IMPROVING GROSS MOTOR SKILLS BY KINAESTHETICANDCONTEMPORARY-BASED PHYSICAL ACTIVITY IN EARLY CHILDHOOD

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Abstract: This research is based on differences in opinion of parents that a high number of physical activities will have a detrimental impact on achild's cognitive ability. The purpose of this study isto determine the effect of kinaesthetic-based and contemporary physical activity on early childhood on increasing gross motor skills. Research subjects were 68 people: 28 women and 40 men. Subjects were divided into two groups, group A was treated with kinaesthetic-based physical activity and group B received contemporary treatment. The study was conducted with an experimental approach, the instruments used to collect data on gross motor abilities consisted of five types, 20 meter sprinting, arm power by throwing a tennis ball, leg power with long jump without a start, balance by walking on a long beam 4 meters, and agility with Illinois tests. Data analysis was by using ANOVA with the help of the SPSS 20 program. The results show that kinaesthetic-based physical activity and contemporary-based activities can significantly increase gross motor skills in young children.From the difference in the mean effectiveness,kinaesthetic-based physical activities is better for improving running ability, agility, and balance, while the ability to throw a ball and jump in physical activity based on contemporary is better than kinaesthetic-based.

Keywords: ***kinaestheticphysical activity, contemporary physical activity, gross motor skills of early childhood***

PENINGKATKAN KEMAMPUAN MOTORIK KASAR MELALUI AKTIVITAS JASMANI BERBASIS KINESTETIK DAN KONTEMPORER

Abstrak: Penelitian ini didasari oleh perbedaan pendapat para orang tua bahwa dengan banyak aktivitas jasmani akan menjadikan anak bodoh. Tujuan penelitian ini adalah untuk mengetahui pengaruh aktivitas jasmani berbasis kinestetik dan kontemporer pada anak usia dini terhadap peningkatan kemampuan motorik kasar. Subjek penelitian berjumlah 68 orang, perempuan 28 dan laki-laki 40 orang.Subjek dibagi menjadi dua kelompok, kelompok A mendapat perlakuan aktivitas jasmani berbasis kinestetik dan kelompok B mendapat perlakuan kontemporer. Penelitian dilakukan dengan pendekatan eksperimen, instrumen yang digunakan untuk mengumpulkan data kemampuan motorik kasar terdiri atas lima jenis, yaitu lari cepat 20 meter, power lengan dengan melempar bola tennis, power tungkai dengan loncat jauh tanpa awalan, keseimbangan dengan berjalan di atas balok titian panjang 4 meter, dan kelincahan dengan Illinois tes. Analisis data dengan menggunakan Anova dengan bantauan program SPSS 20. Hasil menunjukkan aktivitas jasmani berbasis kinestetik dan aktivitas berbasis kontemporer dapat meningkatkan kemampuan motorik kasar pada anak usia dini secara signifikan dan dilihat dari perbedaan mean efektivitas aktivitas jasmani berbasis kinestetik lebih baik untuk peningkatan kemampuan lari, kelincahan dan keseimbangan, sedangkan kemampuan melempar bola dan meloncat pada aktivitas jasmani berbasis kontemporer lebih baik dari pada yang berbasis kinistetik.

Kata kunci: ***aktivitas jasmani kinestetik, aktivitas jasmani kontemporer, motorik kasar anak usia dini***

INTRODUCTION

Early childhood education is the responsibility of all parties in relation to the effort of helping lay the foundation for childhood development in all aspects before entering school. (Muntali, Mvula,& Silo, 2014: 35). During this time, the growth and development take placequickly. Many efforts are made by parents, so their children become healthy and strong. One of the efforts made isby involving children in

play activity Early childhood education is taken before basic education. This plays an important role because a person's potential is formed and developed in this period since childhood is considered asgolden age. Therefore, there is a need for stimulation through various ways. Kinaesthetic and contemporary physical activity is one option for developing motor skills, althoughthere are still many parents questioning its effectiveness. This is based on the fact that there are still many reluctant parents who are not happy withtheir children physically playing without being educated through reading, writing, and counting. Kinaesthetic and contemporary-based physical activity is a natural process of motions ofreptiles, mammals, and humans, which includes elements of walking, running, throwing, jumping, leaping, and crawling which are arranged to show beauty and communicate messages throughmotions.

