the right position of the scissors. P1's hand movement was also stiff while cutting and moving the paper. Meanwhile, the arm position of P1 was not stable and the elbow position was not bent in 90 degrees. The outcome was different during post-test, in which P1 could already place the fingers at the right position on scissors while able to control the regularity of arm and elbow at the right angle. P1's fingers were also flexible when moving the paper and cutting out the shapes.

Analysis of Scissor Grip of P2

The scissor grip for P2 increased from 30.77% to 84.62% during the post-test. P2 placed the finger position such as thumb, index and middle fingers at the right hole of handles. P2 could also use non-dominant hand to hold the paper while cutting. On the other hand, P2 could not ensure that the hole of scissors to be at the folding part of fingers and was unable to balance the finger positions at the scissors hole. P2 was unable to maintain the scissor grip, moreover the fingers were stiff when opening and closing the scissors. The difficulty of cutting was also caused by the hand wrist of P2 which was not at 45 degrees of angle and the elbow was not bent to 90 degrees. This incorrect position caused the elbow and arm of P2 to move awkwardly and influenced the way the scissors was held which was not straight. Two items of scissor grip that were not mastered yet were the hand wrist that was not at 45 degrees of angle and the elbow of P2 which was not flexibly moved.

Analysis of Scissor Grip of P3

Scissor grip for pre and post-tests for P3 showed an increase from 30.77% to 76.92%. The rate of increase was 46.15%. During the post-test, P3 struggled with her finger flexibility, was unable to make the grip stay and caused the scissors to be held not in a straight position. However, for item of finger position on scissors, the position of elbow and the angle of hand wrist showed an increase during post-test. P3 could still maintain the function of the

dominant hand with holding the scissors and the non-dominant hand to hold paper during the pre and post-test.

Analysis on the way of Cutting

The percentage of the outcome on the part of way of cutting is stated as in the figure below. The way of cutting involved 9 items evaluated based on the scissor skill checklist used in this study.

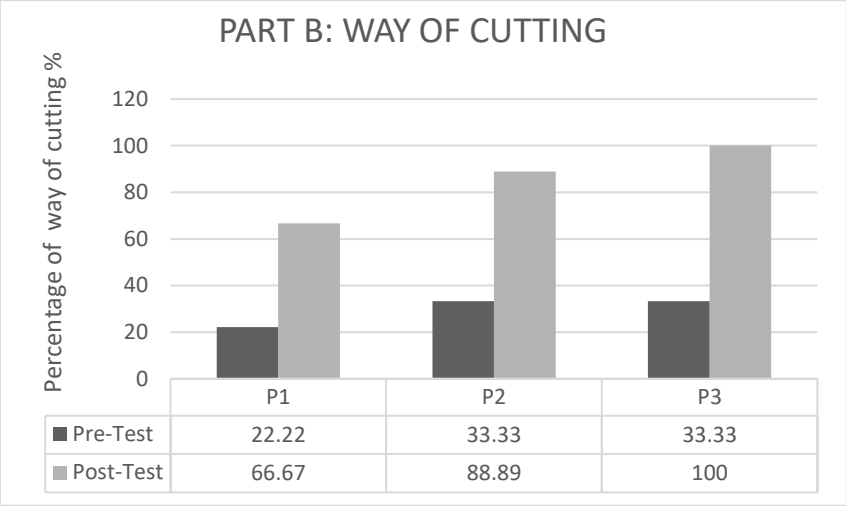

Figure 2: Percentage of the way of cutting

Analysis of P1's way of Cutting

For the way of cutting, P1 obtained 22.22% at pre-test and increased to 66.67% at post-test. The outcome of cutting at pre-test found that there was a tear on the cutout shapes and the cutouts were messy. The shapes were also cut not according to the line. P1 was unable to open and close the scissors perfectly which contributed to the outcome and the size of cutouts that did not follow the original shape. The position of hand wrist and the elbow of P1 seemed awkward. However, P1 did not show any extraordinary tongue movement and only relied on hand movement to cut. The increase at post-test was shown on the item that stated the cutting product of P1 had no tear, size of cutout was similar to original shape, controlled cutting and the elbow stayed at 90 degrees of angle. The item that did not have improvement was in terms of neatness, the opening and closing of blades and hand wrist movement to ensure the scissors stays on the line. Scissors movement and hand wrist are correlated in producing a neat cut.

