HAND POSTURE FOR BEGINNER PIANO PLAYING USING PLUSH TOY ASSISTED LEARNING

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CULTURAL CENTRE
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DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PERFORMING ARTS (MUSIC)

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ABSTRACT

This research paper explored the possibilities of using an animal plush toy as a tool to teach piano playing hand posture among participants formed by children age four up to six years old. The idea of Plush Toy Assisted Learning (PTAL) originates from AAL or animal assisted learning. Adopting a case study that involved a quantitative and a qualitative research framework, this research reveals an in-depth observation of a proposed new pedagogical idea in developing a proper hand posture using an animal soft toy as a tool towards children. Methodology includes a self-reflexive account of the researcher as a teacher via participant-observation, audit trail, log book, video recording, interaction between the child and the plush toy, comparison by interest and also the effectiveness of teaching approaches with or without the animal plush toy. The outcome shows that PTAL would be effective for younger children who are beginner piano player to learn their piano playing hand postures. This includes the duration of the process of learning and the effectiveness in applying the animal plush toy in replacing real-animal assisted learning to play the piano using a proper hand posture. Traits of pattern of learning and also behavioural response in children towards the plush toy were discussed.

Keywords: Animal Plush Toy, Assisted Learning, Piano Playing, Music Education and Early Childhood Education.

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ABSTRAK

Kertas penyelidikan ini mengambil pendekatan, di mana ia menyiasat fenomena menggunakan permainan haiwan yang lembut sebagai alat mengunakan cara pembelajaran melalui haiwan untuk kanak-kanak yang berumur empat sehingga enam tahun. Idea pengajaran melalui *Plush Toy Assisted Learning (PTAL)* berasal dari AAL atau *animal assisted learning*. Kajian kes ini menggunakan rangka kuantitatif dan kualitatif untuk mendedahkan pemahaman secara mendalam tentang idea pedagogi yang baru untuk mengaplikasikan terhadap pembelajaran piano di mana ia membantu mencapai postur tangan yang betul. Metodologi yang digunakan untuk kertas kajian ini adalah laporan reflektif kendiri, buku log, rakaman video, serta gambar, interaksi kanak-kanak dengan alat permainan tersebut. Hasil yang diharapkan daripada penggunaan permainan haiwan yang lembut sebagai alat pembelajaran amat berkesan terhadap kanak-kanak berumur empat hingga enam tahun. Ini termasuk tempoh masa proses pembelajaran dan keberkesanan dalam menerapkan mainan lembut haiwan sebagai pembelajaran melalui haiwan untuk bermain piano mengunakan postur tangan yang betul. Rekod ciri corak pembelajaran dan juga tindak balas terhadap kanak-kanak terhadap mainan tersebut dibincangkan.

Kata Kunci: Permainan Haiwan, Assisted Learning, Piano Playing, Music Education and Early childhood Education.

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1.1 Introduction

This study is conducted to witness the effective usage of an object such as an animal plush toy in teaching piano. The plush toy is being applied as a tool to teach piano and to create a proper hand posture for children age four to six years old. This study is an explorative study and the research approaches includes quantitative and qualitative theoretical framework. Experiments carried out in this study have been conducted in various places such as in a preschool, music school and at home instead of a lab-based study so that the participants were able to perform the said tasks in their regular piano learning environment. The first chapter of this dissertation is being divided into four different sections that are the background of study, purpose of study, research objective, research question, conceptual framework and conclusion.

1.2 Background of Study

In the belief of Christianity, every god's creation is unique and it is a separate individual by itself. Each of them is complex and develops differently, in which some children are on par and some are left way behind even though they are at the same age. A child's development is being categorized into four different categories that are communication, emotions, social and motor skills. These skills play an important role in their daily life.

A Child development theory helps us to understand how these children develop and grow during their early childhood. To understand this development, various theories of child development have come up to explaining about the development. There are seven best-known theorists for child development. They are Sigmund Freud, Jean Piaget, Lev Vygotsky, Erikson, John B, Watson and Albert Bandura. These theorists have their own theoretical approach such as psychodynamic, psychosocial, cognitive, and even behaviourist. As for this study, the theory that is being used is the approach of Jean

Piaget's cognitive development theory. It's the development of a person's thought processes, which teaches us to understand the process and interact with it at the same time (Cherry, 2017).

Introducing music as early as through the womb, as the baby can hear the sounds from outside the womb. Music helps to develop a child's cognitive and coordination skills. Music also helps to stimulate the development in every cortical area of the child such as vision, balance, speech, behaviour, sensation, skills, movement and emotional. (Rowel, 2014).

Animals and children cannot be kept apart. Interaction with animals has long been proven effective in developing young children with their social and motor skills. These two creates a special bond between them, which cannot be seen with our naked eyes. Children with animals tend to develop greater self-esteem, and even lower the likelihood of feeling lonely. It also helps to support healthy child development, where children are more involved with animal outdoor then wired up inside with their computer and phone (Serpell & Mccune, 2018).

1.2.1 Early Childhood Development

Early childhood is defined as an intensive period of a child from the beginning of birth right up to the age of eight. During this period, it is known as the crucial time for children's growth and development (UNICEF & WHO, 2012). Child development revolves around patterns of growth, change and stability. As they develop during this period, they are still learning and understanding their surroundings as they have very little control over it even though they are no longer infants. Within a short period of time they are able to ride a tricycle or put on clothes without any guidance from the adults. Despite developing independently, there would still be an adult supervision and guidance to aid the transition smoothly. Early childhood development covers four main domains that are

language, physical, cognitive (intellectual), and social and emotional development (Hulbert, 2003).

1.2.1.1 Language Development

Language is not the only form of communication; it appears to be a tool that acts as a bridge between two individuals, which could be children, and adults. Children are known to pick up language faster and easier than adults. Children are known to pick up or learn language easier than adults. Language develops through six stages during early childhood development. Language starts with prelinguistic or pre-speech stage from birth to the age of one. At this stage, cooing, babbling and uttering words such as mamama, dadadada, and clicking sound using their tongue is commonly heard (Kuparadze, 2015). At the age of ten to thirteen months, the child tends to use single words such as dada, which could mean “daddy, please come here." This phase is called holophase or one-word sentences.

It continues to develop as the child grows; by eighteen months sentences are usually build with noun, or a verb. Certain sentences are being created by a child could be negative, declarative, or even interrogative for an example “where ball” this is a form of interrogative sentence. When a child reaches the age of two, the child begins to form sentences with a subject and a predicate such as “Where is the ball?”. More grammatical structures are being used to create proper and full sentences by the time the child reaches five.

1.2.1.2 Physical Development

Early childhood is known to be the most important phase in a child life. A child’s body undergoes significant changes, as it becomes steadier, and more structure movement. There are four signs of physical development that revolves in a child’s development the limbs, muscle growth, brain development, motor skills that is divided into two, gross and fine motor (Kuther, 2017). This motor skill involves and works along

in balancing the body. Hand-eye coordination involves the eyes and the hand muscle to coordinate the hand into grasping and reaching it out.

1.2.1.3 Cognitive Development

Cognitive is how the brain allows children to think. It is a development of thinking skills, problem solving, able to explore and understand the causes and the effects, evaluation, analysing skills and able to make comparisons. Cognitive development plays an important role in a children life as it helps children to keep focused, able to express their interest, develop their memory powers and encourages their problem-solving skills. Cognitive works along with mental activities in a way comprehending and processing information, organizing and using knowledge. Knowledge in cognitive is used as problem solving (Owens, 2008).

1.2.1.4 Social-Emotional Development

It is a combination of both social and emotional skills, which allows children to develop positively, interaction and friendship and creates a new bonding towards other children (Shonkoff & Phillips, 2000). It has been an important skill in a child's life as it teaches them on how to act with their peers and adults. It builds their self-esteem and their confidence levels in achieving what they are doing in school and with their peers.

1.2.2 Multiple Intelligence

During the late 1970s and 1980s, psychologist Horward Gardner pointed out that each individual has eight or more intelligences developed theory of multiple intelligences. Each of these intelligences corporate together in order to create solutions and to solve problems (Gardner, 1983, 1993, 1999). The eight intelligences include linguistic intelligence, logical-mathematical intelligence, visual-spatial intelligence, musical intelligence, bodily-kinaesthetic intelligence, naturalistic intelligence, interpersonal intelligence, and intrapersonal intelligence (Gardner, 1999).

1.2.3 Cognitive Development Theory

Cognitive is a form of mental processing. Everything one does involve a complex mental processing and analysing that is often known as thinking or cognitive functioning. Cognitive capability aids in our daily schedule such as recalling a phone number, remembering a list, following directions and many other activities. Jean Piaget (1896-1980) one of the most influential theorists in this domain. Jean Piaget's theory remains to be the canvas of which all other theorists based their work on. It is often labelled as "constructivist" because it depicts children as constructing knowledge for them. Through his constructivist approach, children "construct" their understanding of the world through their active involvement and interactions. This approach can be seen through children's activeness where they are building curiosity, learning many important lessons on their own and also intrinsically motivated to learn which is not necessary in the academic field it could also be from learning experience (Lightfoot, Cole & Cole, 2005).

Piaget asserted that cognitive development is driven by the interaction of nature and nurture. Nature is where children innate motivation to learn and explore while nurture refers to all the experience that they had learned. The three key concepts of Piaget's Cognitive Development theory are schema, the four processes that enable the transition from one stage to another, and his famous 4 stages of cognitive development.