Physical education is an integral part of the education program for all students (Kindergarten, 2010). It teaches students how their bodies move and how to perform a variety of physical activities. Rink (2010:9) states that the learning experience must have the potential to improve motor performance, activity skills of students. Gross motor development is influenced by regular physical education activities, ministered by regular classroom teacher in kindergarten. In this way, we suggest that structured practise and appropriate instruction provided by teacher with physical education background are crucial in promoting gross motor development in young age such as in kindergarten (Lemos, Avigo,& Barela, 2012).

Children who have high motor skills are able to integrate coordinative motions between nerves and muscles,while simultaneously achieving the goal. The central nerve acts as a regulator and the basis of one's abilities including motor skills that require stimulation for their development. Development potentials in children through physical stimuli greatly changes hormonal functions, which consequently can affect physiological functions. Children are not small sizedadults. Childhood is the most active period of performing activities. Childhood is spent witha lot of playing time. Playing activities mean doing fun activities repeated several times without realizing that the child was training himself to do something. Learning activity while playing is an essential part of the education process, especially for pre-schoolers. Therefore, attention needs to be given by both parents and educators that enables the delivery of learning materials in such a way that children could be impressed and consider learning as interesting and fun entertainment. Fun stimulations and conditions really help educators in instilling values in students characters (Reeves, 1988). Based on the descriptions above, this study aims to determine the effectiveness of kinaesthetic and contemporary-based physical activity on improving gross motor skills in early childhood and identifying the most effective physical activity in improving gross motor skills in early childhood.

METHOD

This study is an experimental research with two groups receiving different treatments. One group obtained the treatment of kinaesthetic-based physical activity and the other group received treatment of contemporary-based physical activity. The number of samples used in this study was 68 children aged 5-6 years, with 28 females and 40 males. After the initial test, arank wasused to divide the participants into two groups. After conducting the initial test by doing 20-meter sprint, throwing a tennis ball, jumping long without a start, walking on beam, and agility with Illinois test,they were ranked and paired to be divided into two groups.

There were two treatments for each experimental group. The first experimental group is kinaesthetic-based physical activity treatment by carrying out a series of activities in one activity unit sequentially including: elements of a road, running, jumping, throwing, kicking, and climbing as a series of movements. The second experimental group is the treatment of contemporary-based physical activities by doing activities such as walking, running, jumping, throwing, kicking, crawling, and climbing not in a series of movements (according to the child's will).

The instruments used to measure the gross motor skills consist: (1) 20 meter running speed, (2) arm power by throwing tennis ball, (3) leg power through of broad jump, (4) balance by walking on4-meter long beam, and (5) agility using Illinois tests. The data analysis technique used in this study is by using the two-way

ANOVA at a significance level of 5% with the help of the program SPSS 20.

RESULTS AND DISCUSSION

Result

The results of the first hypothesis, which states that kinaesthetic-based physical activity and contemporary-based physical activity can improve the gross motor abilities from early childhood, are proven at the significant level of $p < 0.05$. While the second hypothesis stating that kinaesthetic-based physical activity is more effective than contemporary-based physical activity in improving gross motor skills in early childhood is also significant with $p < 0.05$. The test results of kinaesthetic and contemporary are showed in table 1.

Based on the table 1, it can conclude that the kinaesthetic-based physical activity and contemporary-based physical activity can improve the gross motor abilities a significant $p < 0.05$ so the hypothesis is accepted.

In the Table 2 above, it can be seen that the treatment of kinaesthetic activity is very influential on both running speed, the agility to throw the ball, standing broad jump, balance and agility.All of them indicate a significant difference of $p < 0.05$.

In the Table 3 above, it can be seen that the treatment of contemporary activity is very influential on running speed, the ability to throw the ball, standing broad jump, balance, and agility and all of them indicate a significant difference $p < 0.05$.

Decreasing average time after doing kinaesthetic-based and contemporary-based physical activity from the motor elements of running, balance, and agility is shown in the Table 4. This decreased needed time indicates the effectiveness of kinaesthetic and contemporary physical activity. The treatment of kinaesthetic-based physical activity appears to be more effective compared to contemporary-based oneson running, balance, and agility. The decreasing needed time for running is1.03 seconds, balance is 0.92 seconds, and agility is 0.58 seconds.