Based on the field notes, it was found that P1 did not seem motivated during pre-test. P1 stated that P1 was not skilled in cutting and had never used scissors. As a result, P1 could not decide on which part to start. However, after the study of *Cutting Kit* was implemented, P1 did not seem awkward when cutting and there was no complaint. The position and posture of P1's body showed changes from a bent hand wrist and elbow that was far from the body to 45 degrees of angle of the hand wrist with elbow bent at 90 degrees alongside the body.

Analysis of P2's way of Cutting

Next, P2 showed an increase in 55.56% percentage which was from 33.33% to 88.89%. This increase was in terms of the cutout which did not have tear, neat, size according to original

one, and the cutting was in control. The movement of hand wrist could control the hand position of P2 to be in the correct and comfortable position. This right position was maintained by ensuring that the elbow was always alongside the body. The tongue movement was not shown at pre-test and post-test. However, when cutting during the two tests, P2 was still unable to open and close the blades completely. P2 tended to open and close the scissors bit by bit.

It was also observed that P2 experienced problem in understanding the instructions while cutting. P2 was cutting without following the line and shape. P2 also had lack of hand-eye coordination as P2 could only cut in a straight line. As a result, the cutout of hand palms to be in curved shape and cut in dotted lines. P2's elbow was raised too high and the positions of the ring and pinky fingers were also away from the scissors. The functions of these two fingers are to support scissors so that the scissors can be opened and closed completely. Furthermore, P2 did not have enough force as there was no finger to support the opening and closing of scissors. However, the position of elbow was managed to be fixed at the position of 90 degrees and other fingers' positions remained at the right hole of handles. Besides, the position of holding scissors was amended at post-test by holding it straight compared to the pre-test where P2 held it transversely.

Analysis of P3's Way of Cutting

During the pre-test, P3's hand wrist was not placed at 45 degrees of angle caused the cutout to be too close to the line and had tear. Although his finger position at the right hole of the handles but P3's scissor grip was loose therefore making it difficult to open and close the scissor completely. P3 obtained 33.33% at pre-test and managed to get full percentage at post-test on the part of the way of cutting. Interestingly, the paper did not have tear, the cutout was neat and according to the original size. P3 could change the way scissors was opened and closed more perfectly compared to the pre-test. There was no tongue movement shown by P3 and this mastery was similar to P1 and P2. He was observed to be talking to himself while cutting. His eyes focused more on the cutting. P3 was able to grip the scissor better to ease the process of cutting. The result can be seen on the work that was much neater, and the cutout was without any tear.

Based on the findings of the overall analysis on the scissor skill checklist, the study found that there were changes to the children's scissor grip and way of cutting. All the three participants showed improvement in scissor skill after the intervention of *Cutting Kit*. Through observation, it was also found that there were changes in the children's behavior, body position and posture of body parts, coordination, the way of holding scissors and the work of the participants involved as the result of the *Cutting Kit* administration.

Discussion

The current research was conducted to identify the use of *Cutting Kit* in enhancing the scissor skill of children. The use of *Cutting Kit* in this study involved various cutting activities to help enhance the scissor skill of children. The findings of pre and post-tests were analyzed based on the checklist provided. Scissor skill checklist comprises two parts which are scissor grip and way of cutting. The overall findings found that the three participants showed gain in scissor skill in terms of scissor grip and way of cutting. Individual ability to cut depends on the way they hold the scissors and how cutting is done (Mahoney & Markwell, 2004). Among the

identified changes on the research participants was the ability to ensure the finger position was at the right hole of handles. The elbow location of participants was also at 90 degrees of angle and could be well-controlled while holding and moving the scissors.