The importance of the schema in cognitive development that is being emphasis by Piaget is that schema is defined as a set of linked mental representations towards the world. In which we use both to understand and to respond to the situation. For example, as the schema is about playing the piano, the schema is a stored form of pattern of behaviour, which includes placing your hand on the piano, looking at the notes, and pressing the keys and play the piano. This is an example of a type of schema called a 'script'. Whenever the child sees the piano, he or she will retrieve this schema from their memory and apply it to the situation.

The three processes that enable the transition from one cognitive stage to another stage are assimilation, accommodation, adaptation, and equilibration. In assimilation and accommodation, individuals incorporate their new experience into their pre-existing schema, to deal with a new object or situation. Assimilation is introducing an object that is the soft toy, and for accommodation is when they come across a new object for the first time where they will attempt to apply an old schema to the object. Both these processes come into play when the child is assimilated to grip the plush toy as a part of their lesson to learn a proper hand posture, they will apply an old existing schema to the present. They will then accommodate the new information into another schema. Adaptation is two part of assimilation and accommodation. Adapting the schema to make it more accurate. Equilibration is created to balance both assimilation and accommodation. Its main objective is to reduce cognitive tension.

A child's cognitive development is about a child developing and constructing a model of the world. Piaget believes that a child's thinking passes four separate stages. They are sensorimotor (birth to 2 years), preoperational (2 to 7 years), concrete operations (7 to 12 years) and formal operation (12 years and above).

Sensorimotor Stage begins from birth to approximately two years old. This is the stage where senses, reflexes, and motor abilities develop rapidly. This is then further divided into six stages. Initially, the child uses reflexes and inmate behavioural tactics and by the end of this stage the child uses a range of complex sensorimotor skills. The sub- stages are reflexes, primary circular actions, secondary circular reactions, and coordination of secondary circular reaction, tertiary circular reactions, and symbolic/ mental representation.

Preoperational Stage begins from the age of two to seven years old. At this stage a child unable to think logically. Young children acquire the ability to internally mirage world through language and mental imagery. They would also begin to see the world from

other people's perspectives, and not from their own. Symbolic representation where the child uses an object to represent something, where in this study is the use of an animal soft toy. During the curving session, it symbolizes that the child is creating a home for the animal. This shows that a child could form a relationship between language, actions, and objects at this stage. Egocentrism is perception of the world by them. Centration is where the tendency to focus on a single, perceptually features of an object or an event. The lack of understanding of the conservation concept could cause children to struggle to understand the difference in quality and measurements in different situations.

Concrete Operational Stage is from seven to 11 years old. At this age, children start to reason out the logic of the world and their surroundings. They are able to solve conservation problems, but there successful reasoning is limited as there thinking skills still systematically remains difficult. The final stage is the Formal Operational Stage is for 12 years and above. At this point children are able to think positively. They are able to think "outside the box". There are also able to solve problems and being more "adult-like" even though their cognitive abilities haven't reach to that level.

1.2.4 Music in a Child's life

Early childhood is a special stage in a child's life. Introducing music to young children is one way to give love and to receive love. Music supports the formation of the brain connection that is being established the first 3 years of life (Carlton, 2000). Music in early development of children has been divided into four different parts, which are social-emotional skills, physical (motor) skills, thinking (cognitive) skills and also the language and literacy skills. Children would love music as they enjoy dancing along and singing with it.

Music helps children to focus and to sustain their attention period, as young kids have a very low attention span. Music allows children to express themselves, and bring their creativity out. As children grow to appreciate the beauty of music, as they acquire

the gift that will bring them great pleasure. Music also brings children into another dimension (Kaiser, 2008). From birth to 2 years old, parents should sing familiar songs or play songs during their day-to-day activities.

Parents tends to rock, stroke, and sing lullabies during naptime, use chants, rhymes, or finger play during playtime, incorporate musical games, rhythm instruments and dances during fun times and expose the child to age appropriate music listening materials. Children from the age of 3 to 6 years old, should learn to sing with made up actions and expressions, creative movement with props, introduce different types of rhythmic instruments for rhythm imitating games, and add variety to music listening materials in terms of tonalities, meters, timbre, and musical styles (Liew & Lam, 2006).

1.2.5 Animal Assisted Therapy

Animals do have a huge impact on human. Research also shows that interacting with animals may have health benefits as well. Animals may develop positive behaviors towards children. The interaction of an animal with children may also help them encourage positive social behaviour according to O'Haire et al. (2013). Children are often drawn to animals. Animals can aid children into becoming calmer, happier, and able to be more focused. Animal can act as a companion, a tool and also as a helper. Animal Assisted Therapy is one of the most modern medicines, and animals of all kinds are proven to gift children comfort and able to calm themselves with an animal surrounding them (Gee, 2011).

1.3 Purpose of Study

The purpose of this study explores the possibilities of if there is a positive effect by using an animal plush toy as a tool in developing correct piano playing hand posture. Motor skills involve gross and fine motor skills, which includes hand-eye coordination. This development skill allows children to apply into the process of learning to play the piano with a proper and correct hand posture. In this study, comparison between with the use of a plush toy as a tool and without a plush toy, as in conventional teaching and learning is analysed. This comparison is done to assure the development of their hand posture in playing piano and how long could the hand posture remain with the use of the plush toy as an assisted tool as compared to without the aid of plush toy.

This study will attempt to answer the following questions:

1. How would a plush toy be applied as a tool?

2. To what extent does the comparison between the usage of a plush toy and without a plush toy being reflected into learning curve of the children with regards of piano?

3. How would the teaching method be applied?

This research explores the usage of a plush toy as a tool for children from the age of four to six years old. This study also explores on how this group of children will learn to play the piano and develop their motor skills which consist of gross and fine motor skills and hand-eye coordination with regards to improve their hand postures.

1.4 Significance of Study

This study will explore the benefits of assisted learning for young children to learn more about themselves while learning to play piano at a very young age with a strong foundation on proper hand posture. The usage of a plush toy shows a significant positive behaviors development in children. Children are often drawn towards animal, and in this case incorporating animal plush toy, which increase their focus and concentration in developing a skill according to O'Haire et al. (2013). This research comes from a personal experience encountering the usage of an animal plush toy as a tool in assisting children's learning. The expected outcome of this study may contribute a new pedagogical model in teaching piano and developing a proper hand posture in piano playing.

1.5 Research Objective

This research has two main objectives, which are:

1. To explore the use of a plush toy as a tool in teaching children piano-playing hand posture.

2. To test the duration of maintaining the correct piano-playing hand posture between the control and the experimental group.

1.6 Research Question

This research comes with the following research questions which investigate into the:

1. How plush toy as a tool being applied in developing hand posture and learning piano at a very young age?

2. Are there any differences in the outcome when the children are taught with and without a plush toy in attaining correct piano playing hand posture?

3. How long could the hand posture of the young children remain?

4. How does the learning method being applied in developing hand posture and applying it to the piano playing?

5. To what extent does the plush toy as a tool being reflected in teaching children as young as four years old with the piano?

1.7 Conceptual Framework

This study is based on a mixed method theoretical framework, and a case study is used. A framework as seen in diagram 1 below, where a continuous interactive process that involves designing a model in using a plush toy as an assisted education, testing the model on children as young as four years old right up to six years old in learning to play the piano with a proper hand posture, and then making modifications to the model and testing it again. It is a continuous and on-going process. While an audit trail is used to capture all the events that took place for validity throughout the process and a self-reflexive approach in documentation the phenomenon. The theory that is used to conduct the study is based on Jean- Piaget theory, which is taken from the preoperational stage, which is from the age of two to seven years of age. As this theory allows children to see the world or surrounding from a different perspective of life. This theory also works on symbolic representation that uses object to represent things.