The increase of the average arm and leg power after performing kinaesthetic and contemporary physical activity is shown in Table 5. The increase of power indicates the effectiveness of the treatment of kinaesthetic-based and contemporary-based physical activity. The treatment of kinaesthetic-based physical activity shows more effectiveness when compared too contemporary-based one on both arms and leg power. The arm power is 0.72 meters and a leg power of 0.06 meters.

Table 1. The TestResults Post Kinaesthetic and Contemporary

No.	Indicator	F	sig	t	df	sig.(2) tailed
1.	Equal Variances assumed	3.564	.063	6.537	66	.000
2.	Equal Variances not assumed			6.637	62.674	.000

Table 2. The Results Before and After Kinaesthetic

No.	Indicator	F	sig	t	df	sig. (2) tailed
1.	Running Equal variances assumed	0.13	.911	3.748	66	.000
	Equal variances not assumed			3.748	65.961	.000
2.	Throwing ball equal variances assumed	3.556	.064	7.638	66	.000
	Equal variances not assumed			7.638	57.413	.000
3.	Broad jump variances assumed	2.95	.135	-11.875	66	.000
	Equal variances not assumed			-11.875	64.807	.000
4.	Balance Equal variances assumed	0.14	-.906	8.535	66	.000
	Equal variances not assumed			8.535	65.985	.000
5.	Agility equal variances assumed	. 75	. 785	8.634	66	.000
	Equal variances not assumed			8.634	65.979	.000

Table 3. The Results Before and After Contemporary

No.	Indicator	F	sig	t	df	sig(2 tailed)
1.	Running equal variances assumed	3.93	.533	4.767	66	.000
	Equal variances not assumed			4.767	60.317	.000
2.	Throwing ball equal variances assumed	.48	.827	-12.468	66	.000
	Equal variances not assumed			-12.468	65.770	.000
3.	Broad jump equal variances assumed	12.523	.001	-11.394	66	.000
	Equal variances not assumed			-11.394	57.311	.000
4.	Balance equal variances assumed	.483	.489	9.932	66	.000
	Equal variances not assumed			9.932	65.999	.000
5.	Agility variances assumed	26.554	.000	10.180	66	.000
	Equal variances not assumed			10.180	44.703	.000

Table 4. Decreased Time After Doing Kinaesthetic-Based and Contemporary-Based.

No.	Indicator	Kinaesthetic	Contemporary
1.	Running	4.3685	4.9135
2.	Balance	6.9574	6.0403
3.	Agility	3.9192	3.3506

Table 5. The Increase of Average Power

No.	Indicator	Kinaesthetic	Contemporary
1.	Arm power	4.1909	4.9135
2.	Leg power	1.0941	1.1571

DISCUSSION

1. Kinaesthetic-based Physical Activity

Physical activity has an important role in assisting the growth and the development. Children needing energy and when they are hungry and growth hormones are mostly secreted. The amount of growth hormone secreted will help mobilise body fat for energising and saving the protein for the growth of long bones, such as lower leg bones, upper limbs, and torso that will greatly help increase the growth. Through physical activity, children acquire knowledge, attitudes, and values as well as increasing the development of organic, perceptual, neuromuscular, cognitive, moral, and emotional skill. The statement infers that physical activity can be used as a medium to develop the potential of students both physical and spiritually. Sekarpurborini (2018) states that physical activity in the form of traditional game can affect the creativity of children, especially in the learning process on a regular, planned, and systematic basis. Leta & Rosa (2012:1) state that physical activity is considered as one of the oldest human activitiessince motion is part of life. Life is motion and the activity of a person willtry to achieve healthy and strong body. To be healthy and strong, there is a need of coaching with measured, orderly, and sustainable activity. Unplanned physical activity is not enough and it should have a good dose of frequency, duration, and intensity.

Education in which the implementation is through the a medium of physical activity that could overall change good physical, mental, or emotional qualities needs religious and humanist approaches and should regard religious and cultural values. Ita (2017:448) states that in order to obtain optimal results of performing core activity, there should be warm-up activity. Physiological warm-up is needed to set the body to be ready to accept the workload. The warm-up activity could be in many forms and it is considered as sufficient

marked by increasing body temperature by 1-2 degrees Celsius and increasing pulserate of up to 60 percent of maximum heart rate. Correctly done warm-up activity in the physiological manner will be beneficial, because (1) the stretch of joint connective tissue affecting the increased motion of joints so muscle injury can be reduced, (2) reduction of vascular resistance leading to easier release of oxygen, (3) smooth blood flow due to increased muscle temperature affecting on the supply of adequate oxygen to the tissues,(4) muscle contraction will be more efficient due to the low viscosity, and (5) faster release of adenosine triphosphate, so the speed of muscle construction will be increased. Suherman (2017:220-221) states that education employing physical creativity as the medium of its implementation is able to create learning experiences that will be able to grow children's whole personality. Systematic physical activity can form a person as a whole, not only the matter of increasing his/her motor skills but also functional values, intellectual, optional, social, and moral abilities.