The findings on scissor skill study by Ratcliffe et al (2009) show that children who did not master scissor skill are among the children who do not have experience using scissors. This situation is similar to the background of participants of this study in which they were not exposed to cutting activity before preschool. Such similarity can explain the importance of early exposure to cutting activity before getting into preschool. This act can help children to be more prepared in performing activities that involve their motor development.

Apart from that, the difference between this study and the study of scissor skill by Suhainita (2008) is that this study involves the combination of arts activities which involve fine motor and creativity of children, and not only focusing on just the cutting activity. Through the use of this *Cutting* Kit, children are able to produce various kinds of artwork using the cutouts. Other than cutting, children can also weave, thread, knead and paste. This is aligned with the study by Nurazira & Mokhtar (2020, p. 133) which stated that various skills can be combined through artwork so that the targeted skill can be mastered by children. This can be proven through the research outcomes of *Cutting Kit* conducted on preschool children.

The implementation of this Cutting Kit is as suggested by Erhardt and Sava (2008) that a planned intervention needs to have activities that emphasise the skill to be mastered besides adapting it with children's surroundings. Children are able to develop in surroundings that can stimulate their interest to get engaged. The combination of cutting activity alongside arts and crafts makes children easier to master the scissor skill. Benbow (2005) also suggested for cutting activity to be modified so that children can have the skill mastery. The materials, lines and shapes provided in the Cutting Kit were not repeated. The varieties of shapes and pictures make the intervention of Cutting Kit more interesting and lead to children's inquiry of trying the cutting activity in a new way. This situation is different to cutting activity in Ratcliffe et al (2010)'s study which used repeated pictures and had no variety.

The problem experienced by these children are similar to Rahimah (2021)'s findings which stated that children often have problem to move fingers in activities of cutting, drawing and coloring. The similarity of these statements prove that children need a good fine motor development so that they can use the function of hands and fingers competently to conduct an activity. This statement can be proven through the study by Widayati et al (2019); Fitria (2014); Laily (2018) which found the relationship between cutting activity and fine motor development of children. The research indirectly serves as the basis to this research to evaluate children's fine motor development in cutting activity.

Additionally, observation technique through modelling impacts children's scissor skill mastery. Rohbanfard (2011) in the research agreed that a motor skill can be mastered from the observation made to that of a skilled model. Through the use of Cutting Kit conducted in this study, the participants had to observe the way of cutting and the steps to do the planned activities by the teacher as the model. Indirectly, the observation through imitation and modelling can enhance the scissor skill.

The findings of this scissor skill study show that a skill can be mastered if there is a suitable intervention. The implementation process of a study needs to be planned by taking into consideration the background of the skills that have yet or already been mastered by children. Therefore, this research conducted on scissor skill can give positive impact on the development of fine motor of children especially in cutting activity.

Conclusion

All three participants showed improvement in scissor skill after the *Cutting Kit* study was conducted. The mastery of scissor skill among preschool children can impact positively towards their fine motor development. Children are able to increase their hand-eye coordination in activities that involve manipulation of tool. Children can control the functions of left and right sides of body parts to move at the same time. Apart from physical development, children's emotion is also influenced by this skill mastery. Children become more confident to conduct cutting activity without guidance. Early exposure regarding cutting activity is necessary so children can master other activities that require the use of fine motor skill.

This research can impact preschool teachers and parents to diversify the methods to attract children to engage in the planned activities. Intervention that involves the varieties of activities can influence a particular skill that is intended to master. The implementation of this research became the guidance to help enhance children's scissor skill in a more orderly manner besides giving positive impact towards children's fine motor development.

The research outcomes can provide new data and information regarding preschool children's scissor skill. The study of scissor skill is important because through this study, educators especially could identify the level of children's fine motor skill mastery through cutting activity. Hence, studies regarding cutting activity have to be varied to identify the correlation of scissor skill mastery in influencing other motor development.

Therefore, children's fine motor development is important in teaching and learning process so that children can develop in all domains. Overall development in all aspects such as cognitive, social, physical and emotion can bring about preschool children who have confidence and are balanced overall. A good research outcome can also give positive impact on the management of children's development in mastering a variety of skills.

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