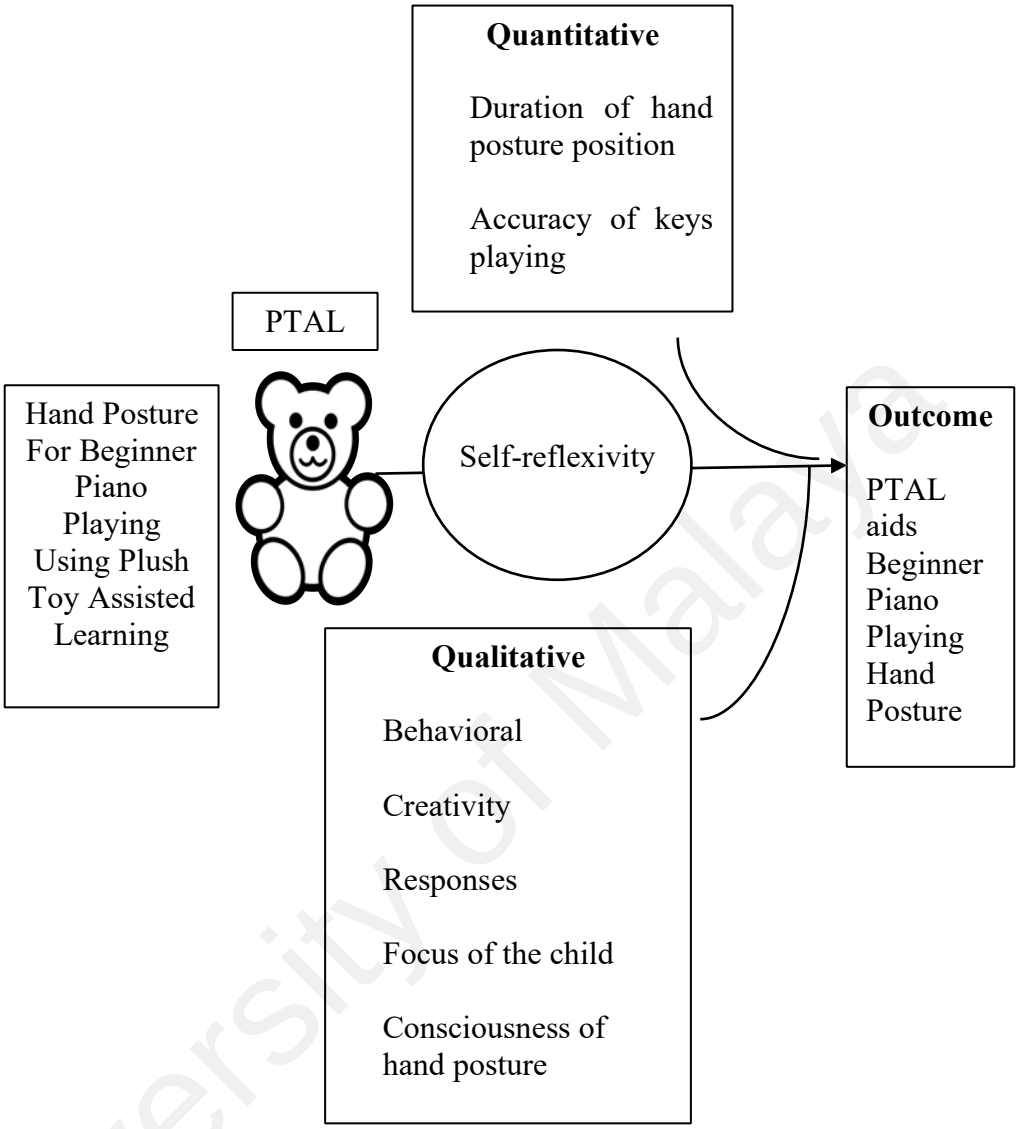

Figure 1.1: Theoretical framework

1.8 Conclusion

This research explored on the possibility of the development of plush toy assisted learning for young children's hand posture in playing piano. In the next chapter, the paper would discuss the literature that supports the learning possibility of plush toy assisted learning for young children and the benefits of it.

CHAPTER 2: LITERACTURE REVIEW

2.1 Introduction

This chapter reviews the literature on the early development of a child, intelligence, the famous theorist Jean Piaget with his cognitive development, music in early childhood with the help of an animal assisted therapy and playing the piano at the very early stages of a child. As we look into the past research of children's development in music and how Animal Assisted learning would be beneficial for young children as well as the society. There is a lot of early research done on the different aspect of music development of a child and their achievement in school later in life such as children's personal tempo correlates with their school achievement test scores in elementary school (Welkert, Schweinhart, & Larner, 1987).

This provided a strong base on the importance of music development as we further investigate into a more efficient music development for children at a young age. This study is based on the theoretical framework of Jean Piaget's assimilation and accommodation for patterns of behavior as creating a new assimilation and accommodating it to an old assimilation could create a more efficient pattern of behavior, as the combination would take part as one action instead of two. As for the literature review for this dissertation covers a child's development, music in early childhood, multiple intelligence and animal assisted therapy, playing piano and Theories of child development.

As this paper explores the use of a plush toy on developing a proper hand postures for young children, it is important that the understanding of a child's development and its effect on music education is being studied. The understanding is necessary as a tool to further development a proper teaching method and style to aid as well as facilitate the learning of a child.

2.2 A Child's Development

A child's development is a process that every child goes through and development is the change and growth that occurs during childhood. Gresham and Elliott (1984) says that good social skills allow the children to develop independently and effectively with their peers and even with adult. Denham et al. (2012) have been exploring more information as the recent development of research in this area has drastically increased and that it creates a whole new understanding on child development for the society. Child development happens across all ages, and the changes occur based on the different ages and stages of development. It evolves from mastering skills such as tying shoes, writing, climbing, stretching our self to communicating which allows us to speak more, develop our vocabulary and even guide use into being someone friendly and even caring.

This is where the different domains of development skills such as cognitive, social and emotional, motor skills and even speech and language development expand along with the activities. The different domain of development requires the different stimuli and understanding for an adult to fully understand and to assess the child's development. Moreover, if the child faces delay on one of the domains, it would also then affect the other domains and the effect of it could be significant (Singleton & Shulman, 2010). Every child is different, as each one of them is born and grew up differently. As all the children come from a different background, culture and even environment, which plays an important role in a child's development. Each of this milestone develops in a specific time frame. Every development which involves play develops a child's creativity and imagination as well as other skills. It doesn't matter if the child is just rolling on the floor, or playing with their siblings, learning to take turns, playing with others or even role-playing. They are developing and important social skills (Rock, 2018). This comes down to the windows of opportunity, as each and every child has a specific period of time where its sensitivity to a certain development is at its highest peak. Once the opportunity is

missed, not only it would take more effort to development the same skills, the chances for creating a long lasting and stable brain connectivity is decreased.

Most of the sensitive period starts from birth and last only up to age 4 and on average age 6. During these few years of development, which is often categorized as the early childhood, emotional, speech and vocabulary as well as the logic development is at its peak of development. However, the window of opportunity for the physical development of a child persist until the age of 8 years, with this the development of both fine and gross motor skills would create a long-lasting effect on the brain to allow the synapses to link efficiently for the stable long-lasting structure of a child.

More often than not, children develop through play, as play is the mechanism that children learn based on their experience of the world, be it to practice their newly learnt skills via games, or to internalize ideas for their cognitive development, the essential 'work of children' (Paley, 2004). Children's very first engagement of the world is through the human touch with their primary caregiver, and later on the engagement and social interaction with their caregiver. Through play, children would learn about their surroundings and the existential of the world and participate in the activities that could help develop their cognitive, emotional and social development (Elkind, 20017). Given all the different domains of development for a child, the play is one of the approaches to enhance their development, and along with understanding of concepts, would help further enhance the development.

2.3 Music in Early Childhood

Music plays a very big role in every child's life. Children enjoy moving, listening and dancing towards music. Music also motivates movement for children and also creates emotional experience and also feelings (Pica, 2009). According to Steinhoff (2016), music is a very important development for children in the early years. Listening and

playing music from all kinds of sources such as games, television and others helps to stimulate various parts of the children brain.

The frontal lobes which is one of the parts of the brain which is important to language and motor development which could be stimulated by sound waves (Besson, Chobert & Marie, 2011). Music is an important thing in a preschool as it helps to incorporate the two skills that is the language and motor skills that prepare children's minds for learning.

Benefits of learning music at an early age, improves language abilities, increased emotional resilience, increased empathy, increases attention span and focus and also increases self-confidence (Miendlarzewska & Trost, 2014). Children that learned music shows a better working memory than children who have not learn music during their early years. This working memory allows the children to remember things even though they are busy with other things (Christiner & Reiterer, 2018). Music education has been a strong tool in developing children's creativity, social skills, and even intellectual.

Music in early childhood allows children in developing social connection and also cognitive skills as music tends to give motivation and even to be more engaged in their learning ability and also develops their listening, attention span ability and speaking ability even faster than children without the exposure in music (The Royal Conservatory of Music, 2014). In the article, it also discussed that music plays an important role for children in expressing themselves, where it releases their creativity and their inner personality. Learning music at an early age shows that children improve their speech and reading ability. Children with early exposure towards music have been proven have a better phonological skill that allows them to speak, to read and even to learn words faster and develop richer vocabulary. Learning music at an early age is way better than learning other types of arts as there has been improvement in reading and speaking been proven in

schools. It is not even language even mathematical subject has been proven improves for children which has undergone music lesson at a very early age.

According to Steinhoff (2016), music plays an important role in our culture. Music is present in every corner of the surrounding of our children's life. Music instinctively expresses joy and engage or even to calm the little ones. If we expose music from the early stages of a child's life, it helps them to develop their vocabulary, allows them to speak even more clearly, strengthen their social and emotional skills. It even strengthens your motor skills such as your fine motor skills if the children are introduced into instruments such as the piano, guitar and any other instrument as they tend to practice to make it sound musically.

Through NAFME (National Association for Music Education) view, believes that music is an important part of a child's growth. Learning music through creative expression in songs, creating rhythmic movement, and singing, listening and playing instruments gives them a beautiful bond emotionally and intellectually. It gives positive effects on the quality of children's lives. It creates a foundation, where music learning is built, as this experience should be involved in our daily routine and play for children. In this way, there will be more joy of music making and sharing is being developed.

According to Qi (2012), in the journal title educating young children proves that music strongly gives an impact on children's brain development, cognitive development and also self-esteem during their early childhood. As this kind of activity balances both sides of the brain and develops the child's mental development. Young children gain advantages when they learn music according to researchers. The best time for children to start learning music particularly musical instruments and even singing is before they reach seven years old. In fact, during this age, it is faster and easier development in music learning.

Each child needs opportunities to express themselves according to their needs (Saliba, 1990). Creativity activities in music during early childhood actually enhances every child's ability in exploring different ways of musicality in themselves. If creativity is not being express or being explored at the early state of age, it will slowly decline. During these decline period, children will undergo social pressure as children will be fearful in trying or approaching new elements or even exploring (Burton, 1989).

Children that began to learn and being exposed to music at the early age develops faster and easily being taught in finger technic, ear training, and also in musicality rather than those who start later. As we know children capture language faster than adult, they are also capable in capturing musical elements and language easier than the late beginners. As we know, almost all famous musician started their music journey as young five years old such as Mozart, Beethoven, Chopin. Music is a language that able to communicate with people from all around the world. It is form of communication and expression. Learning music and exploring them at the very young age improves children interest, self-discipline and creativity (Palmer & Sim, 1993).