The physical activity performed in schools can help improve motor skills, fitness, personality, discipline, honesty, and cooperation responsibilities with theuse of the right model. The most appropriate learning model is the employment ofthe playing approach that allows maximum results to be achieved because learning in a fun way makes children unsaturated and have them engaged in learning. Bahri, Andisasmita, andAsnawi (2016:432) state that playing while learning is the most appropriate method used for learning because naturally children will feel happy to be able to develop the organic, neuromuscular, interpretive, social, and emotional system. The development of organic elements related to the development of the functional system of the body. The element of physical ability greatly determines the quality of the physical skills to improve physical fitness. The development of the neuromuscular system related to the development of nerves and muscles that both support each other and is often called as serial system meaning that one impairment of them will affect the other one. Thenervous and muscular systems play a role both for locomotor, non-locomotor, and manipulative movements. Locomotor movements refer to body movements that move the body from one place to another, non-locomotor movements occur in the body without travelling to another space, and the manipulative movement is a movement that uses a tool. Interpretive developments involve the enforcement of rules and the obedience to the agreed rules of the game. Understanding of social aspects involves helping to arise tolerance and minimising the nature of selfishness and the aspects of emotional development involve the ability to respond to physical activities. Characteristics of someone having a good emotional skills are: (1) capable of recognising emotions and factors that cause emotion, (2) able to control emotions according to conditions, (3) able to change strategy if the action is not in accordance with the plan, (4) able to recognise the feelings of others and be tolerant,and(5) able to communicate well and solve problems.

Physical activity in children is adjusted to their characteristics and the stages of ability, namely specific responding, motor chaining, and using rules. The first level, specific responding, is the simplest, which is the ability to provide a single answer and not yet able to combine various types of activities. The movement is still fragmented, and a complete sequence of motion is not demanded yet. The second level is motor chaining which is the ability to combine two or more movements so that the movements are relatively more complex with better coordination. The third level is the ability to apply the rule and using skills by directing the movement in accordance with the demands of the rules or fulfilling the requirements of the game allowing the emergence of the beauty of motion.

Based on the development of skills and stimulation of the nervous system, the skills can be sorted by its phases of imitation, manipulation, precision, articulation, and naturalisation. Imitation is the ability to imitate motions after seeing the movement. The teacher gives an example and children see and imitate the teacher's movements. Manipulation is the ability to make movements without having to look at the example but the person is concerned enough to listen to the explanation from the teacher. Precision is the ability to perform the movements that needs proper sense. This level demands coordination ability of the nervous system that generate agonist and contra-antagonist motions. Articulation ability is toper form movements

that require high motor coordination emerging beauty. Naturalisation is the ability undergo automatic movement, the movement is no need to think.

Education through physical activity performed in schools can develop psychomotor, cognitive aspects, and affective aspects. In this case, the teacher has the main role as an intellectual actor. Teachers as role models become examples for students and even what teachers say to pre-schoolers is considered as correct. Physical activity as a way to educate and develop potential in students has a unique role compared to other fields of educational studies because the object of the study is human motions. Human movement as a phenomenon has applications in multidisciplinary manners from both the sciences and the social sciences. Supporting sciences include human physiology, human anatomy, kinesiology, biomechanics of motion, biochemistry, nutrition, and health sciences, while social sciences include cultural anthropology, philosophy, sociology, and sports psychology.

Kinaesthetic-based physical activity performed systematically can form the realisation of a whole person, not only to able to improve the skills of the physical aspects, but also could be used to improve functional values which include intellectual, emotional, social, and spiritual morals. This statement is in line with Green andHardman (2005:45-46) stating that education through physical activity is very effective as a medium to develop fitness, motor, cognitive, and affective skill. Education in which the implementation uses kinaesthetic-based physical activity enables the development of students to be comprehensive in physical motor, mental, social, intellectual, emotional, and spiritual. These statements have the consequence that education, which uses kinaesthetic-based physical activity, can be used as a medium to develop potential in students, both physically and spiritually. (Silverman & Ennis, 2003:47).