Past studies show that music as a tool could be used to aid development in young children, as it would stimulate the development of the brain, as well as the social and emotional development of a child. Hence music in early childhood could be explored further in terms of finding more benefits of music in young children.

2.4 Theories of Child Development

Theories of a child's development explains a lot of how does a child development revolve from their early childhood. These theories explain their development from social, emotional, cognitive, language and even physical. These theories create a framework as it shows us on how these developments move on each step. Development happens from birth right up to adolescence. There are few child development theorists, who are famous

with their work and involve a significant study with children; they are Sigmund Freud, Erik Erikson, B.F. Skinner, Ivan Pavlov, Jean Piaget, Albert Bandura, and Lev Vygotsky.

Sigmund Freud is famous for his psychosexual development theory, which focused on the series of different stages of different pleasure areas of the body, as they change from time to time. Psychosocial development theory by Erik Erikson suggests that he believes in the impact and benefits of social interaction and experience. Ivan Pavlov and B.F. Skinner talk about behavioral development theory in regards on how the environmental interaction influences the individual's behavior. This development is a reaction towards rewards, punishment, and also reinforcement. The famous social learning theory by Albert Bandura believes that behaviors are learned through observation and modelling. While Lev Vygotsky developed the sociocultural theory, where he believes that children learn through hands on like Jean Piaget who develops the cognitive development theory (Cherry, 2017).

Jean Piaget theories differ from the others, according to (Mc Leod, 2015). Piaget's theories often focus on the development of a child rather than theories of development across all ages. His theory focuses on the developments, which includes the changes in a generalized theory for all children in the world and not the learning phases of a child. According to Piaget, cognitive development is a progressive development towards mental development as a result of maturation and environmental experience. According to Piaget, using his assimilation and accommodation theory, children are active learners, not passive learners. It is because a problem-solving skill cannot be taught, as they would discover it themselves. Children have the ability to relate information from the world and later on use it as a piece of information for them to apply to another real-world situation as they are exposed to different experience since young.

Piaget's stage of theory focuses on the children's cognitive development. This development involves changes from cognitive process into abilities. In his view, an early

cognitive development starts with a process and later on it changes to changes operations. His cognitive theory also suggested that children move through four different stages of mental development. His theories mainly focused not only understanding but also how children develop their knowledge. Piaget theories stages are the sensorimotor, preoperational, concrete operational and formal operational (Cherry, 2010).

According to Simatwa (2010), during the preoperational stage, which is the two to seven years of age, the children can symbolize experience mentally. Children learn to associate words and symbols with objects. Children have to grasp the principle of conservation before he could comprehend the concept. The understanding comes in through awareness. Encouraging children into imagination helps them to comprehend even more.

Children develop through stages, as children develop in a very unique way in understanding their surroundings. In their early stage that is the sensorimotor stage, children develop their eye-hand coordination schema and object permanence. The preoperational stage develops children's growth of symbolic thought which increased the use of the language. While the concrete operational stage allows the children to perform basic operations such as classification and serial ordering of concrete object and the formal operational, children are able to think and reason out (Ojose, 2008).

The development of a child occurs through a continuous transformation of process according to Piaget. It happens throughout a period which happens through months and even years during the process of the development. Even though children are from the same age, the development differs (Weinert & Helmke, 1998). However, Vygotsky had a different take on development. He believes that children's cognitive development is formed based on the affecting factors on their culture (Beliavsky, 2006). Vygotsky's theory of zone of proximal development (ZPD) suggests that teachers play an important

as they are part of the closest zone of a child's social circle in teaching and educating them.

His theory states that there is a difference between what a child can do independently and what a child could do with the help of trusted adult, which is what he believes is the ZPD (Vygotsky, 1979). Vygotsky's theory differs from Piaget and Skinner as both the cognitive psychologist and behaviorist believes that not only that learning is staged learning as children would follow a certain stage of development, but vygotsky's ZPD suggests that children develop based on their internalized understanding and is different between each child. Vygotsky's ZPD could also be achieved by using Gardner's multiple intelligence as argued by Beliavsky (2006).

2.5 Multiple Intelligence

Intelligence has been a topic of research among major psychologist to define the measurement of mental capability. According to a renowned psychologist, Howard Gardner from Harvard University, Music intelligence is as important as any other intelligence according to his measurement of 7 intelligences in his multiple intelligence theory (Gardner, 1983). Gardner's theory of intelligence covered music, mathematical, linguistic, spatial, kinesthetic, interpersonal and intrapersonal intelligence. The different types of intelligence of this theory drew an important attention to the development of music in children since World War 2. There has been an increased demand of understanding and the exploration for studies in music instruction during the early years of childhood (Levinowitz, 1998).

2.5.1 Visual-Spatial Intelligence

Visual - spatial is an ability to visualize and also to create image, as it is an ability to reconstruct or modify the object by representing the ideas (Haley, 2004). Spatial intelligence is also divided into two different components as it could be analysed based on the complex thinking and the spatial test ability (Hegarty, 2010). Complex imagery is

based on the ability of a person's mental imagery and analytical thinking of the visual image. External visualizations of imagery require internalized mental simulation for processing. Hegarty suggests that visual - spatial intelligence should not be augmented based on external visualization but also takes into account of the mental processing of adaptation and usage of external visualization.

2.5.2 Linguistic Intelligence

Linguistic intelligence is an ability to analyse information and create products involving oral and written language such as speeches, books, and memos while logical mathematical intelligence revolves more into equations and proofs, make calculations and able to solve abstract problems. Visual-spatial intelligence is an ability to recognize and manipulate large scale and fine spatial and remembering images, visualizing object from a different angle. Musical intelligence is the ability to make different patterns of sound, produce and create rhythm. Naturalist is all about environment, able to identify different types of plants, animals, weather that is commonly found in the natural word. Bodily kinesthetic is how the body creates and solve problems. Interpersonal is an ability to recognize and understand other people's moods, motivations, and intentions while intrapersonal works on recognizing and understand one's own mood, motivation and intention. (Gardner 1983; Kornhaber, Fierros, & Veneema, 2004).

2.5.3 Music Intelligence

Music intelligence is a separate intelligence by itself as it is a unique intelligence by itself. Music intelligence is subjected based on one's ability to create, communicate and understand the underlying meaning of a pattern of sounds (Gardner, 1992). It is often found within composers and musicians. Music could be learnt through various ways such as reading, decoding of symbols, and using the sounds through our hearing senses would require a higher-level intellectual processing for understanding (Healy, 2011). Music intelligence stimulation in the early stages of development is necessary as understanding

of musical phenomena could enhance logical/mathematical intelligence according to Healy. Healy's study also shows that early stages of brain stimulation in musical perspective could stimulate synaptic growth during peak production which is prior to age 2 in the brain which would allow later reorganizations of synapses to nurture the later growth of synapse connections.

2.5.4 Bodily Kinesthetics Intelligence

Bodily-kinesthetic intelligence is the ability to use an individual's body to express their emotions and ideas, problem solving and manipulations of objects (Gardner, 1983). According to Gardner, there are two main characteristics of this specific intelligence, which is to use one's body in different activities to achieve a goal and the skill development to manipulate objects.

Bodily kinesthetic intelligence could be promoted using various methods. It is found that this specific intelligence is related to multiple other forms of intelligence such as musical, spatial, verbal, interpersonal and intrapersonal intelligence (Keun & Hunt, 2006). Creative dance could be one form of learning to understand the unique knowledge of bodily kinesthetic intelligence (Michelaki and Bournelli, 2016).

2.5.5 Interpersonal Relationship Intelligence

Interpersonal intelligence is the ability for one to be able to work in a social context where one could communicate with other individuals in a verbal and non-verbal form of communication and to understand others in the distinctions of emotions, temper, motivations and intentions (Lazear, 1997). Choral rehearsals such as theatrical shows and group performance requires students to work together a group and cooperate to create the presentation, in which would require the skills to work as a team that in return facilitates one's interpersonal skills development (Mallonee, 1997).

2.5.6 Intrapersonal Relationship Intelligence

Intrapersonal intelligence is the ability of one to make decisions by requiring the needed higher order reasoning, self-reflection, understanding one's emotional responses and feelings and the sense of intuition. This specific intelligence is much based on the intelligence in order for one to express themselves by incorporating other intelligence all together (Mallonee, 1997). Mallone suggested that music could aid students in learning to express their emotions, responses as well as their feelings. Just as stated in the section of interpersonal intelligence, choral rehearsal could also aid students by learning the use of relaxation techniques, enhance the intensity of senses by relying only one or the other sense such as rely on hearing without the visual aid.

Gardner's multiple intelligence shows that all intelligence is somewhat related to one another and could benefit through different learning styles. Mallonee states that each and every different student could be reached with different teaching methods and styles to approach and enhance different intelligence. In this study, by enhancing the understanding and imagination of a child, the relation between bodily kinesthetic, visual, linguistic, intrapersonal, interpersonal intelligence could be increasing the effectiveness of one's musical intelligence and vice versa.

2.6 Playing the Piano

Psychologist researcher E. Glenn Schellenberg on his post in the August Psychologist Science says that children at the age of six years old who has been attending piano lessons weekly throughout the entire year has shown a significant increase of an average IQ. Learning to play an instrument at an early stage of a child has given an intellectual edge over their peers.

Collins (1985) stated that, as sooner a child is being exposed to music where they begin to read and respond to the notation, they will become more fluent reader. These skills and exposing to music should start when they were young as younger children has

an amazing ability to recognise and memorize visual pattern. Younger children learn faster than adult. According to Collins, children were not taught about logos of product or even know how to read them such as “McDonalds, signs and even television commercial. These is the age where children capability to identify patterns and allows them to identify the words or pictures. Patterns of pitch and rhythm would not be a problem for younger children. It shows that younger kids has the ability and a highly potential to be successful in piano study.

According to Schellenberg (2004), music lessons have experiences that have been giving positive effect on cognition, especially for early childhood. During this time the brain begins to develop and adapt on the surrounding faster. Piano lessons also require children to pay even more attention for a longer period, to read notation, to memorize the passage and also master their fine motor skills which involve literally on the finger movement.

According to Jenkins (2016), teaching young kids is often challenging and fun to work with using the correct and fun way. Children and adults have different length of attention. If the task that they are doing is not fun, the attention span is way shorter as they do not want to work on it. Playing the piano is a difficult activity for this kids age four to six, as they could not sit still. It is important to have an idea and a different approach to make the child to pay attention during piano lessons. We should not be too concern on reading music, as some teachers sacrifice teaching the correct playing technique to reading notes. Technique here meaning, having to sit correctly with curved fingers. This is a good start up in learning to play piano, if we teach them to not sit and curve properly it will be difficult to overcome in the future.

In the blog article titled ‘Plan the ultimate first piano lesson for a five-year-old beginner’ which was written by Nicola Cantan (2016), suggest that the child should be in a smile in their first piano lesson, full with energy and smile. For the finger introduction,

not all of the children are able to give a wonderful grip, as some children at this age can't even grip a pencil with a correct handgrip. It is a huge variance in finger strength and agility among them. Every child varies, and some could also be seven years old who can't even grip a pencil with a proper grip (Cantan, 2016).

According to Andrea, most of the beginning piano students, their hand position issues always comes with incorrect positioning of the thumb. As we known thumb is the only finger doesn't press the key with the tip of our fingers and it's a domain finger which causes problems to the rest of the finger if it doesn't place in a correct position. The author has drawn some silly eyes on the sides of their hands, to look like a goose. Once they are able to make a goose hand position, they will place they hand on the keys and spread their fingers but keep their thumb and knuckles in the same position (Andrea, 2012).

According to Hoffman (2013) who is a music educator and an author said that it's never too late to start a piano lesson for a child. Hoffman suggested that children would benefit from piano lessons regardless of age as in each and every stage of development, a child would still benefit from the brain growth and disciplines. As he believes there is no specific age that would be the perfect age for a child to learn piano, piano learning would only be beneficial based on the child's individual readiness.

According to Bastien (1988) in his book call 'how to teach piano successfully' said that not every four or five years old child loves or ready to play the piano. According to Bastien, there should be certain consideration for a young child to be ready to play the piano, such as maturity, coordination, attention span, and also interest in music. There is a chapter in his book about teaching piano to the very young beginner, according to Bastien some piano teacher is still having doubts about teaching young children. Early learning and introduction towards music may help young children to understand basic concept and basic reasoning processes. Learning piano at the very young age also develops sensory-motor skills which will allows the child in coordination n of their small

and large muscle. Teaching piano for preschool children requires a proper technique, because young children need special assistance in using their fine motor skills.

Teaching piano for younger children have to include sitting posture at the piano, hand position, wrist, arm and shoulder position, finger coordination and five finger patterns. Bastien (1988) discussed, the importance of technique for younger children which mostly involve in their finger positioning and body position on the piano. It is very important to help these young children to learn to isolate each five finger scales. At every beginning of piano lesson, introduction to the piano, teacher have to include teaching two and three group black keys with the 2-4 fingers from low to high position.

According to research, young children develops musically earlier. As we know, playing piano is a skill that involves learning to read music and rhythm and at the same time learning to understand the keyboard. It also helps to learn and develop a good technical skill in order to improve fine motor skills (Uszler, 1991).

Teachers should watch on the position of the hand and arms. As it is an important part or routine of plying the piano. When hands are being placed on the keyboard, fingers should form a curve position and every finger represent each key. even when the hand is move on and off from the keyboard it should stay in the natural position rather than over curling or flattening the fingers (Golansky, 1995).

During playing the piano, shoulders should not be raised or even be in a tense situation. It has to be in a relax and calm position, so that it can be moved freely up and down and the elbow have to located few inches away from the piano. This position allows and gives freedom for the fingers and arms to move without any disturbance or distraction when it is moving from one register to another. Elbow being close to your body may gives an uncomfortable movement and positioning of the hand (Gat, 1965). It is very important to teach young children the proper siting position during their early exposure of playing

the piano, as it will be an unwanted habit if it is not being taught and corrected at the early stage of learning.

According to Taubman (1994), the importance of playing on the pads of the fingers rather than the tips it is because playing at the tip is by curling the fingers at the nail joint point which will eventually produce tenses to the fingers and wrist. Taubman also discussed that moving the hand up and down with very curled fingers, makes the hand feel more strained than usual. The strained hand causes are because the curled fingers which employ the long flexor muscle which extend from the fingertip to the elbow and so curling the finger at the nail joint tighten the wrist. The finger nails should touch the key only the finger pad should be position on the key. This is an important finger technique for young children who is just starting o explore their motor skills and stretching their fine and gross motor skills. According to Taubman, proper sitting and hand positioning on the keyboard allows children to be more comfortable, relaxed, and enjoy during lesson.

In more recent studies, non-conventional teaching elements were applied to piano playing techniques (Loo & Loo, 2011; 2013; Loo, Evens, Hashim & Loo, 2015). Researchers explored into Eastern movement philosophy and Alexander technique in aid of piano playing technique and posture. Xiao, Puentes, Ackerman and Ishii (2016) on the other hand, experimented on a Dalcrozian approach by using a projected screen with moving images at the keyboard in piano teaching and learning. As studies of music as a sonic effect resulted in perceived congruence in movement (Loo & Loo, 2015; Loo, Loo & Chua, 2019), this study attempted to explore the reverse, by testing on the effect of a tangible plush toy as a visual object as a tool in delivering an imagery ‘hold’ in piano playing hand posture. The idea came from Animal assisted therapy which the following section discuss the past literatures in this new area of study.

2.7 Animal Assisted Therapy

Animal-assisted therapy improves anyone with mental, physical, social and emotional functioning with the help of an animal as per discussed below. Different kinds of animals are used for this therapy, such as dogs, cats, horses, rabbits, guinea pigs and other animals. There is always a strong bond between animal and human. Animals are non- judgmental, which makes easier for someone to open and approaches it. With the help and guidance from this animal a child could improve their motor skills, social skills where this animal helps them develop their self-esteem and many other developmental skills.

Animal assisted therapy involves a lot of interaction regularly with animals. It often starts with sitting together, petting, and playing around with them. When you sit or even interact with an animal, it speculates a certain level of oxytocin which is known as "love hormone" which encourages bonding, often increases which does the production of serotonin, which is the feel – good brain chemical (Solan, 2016).

Animal as an assistant creates a bond between a child and the animal. The affection between the child and the animal identify the child's needs which allows to create a child-pet-relationship which makes them feel good, secure and important as well. An animal allows the child to be more confident in approaches outsider and also their peers. It creates animal- human bond, where it helps the child to break the ice when they are surrounded with any stranger. An animal assistant approach has been a therapeutic strategic and also treatment for children (Fine, 2002).

According to Rowan (1981), studies show that animal has been a positive reinforcement towards learning as it helps children to simulate interest and also the ability to hold the attention of the child. Animals are able to develop children to be kind and also respect living things not only in the classroom but also outside the classroom (Mayer, 1980).

Animal interaction brings the benefit of improving one's internal emotional processing. Pets can help reduce stress, anxiety and depression, ease loneliness as well as promote social interactions with love and affection (Hajar, 2015). In the article, the author specified that children who grow up with pets would grow up to be more secure and active as well as less likely to develop allergies. Children with pets were found to be more empathetic for other children as compared to those who did not grow up with a pet, as the touch could also act a soother, physical comfort and gain a sense of safety from them (Fine, 2000). Pichot & Coulter (2006) also suggested that animal companions could promote the development of responsibility, self-esteem, empathy, trust and competence with pets. Social skills and social support were also found between the relationships of pets and children (Thompson, 2009; Kruger et al., 2004). Partnership with a therapy animal could also instil the development of speech and communication skills (Thompson, 2009).

A Piano book *Music for Little Mozarts* (1999-2000) by Barden, Kowalchyk, and Lancaster introduce this book to the younger children. The purpose of this book is to allow children to have discipline during playing the piano and at the same time make the lesson more enjoyable during the process of music making. This book is designed to teach children from the age of four to six years old. This book includes few characters such as Beethoven Bear, Mozart Mouse, and other characters. In this book, the plush toy is used to experiment the high a low sound by placing the plush toy Beethoven Bear (low sound and Mozart Mouse (high sound).

Another piano book that includes animal as assisted learning is Sing and Play (1987) by Ann Collins and Linda Clary. The author purpose on this book is t o help the child to develop through musical concepts including songs, story, games, other characters and activities. The use of the fairy tale story *Goldilocks and the three bears* where, low (papa bear), middle (mama bear), and high (baby bear). In this book picture cards are

being used to help the children to respond to the sound and the needs of the bear card. Certain rhythm in this book uses animal names and pictures such as bunny rabbit (four eight- notes), woodpecker (quarter-note followed by two eight notes), polar bear (two eight- notes followed by quarter notes).