Liukonen (2007:22-26) states that education in which the implementation uses physical activity can be used as a means of increasing physical, motor, knowledge, social and beauty freshness. Morrow (2005:249) states that physical activity can help to create self-reality, form an ideal body, maintain and improve fitness, health, and improve physical motor skills and motion automation. Physical activity can cause smooth blood flow, so the substances needed in the nervous system and muscles will be fulfilled. The impact of the fulfilment of nutrient requirements in the nervous system and muscles results in students becoming fit, with increasing fitness the strength will increase, so the learning process is well received allowing more optimal lessons (Kelly, 2006:2-10).

Children's education is not only a social, empirical phenomenon, but also philosophical considering that humans consist of two major components, namely physical and spiritual. Education that uses kinaesthetic-based physical activity is able to develop nervous system responses, emotional development, intellectual, and social interactions. (Benjamin 2008:3-6). On the basis of these opinions, it can be stated that the purpose of education gross kinaesthetic-based physical activity is not to make students become athletes but aiming at developing existing self-potential. Physical activity can develop abilities including the development of neuromuscular, development of body organs, aesthetic development, motor plan development, and social development. In this study it was proven that kinaesthetic-based physical activity isbetter for increasing the element of running, balance, and agility with $p<0.05$.

2. Contemporary Physical Activity

Contemporary physical activity is a combination of three term activity, physical, and contemporary, which means present, modern physical activity that is more appropriate in accordance with current conditions. Contemporary physical activity is not bound by rules so it creates freedom in determining something in accordance with current developments,although the subject matter of the study still considers available resources, facilities, and infrastructure. Contemporary physical activity is based on the use of play models, considering playing for children is a necessitythat allows children to practice their developing motor skills (Upton, 2012:135). Education gross contemporary physical activity with the approach of playing allows maximum results to be achieved since learning in a fun way makes the child unsaturated and makes their attention spanlong lasting in learning which is necessary to design continuous learning (Graham,

2000:37-39). Playing has an important meaning for children. Playing is a means to socialise as a member of the community, recognise and respect the community, inferring that playing can foster a sense of togetherness, tolerance and empathy. Behrn, Rodger,and Mickan (2013:198) state that playing is a very important need for children that can influence positive, physical-motor, social, and emotional and become a socialising means. According to Lynch (2015:7), playing is an activity that makes a child happy, excited, and it can create a comfortable atmosphere. Bjartveit and Panayotidis (2017:10) state that playing is an activity that is able to provide pleasure, provide information, and develop imagination. Thobald (2017:5) states that playingcan be used as an educational tool to recognise rules as well as to get satisfaction and pleasure. Playing for children allows socialisation with fellow children, understand existing norms, and develop their creativity as well as understand their world and what can be done in the world. It is in accordance with Mukherji and Louise (2014: 125) who state that playing offers children the opportunity to develop key skills across dominans. Same particular skills associated with each developmental domain are social development, physical development, intellectual development communication/language development. Madrona (2014:14) explains that activity of playing for children is a recreational activity that plays a key role in education especially in the early stages of development, enabling children to develop their imagination and abilities in various aspects. Through playing, children are provided with opportunities to manipulate, repeat, explore, and practice ideas. Playing for children canmake them learn more of their world, discover new knowledge, and find new ideas. Parson (2013)states that playing can also be used to stimulate emotional and intellectual development in addition to be the means for motor training. Through playing, children can jump directly into the field and obtain a new experience in exploring the world. In this study, it was proven that playing in the contemporary physical activity isable to improve throwing and jumping abilities with $p<0.05$.

Every use of the word "motor" is always associated with motion, so in everyday life it is difficult to distinguish between motor and motion. Motion is a muscle contraction while motor involves nerve, muscle, and skeletal functions. Specific motor skills are divided into two parts, namely gross motor and fine motor skills. Gross motor skills havethe nature of broken movements relatively little coordination. Gross motor skills are all activities involving large muscles and are the basis for many sports, whilefine motor skills refer to motion coordination and the emergence of beauty of motion, harmony of motion, and flexibility of motion (Veldman, 2016:1). Willams (Zawi, 2014:242) states that gross motor skills refer to the ability to use major muscle groups to perform organised joint movements like walking, running, throwing, jumping, climbing, and catching. Lenner and Kline (2006:233) contend that motor skills involve large muscles of arms, body, and legs to perform various kinds of motion such as walking, running, throwing, and jumping. On the other hand, fine motor skills are the abilities to coordinate the movements of several parts of the body into a series of movements, namely the eyes, hands, fingers, and legs (Balasubramanian, 2013:1). Abd and El (2016:43) mentionthat fine motor skills are the abilities to manipulate objects using the coordination of body parts in details. Johnton and Halocha (2010:54) mention that fine motor skills are those manipulative skills that involve small movement and smalls muscles imparts of the body, such as picking up, feeding them selves, threading, drawing, cutting, and dressing. Fine motor skills develop slightly later than gross motor skills where they need patience and practice to develop. In addition, Cameron (in Keifer 2015:3) states that fine motor skills refer to the small muscles in hands and fingers that are responsible for tasks such as picking objects up and grasping a pencil. Children use fine motor skills in school with tasks such as cutting and pasting, using manipulatives in mathematics, or clapping their hands to learn syllables.

Fine motor skills of early childhood are paramount to develop because they are the foundation in everyday life, including in academic life such as writing and drawing. This is in line with the opinion of stating that fine movements are integral to motor development in general as well as to other areas of human development, like academics and social.Development of fine motor skills like printing or writing legibly for example are important for transmitting written ideas. Madrona (2014:10)states that one of the

goals of motor development is to achieve self-mastery in order to be able to show the motor skills in coordinating eyes, hands, and feet. The development of fine motor skills in early childhood requires time in stimulating them since it requires development of motor control, strength, coordination, and concentration (Liu, Michelle, & Sean, 2015:2).

Crowley (2014:70) explains that motor skills are a person's potential to display good, complex movements in which their development is through controlled nerve centre and muscle activity. In early childhood, motor skills need to be stimulated in a variety of ways so that good conduction will emerge. Vanetsanou and Kambas (2010:324) explain motor skills in early childhood can be stimulated by using appropriate methodologies and equipment in order to produce satisfying appearance. Grineski in Brewer (2007:485) mentions that the pattern of development of motor skills adheres to three main principles first is to pay attention to age, the second isto follow the same pattern from one to another, and the third is that the progress in developing motor skills varies.

Kokstejn, Musalek, and Stastny (2017:197) affirm achievement of a sufficient fundamental motor skills level by the end of the preschool period is an important premise for the later participation of children in many sports activities. Meanwhile, Bardid, Huyben, and Deconick (2016:35) determine that the motor 4-6 is designed to assess the gross and fine motor skills of preschool children(4-6 years old) and allows early identification of children with motor delay grouped in gross motor skills including locomotor, object-control, and balance skills. The development of motor skills could also affect the other skill development as affirmed by Hill (2010:888) that motor development and its impact on other areas of physical and mental health as well as cognitive achievement is also a central area of focus for those working with children with neuro-developmental disorders. General motor skills include locomotor, non-locomotor, and manipulative movements. Locomotor motion is a movement by moving the body from one place to another, whilenon-locomotor is a motion performed in a place, so it does not move around, and manipulative motion is a movement that uses tools requiring coordination. Wang (2009:34) describes the basic elements of motion that shape motor skills are strength, agility, balance, and coordination. Motor skills are the foundation for early childhood. Fine motor skills are those manipulative skills that involve small movements and small muscles in parts of the body, such as picking up, feeling themselves, threading, drawing, cutting and dressing. Fine motor skills develop slightly later than gross motor skills and need patience and practice to develop. As stated by Payne and Larry (2012:327),fine movements are integral to motor development in general as well to other areas of human development, like academics and social development. Fine motor skills, like printing or writing legibly, for example, are important for transmitting ideas in writing. Rebbeca (2014) statesthat gross motor function has a very important role in maintaining the health of a child, with these motor skills, the child is able to carry out daily activities without interference so they can improve their quality of life. In proportion to Yusof, Aiman, and Zawi (2013),mastery of motor skills leads to improved proficiencies in complex skills, which in turn enhances participation of children in physical activity. The learning process of motion in children is still in the form of imitating, has not reached motor maturity, the type of motion is still in the form of basic motion, and its characteristics are locomotor, non-locomotor, and manipulative movements (Hopple, 2005:139). Learning to move forchildren of preschool follows a pattern of sequences from simple movements to complex movements, from the easy ones to the difficult ones, and from broken movements to coordinative movements.