Another piano book called Mainstream Primer Method (1977) by Cory uses Barney Bear Paw which was present throughout all the book. The author uses the bear paw to explain on how to posture the hand using the bear paw when playing the piano for example spilling the honey on the keyboard and playing the sticky keys which produces a legato sound. During the process of teaching using this concept, children tends to be more creative, and explore themselves even more. Through out the whole book children are reminded about the "Bear Paw". It is being visualised by the author to the children to remind them on maintaining the finger position curved, keeping the bridge of the hand up, and playing on the thumb on its side.

Animal presence is not limited to the physical presence of an animal in the home, but it could also be through books, digital screens, images, plush toys, blankets and clothing (Urichuk et al., 2003). Animal assisted therapy techniques could be beneficial when it is used during piano lessons especially with young children. The effect of the presence of animals could lessen resistance and work as a catalyst during progression in a therapeutic setting. These calming elements of the therapy is beneficial especially when working with children (Fine, 2000). Table 2.1 shows the summary of findings based on the literature supports mentioned above

Table 2.1: Summary of Animal Assisted Therapy Literature

Year	Author	Findings
1980	Mayer	Respecting animals
1981	Rowan	Stimulate interest and attract children attention
1986	Levine & Bohn	Children with pets are more empathetic
1997	Catcher &Wilkins	More focus in learning setting with the present of an animal
2000	Fine	Children trust animal and sees the value of life
2002	Fine	Treatment for social approach towards stranger
2003	Urichuk	Regular contact with animal shows more self-esteem
2009	Thompson	Children turns to animal for social support, develop physical and social skills.
2015	Hajar	Therapeutic value of pets.
2016	Solan	Hormone that encourages bonding
Current study	Kumanan	Present study aimed at exploring AAT as PTAL with normal children in piano playing

2.8 Conclusion

As previous studies shown on the development of a child, there are limited studies on the teaching method of pianos as well as how plush toy assisted learning methods on young children. Piano as one of the musical instruments would be used in research as a learning tool. Past studies have shown benefits of piano playing in early years, music development and efficient learning on appropriate age based on different theories on child development. As the research gap was found, this dissertation is dedicated to find out of the effect and validity of plush toy assisted learning on young children playing piano

based on the understanding of past researches and studies. Past studies have shown the great impact that animals could have on children from all different aspects such as interpersonal, social development and even physical development. However, with the studies that shows that MI is interrelated all of the different intelligence could be correlated with the development of a child, in which could be enhanced using AAT. With AAT not being restricted to just real-life animals, plush toys could be replaced to assist young children in developing their piano playing hand postures by cooperating all the internal and external factors of a child's interest in playing piano.

This paper would explore to correlation between AAT and Piano playing hand posture as a form of assistance to understand the benefit that AAT could bring to young children during piano playing sessions on their hand posture position. In the next chapter, the paper would explore the methodology of the research on plush toys and piano playing hand posture.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This research employed both quantitative and qualitative approaches. By carrying out case study using plush toy as an intervention in the teaching of piano playing hand posture, the participants were divided to two groups: experiment and control. The experimental group is the group that will be working with the animal plush toy. It will be held in their hand for not more than five minutes before working on their hand posture on the piano. As for the control group, a sample of group taken without the inducement of an animal plush toy before working on their hand posture on the piano.

The qualitative analysis could be monitored through a daily journal, which is then been recorded based on the progress of the child including the errors of keys being played before and after toy grasping. The improvement and numbers of trials to achieve the continual playing were then tabulated. As for the quantitative analysis the duration of piano-playing where the hand posture which was recorded and compared between the two groups.

3.2 Research Design

This research is done to determine the effectiveness of a plush toy as a new concept for teaching piano for young children as well as it could be used in developing young children's gross and fine motor skills and hand-eye coordination. This motor skills helps the children in developing a proper hand posture as they learn to play the piano at the age of four years old. The design for this research study is selected to determine the effects by comparing it with and without the plush toy. The tests were then done through observation and hands on in a classroom setting and each session lasted around fifteen to thirty minutes.

3.3 Qualitative Design

Qualitative design is an approach used to explore the correlation between an individual or a group and a social or human problem. This research design process involves the collection of data through observation or open-ended questioning with the interpretations of researchers to determine the meaning of data (Creswell, 2018). Children were approached with a concept and an idea of an animal that is living under their palm. Qualitative method of design that is done in this research study, children was being exposed to the technique of playing the piano for the first time. Questions and clarifications were made by parents verbally before signing the consent form as to ensure that children did not have any prior exposure on piano lessons. Participants were given a brief explanation and a chance for a creative imagination stories as they created a story for the "animal that lived under their palm". As it was a technique to allow participants of young age to understand the idea of an abstract object in an imaginative condition, a plush toy was used to replace the momentary imagination in order to facilitate the abstract concept to not crush the living space of the imaginary animal.

3.4 Quantitative Design

Qualitative research is a research approach that focuses on the relationship between variables to testify the objective theories, in which it uses numbered data that could be interpreted using statistical methods (Creswell, 2018). It is a process of research that uses the data collected from a set of participants and it is analysed to determine the result. Children were observed in their behavior on how would they react with the help of a plush toy and without the plush toy and how long could they be in their correct hand posture while pressing the key down for each note. This research also calculates the number of error keys played and the duration of the sustainability of the finger in holding the key. The quantitative part of the study examines the effect of the qualitative imagination of having an animal living under their palm and how it would affect their

sustainability as the imagination acts as a mediating factor. The independent variable of the study is the existence of plush toy and the dependent variable is the number of error keys played with the mediating variable of duration of fingers in proper hand posture. The data are being analysis by direct observation of timing.

3.5 Setting

In this research, the researcher is concern about children learning in their regular piano learning environment. Therefore, this research study is conducted at a preschool Hi 5 House of Learning at Damansara Height, in a Music school and home both located at Rawang. The participants for this study is from the age of four to six years of age. There were sixteen children in total for this dissertation and is further divided into groups of eight for the experimental and control group. In each group, there are two children of four years of age, three children from the age of five and another three children age of six. The study is conducted in a room equipped with a piano.

This research uses the observation method of naturalistic observation. The settings done in a school where children have been attending for a period of time, depending on each and every child's personal different and their very own home. This type of observation would allow children to feel less stressful, as well as allow researchers to be able to observe the natural social emotional behavior of the child (Cherry, 2019). The method is important as young children would lack the ability to adapt to lab-based research which would cause them to change their social behavior due to unfamiliarity and being aware of an experiment, an important observation that is recorded for the study. As compared to a lab-based test, it would not only be difficult to recreate a classroom setting, but also difficult for participants to feel comfortable in the imitated setting.

3.6 Participants

The subjects for this study are sixteen children from a range of four to six years old. All of these children are students of the school and also the music school. Each of the children has different ability. These group of children are able to respond and communicate in English. All these children have been selected through an observation and working relationship with these children prior to this study.

Here is an age demographic, which is being tabulated into a pie chart as shown below in graph 1. As for playing piano with the help of a plush toy, 38 % were children of age six which is a larger number while for children age five is 37% and 25% is for children age four.

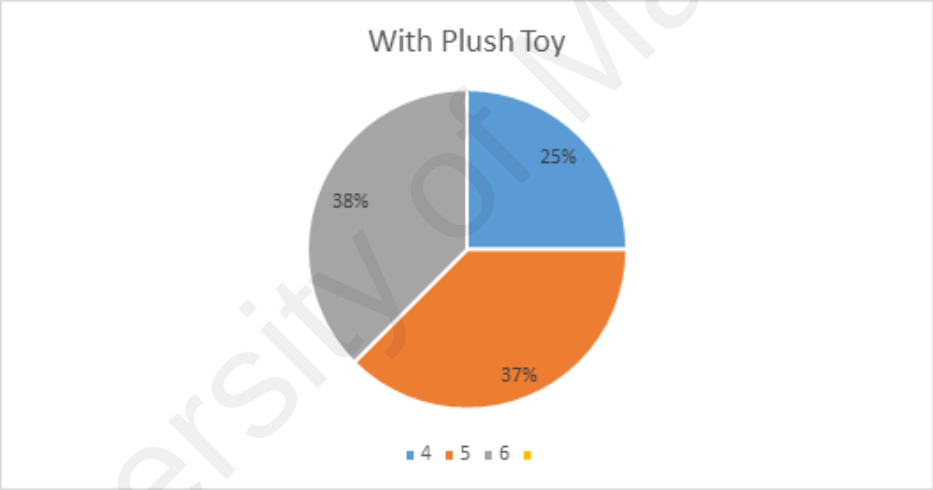

Figure 3.1: Age Demographic of Participant with Plush Toy

While for graph 2 which is also being tabulated into a pie chart below, is without an animal plush toy. Children age five has a big percentage among the other age group, which is 38%. For the age four the percentage is 25% while for children age six has 37%.