The neuron theory states that new neurons will become circuits if they are given motor stimulation allowing separate neurons integrate with each other. The impact of this integration will be a link between the right- and left-brain neurons to sharpen the ability to increase skills and creativity. The more stimulation or exercise given, the more the complex interweaving happens between neurons, and this is actually the basis of the children's ability. Motor skills involve the ability of nerves and muscles because they are functional units, which in physiological terms is referred to as the motor or motion system.

Kinaesthetic-based and contemporary-based physical activity allows more facilitation of

muscle work leading the child to recognise their world, affecting the increased sensory sensitivity. The increased sensitivity sensory has impacts on the increased sensitivity to space and time. This increase in sensory function underlies the increase in other functions, namely motor ability and awareness of time involving coordination of rhythm of motion and sequence of motion. Such enhancements can be optimised through stimuli by conducting a series of kinaesthetic-based and contemporary-based physical activity so the child easily grasps the relationship between time, distance, and sequence, whichare the basis of the skills needed for locomotor, non-locomotor, and manipulative motions. The development of basic elements of kinaesthetic-based and contemporary-based physical activity involves the ability of muscles, nerves, and bones, in which with trained muscles the ability of muscles to contract will also increase. The increased ability of muscle contraction has an impact on increasing motor skills in children. The development of elements of motion in kinaesthetic-based physical activity includes six classifications which are one unit to form a motion. The six classifications include: (a) reflex motion, (b) basic fundamental movements, (c) perceptual abilities, (d) physical abilities, (e) skills, and (f) non-discursive communication.

Kinaesthetic-based physical activity is more effective in increasing gross motor skills than contemporary-based physical activity because kinaesthetic-based physical activity involves continuous movement as a whole, complex, and unbroken movements containing a lot of muscles and muscle coordination. Non-continuous motion has less influence on the body, so it does not increase motor skills. Physical activity performed includes daily movement and main sports branches such as walking, running, jumping, leaping, throwing, crawling, and climbing. All movements are performed continuously in accordance with the characteristics of a child's development, so the child feels challenged. Too easy movement does not challenge the child to carry out the activity, and it does not givesuccess feeling when it has been accomplished. Conversely, if a series of activities is too difficult, the child could be frustrated and uninterested to do the activity.

Kinaesthetic-based physical activity includes movements that are challenging for children. Movement in the form of walking on a board, jumping over a number of small goals, throwing the ball right on target, scoring a goal, crawling, and climbing nets are challenging movements. They are considered as challenging because many children are interested in doing them repeatedly to be successful in the challenges. This is in line with one of the principles in education that prioritises successful experience.

Success experiences will not be fulfilled when movements are too easy to do or too difficult. Movement that is too easy, namely in the movement of moving the stick and arranging the beams, is evidenced by the children's to be not interested. However, when they are arranged together in a circuit, movements that are considered as too easy become interesting and challenging because the movements that are deemed easy become a part ofa requirement to make a move in the next stage. When the circuit model is contested, it bringsthe competitive atmosphere among the children. The whole movement in the circuit is increasingly attractive and raises the excitement of students to participate actively in all physical activity.

CONCLUSION

The first hypothesis that states kinaesthetic and contemporary physical activity can increase the gross motoric ability of early childhood is accepted. Kinaesthetic-based and contemporary-based physical activity is very appropriate to train all muscles in early childhood. Carrying out a series of activities of walking, running, jumping, leaping, throwing, kicking, crawling, and climbing is capable of increasing gross motor skills. These activities provide stimulation of sensitivity to the nervous system and muscles. The impact of these stimuli causes an increase in the ability of the nerves to coordinate muscle movements, causing an increase in gross motor skills. If compared, kinaesthetic-based physical activity is more effective in improving children's motor skills. It is because the basic motion elements of mammals, reptiles, and humans are performed continuously so it can stimulate the nervous system and muscles allowing gross motor skills to increase. A physical activity that can be contested between groups, teams, and even between schools spurs physical exercise. Regular training makes it easier for students

to achieve fitness in the sense that the body is healthier and has better performance. Besides the development of performance, the development of motion elements can be practiced including reflex, fundamental motion, perceptual abilities, physical abilities, and non-discursive skills and abilities.

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