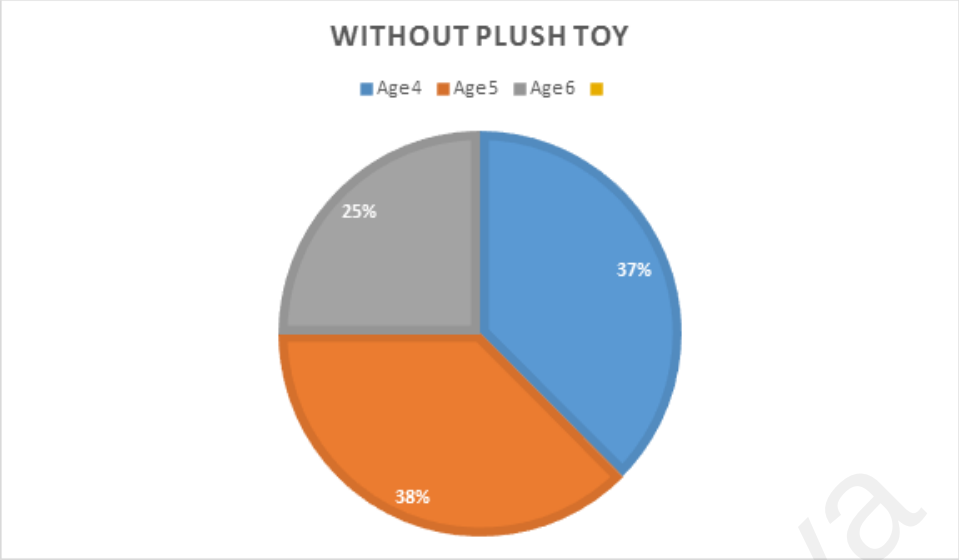

Figure 3.2: Age Demographic Participant without Plush Toy

The participants all comes from a different family background, education, race and culture. The years of education is showing how long these children have attended school. This is also being tabulated into a bar graph.

In graph 3 as seen below, children age six has been to school for two years, and has three girls which are Indians, and for the age three and four they have been to school for about a year. There are two boys from each age category and one girl at the age of five. While for the culture there is one Chinese each from the age of three and four, while there are two Malay children for the age of five and one for the age of four.

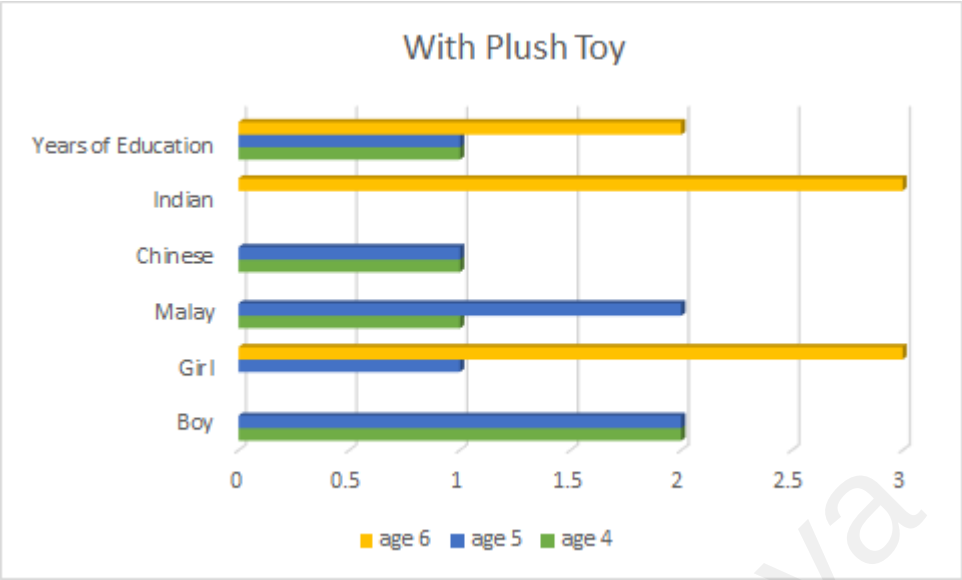

Figure 3.3: Demographic Participant with Plush Toy

In graph 4 as seen below, children age six has been to school for two years, and there are two girls from the age of six where each of them is a Malay and an Indian. While for the age of five they have been going to school for about a year. There are two boys and a girl. Each of them comes from the three different races each. While for the children age four, they have gone to school for about a year also. There are three boys from that age group where there is one each for each race.

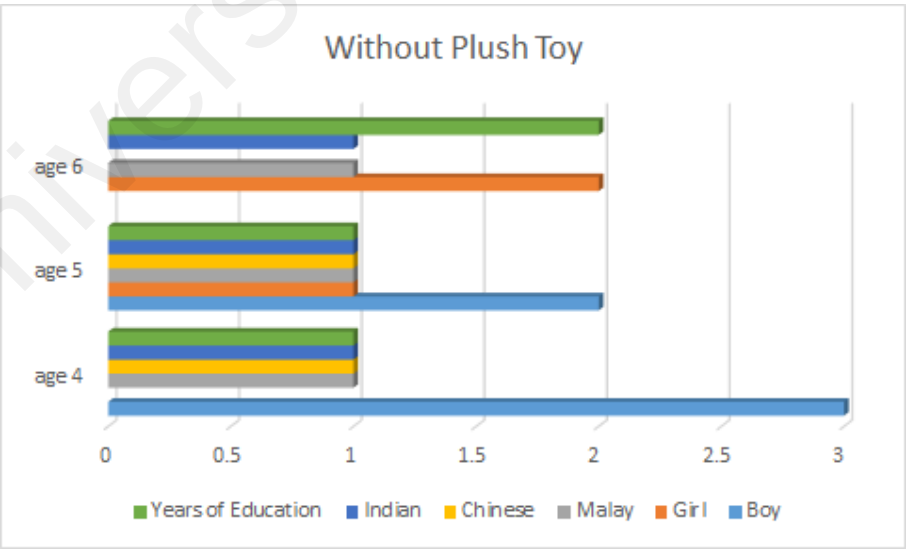

Figure 3.4: Demographic Participant without Plush Toy

3.7 Materials

The children were exposed to an animal plush toy, which is a small white bear as shown as picture 1, which fits on the children's palm. This animal plush toy was chosen as it generates interest and is able to attract children as it is also an animal. The size of this plush toy is an appropriate size for a child's palm as it can be place nicely and they are able to grip the plush toy without any difficulty as it fits perfectly into the size of a child palm. During these experiment pianos were used in three different places. Both groups of children use the same book that is the Music made easy Level 1 by Lina Ng. This book is a beginner book which is used for children that just began their piano lessons without any background on piano. It teaches the basic lesson before playing the paino such as the hand position, and also introduce the sitting position. This book is also suitable for younger children. In this case its suitable for children age 4 to 6 years old. This book introduces piano playing and middle C reading. In this book, they learn to play the notes from middle C to G on the right hand which allows them to play a mandarin song called "Ker Ren Lai" and "Mary Had a Little Lamb".

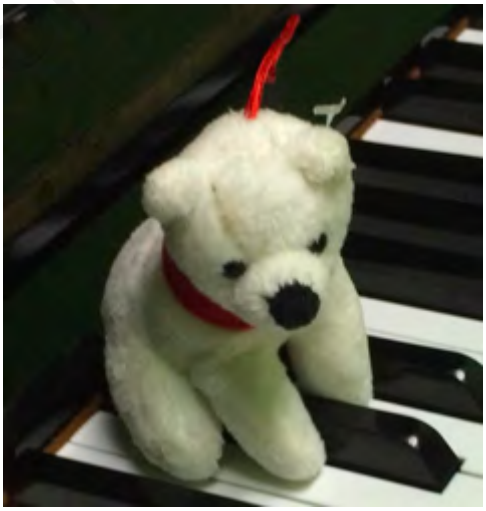

Figure 3.5: Plush toy used in this study

3.8 **Procedure**

Sixteen children were selected which are suitable for this study. The classroom teacher and the researcher worked together with the children collecting data and taking some pictures and timing them. This experiment lasted for a month, which involves fifteen to thirty minutes per session. Each of these children received at least three sessions per week. For the first week, all sixteen children receive the same treatment for the first week as it's the baseline of the research. During this week, the two groups which is the experimental and the control group has the same lesson. In the beginning of the lesson, the children will learn the rules in learning the piano such as the siting position and also the leg position as the legs has to be perpendicular position. They then have to look at the three and two black keys groups and identify the groupings. They were also taught on hand and finger position. In the beginning of a piano class, children were taught where hand and wrist must be in the same height as they are not allowed to raise their wrist up and down. The wrist should be in a relaxed and light mode. The fingers have to be standing in the correct position on the keyboard, while playing on the key the fingers must be curved and it should not be bent. In the first week, the students were exposed to the piano and the plush toy.

The sixteen students were divided then into two groups, which are the experimental and control group. Each of these groups have an equal number of students. Experimental group is the group with the plush toy while the other is without. Each of these groups will go through seven stages, whereby each stage has its own strategy, as shown in graph 5.

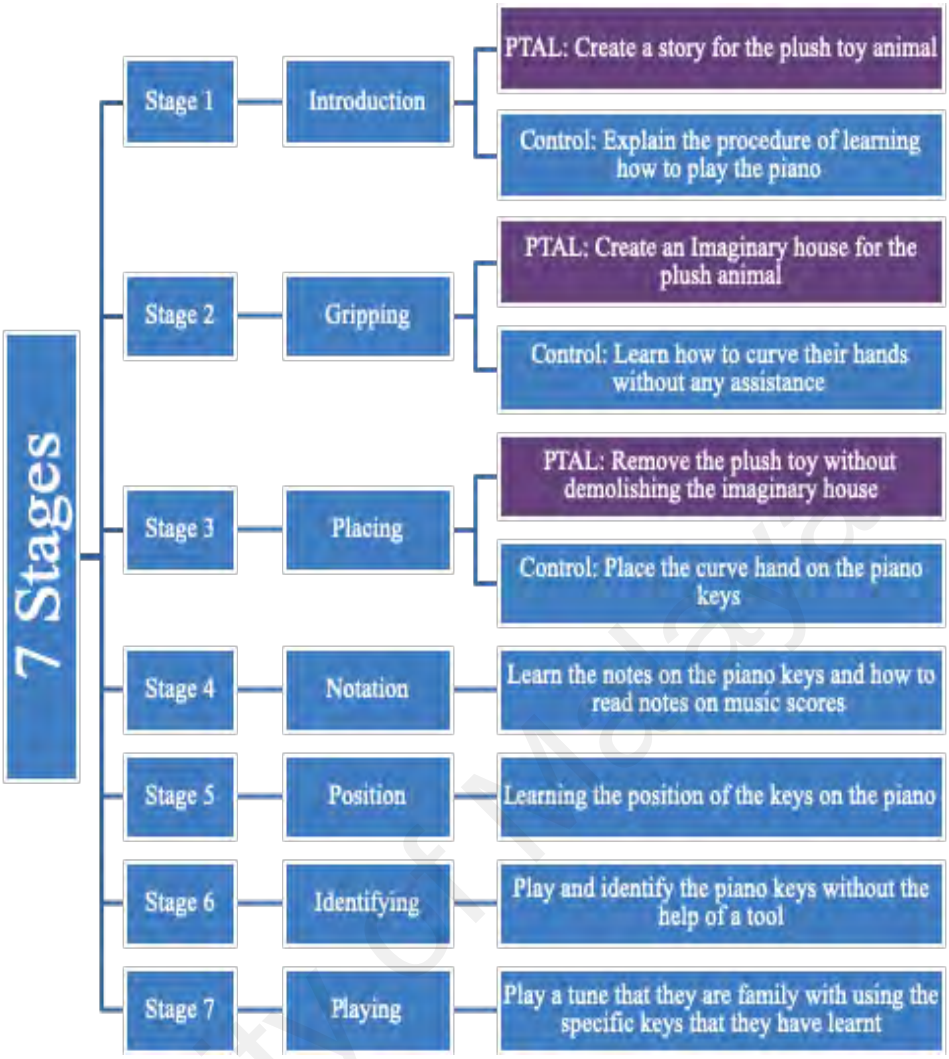

Figure 3.6: 7 Stages of the procedure

In the first stage of the procedure is an introduction, as there are two groups, which is the experimental, and the control group. The experimental group, which is with the animal plush toy, story was created for the plush toy animal. It was created by the children to make it even more fun and enjoying learning. They also learn about placing the fingers on the key, and knowing about the two black and three white keys,

While for the control group, which is without the plush toy they were taught the basic piano playing way. This group were taught on placing the fingers on the key, and knowing about the two black and three white keys.

In stage two, gripping was taught. The experimental group children will learn to create an imaginary house for the plush toy. They will learn to grip the soft toy using their right hand. The gripping develops by picking the plush toy up using the correct hand

posture, which involves the palm and the fingers. This involves the development of gross motor and their fine motor, which allows them to hold and grip the plush toy in the right position. On the other hand, the control group will then straight approach the piano and places their fingers on the keys and learn to curve and stay in that position without any assistant.

For stage three, children will learn about placing. Once they have developed the proper hand posture by learning to grip the soft toy, the experimental group will learn to place their hand without the help of the plush toy and also helping them to remember not to demolish the imaginary house. The control group will learn to place their hands on the piano which teaches them to curve and try not to flatten their hand down which allows them to touch the piano. Once it's being developed with and without the help of the plush toy, it is then time to separate the tool, which is the plush toy.

During stage four, after learning the proper hand posture in piano playing, the children then learn the notation on the right-hand middle C position which involves five notes from C, D, E, F, and G. They will also learn to read the notation on the sheet.

Once they are able to identify the notes, they will learn to place the notes on the right keys, which allows them to hold each note with and without the help of the tool to see how long they could remain in that posture for each of the notes. They will learn to position the fingers on the key. This happens in stage five.

In stage six, the children will play and identify on how to play tunes, as they will begin to apply on the piano from reading the notes to laying the keys. This happens without the help of the animal plush toy.

Once they are able to get the notes right and able to play it on keys, they will then learn to play a tune. In stage six, we will then see how their hand posture remains in that position without falling apart or resting on the piano. We also look out for the finger pointing upwards as the tune is being played.

3.9 Analysis

Data was collected from each student during every session. The process was recorded and pictures were taken for each stage. In the experimental group, pictures as the children picked up the animal plush toy from the piano to the curve position. Then pictures were taken from the moment of the curve position to placing the hand on the piano with the animal plush toy. Once the plush toy is being removed from the palm, time is being recorded to see how long could they hold in that position before placing their hand on the piano.

Once the hand is placed on the piano, pictures and time were taken to see how the finger curves and placed on the piano keys and how long could they hold for both groups. The same process is then repeated for each notes position. Video is taken during the stage six, where the children were playing the tune.

3.10 Limitation

There are three limitations that have been accrued during this study is being done. The first limitation during this study is assessing to the children due to the change of management that happens in the preschool. As each management has their own rules as during the change, the new management could not agree with the earlier deals that had been made.

The next limitation was time. There were only four weeks that was given by the new management to complete this study, as shown it was intense as the children had to go through three sessions for each week.

During the study period, there were inconsistencies in sample sizing, whereby, children were always not in for a longer period as they often on gone for holidays and even fall ill. Some children were also emotionally disturbed due to age restriction, as they would not want to play at that period of time and would not want to be engaged for about few sessions. The limitation is also forming the difference of practice time and learning

ability as we know some children develop at different speeds than one another could also be taken into consideration.

3.11 Conclusion

The next chapter discusses about the data was collected from the study. The following chapter is about the findings and comparisons between the experimental and control group. The data shows that there is a significant difference between with and without plush toys, as those with the assistance of a plush toy resulted in a lower error keys played and longer duration of fingers sustaining in a proper hand posture. The discussion also shows the specific numbers of each child's ability and skills for all twelve sessions. The data also shows the responses of the children during the study.

CHAPTER 4: RESULT AND DISCUSSION

4.1 Introduction

This chapter reveals the result on exploring plush toy assisted learning in beginner piano playing hand posture which answers the research objective one which is to explore the use of a plush toy as a tool in teaching children piano-playing hand posture. Comes along with the second research objective, which is to test the duration of maintaining the correct piano-playing hand posture between the control and the experimental group.

4.2 Qualitative Observation of PTAL and Control Group

In this study, with the help of this method, there are three outcomes, which could be seen in these two groups. The first outcome was about instruction, calmness and relaxation. The first outcome is about instruction, where this method helps the younger children to remain their hand posture while playing the piano. For example, in the experimental group, which uses the plush toy as an assisted learning during the research period, the teacher is able to communicate with the children in following instruction to place the plush toy under their palm.

Through the researcher's observation, the children's mind starts to work based on the memory created, as they begin to approach the idea of an animal plush toy living under their palm. There are able to understand the idea of a different object, which represent the animal. They are able to facilitate the concept to not crush the imaginary animal that is living under their palm based on the story and memory they have created earlier on.

During this process, when all the eight children were introduced to the animal plush toy, they got too excited and started talking about the plush toy and should they call it or should they take care of it such as petting it as they were pretending it is an animal. They also learn to protect the animal that is living under the palm. It helps the child to develop empathy during this process. The following outcome is that the children develops

calmness and relaxation as they feel happier and enjoys the lesson even more with the present of an animal plush toy.

Based on the memory, children created their version of stories about the plush toy to help them remember on how to maintain their hand posture. From the eight children, four of them imagine that the plush toy as a dog and the other four children imagine it as a bear. These children pretend that the curved fingers are like the animal's home.

During this process, these children pretended that the animal house could not be crush and if it would be crushed then there will not be any place for the animal to stay or rest. In that way, children will often remember to maintain their hand posture. There are two important aspects in this is where the hand and the fingers play an important role. The curved hand is the house for the animal and the fingers roles is like a door where we should not lift the finger up as it will be more room for the predators to come in and eat the animal or danger might appear as the house is not safe.

4.2.1 Children Responds to PTAL

In the experimental group, 8 children were exposed with the animal plush toy. These children were first introduced to the plush toy and to see the interaction between the child and the plush toy, and once the child is done with the few sessions of working with the plush toy they were then develop playing the piano without the help of the plush toy. As this goes for three stages and after the very last session of each stage there will be result being tabulated.

In the section below the comparison had been made, whereby the use of an animal plush toy has provided a change and create a fun moment where the child is able to interact and be more creative in playing piano instead of the traditional teaching method, where the children were told to place their fingers on the keys and curve them. The approach of this two group has shown that the use of the animal' s plush toy did proves.

Figure 4.1 Lazy Hand

In this picture, it is taken before the child learns to grasp the animal soft toy. As shown in this picture the hand is placed flat on the piano, which is known as the lazy hand. By putting the soft toy in front of the student, they would talk about the animal and learn to grasp the animal using a proper grasp on their right hand. As they talked about the animal, it creates an imaginary pet animal that they correlate the toy to a real animal.

Figure 4.2 Plush Toy Assisted Learning

In this picture, the child is learning to pick up the soft toy, using their right hand. As shown can see in this picture, the process of picking up the soft toy plays an important role, in creating a proper hand gesture. This helps with the grasp as the soft toy fills the space in their hand creating a natural grasping posture and allows the children to be able to hold on the hand posture before playing the piano. The soft toy also helps with the children to relax their hands and only putting force on their fingers, which then create the curve of the hand and exerts less pressure on the palm.

Figure 4.3 Plush Toy Assisted Learning

Here shown can see that, the child is learning to turn the soft toy, to a playing position. This position helps them to place their hands on the key with curved fingers and a proper hand gesture on the piano. This process also helps the children as they work on their wrist turning, promoting the learning of locking their wrist during piano playing and only move from the arm upwards.

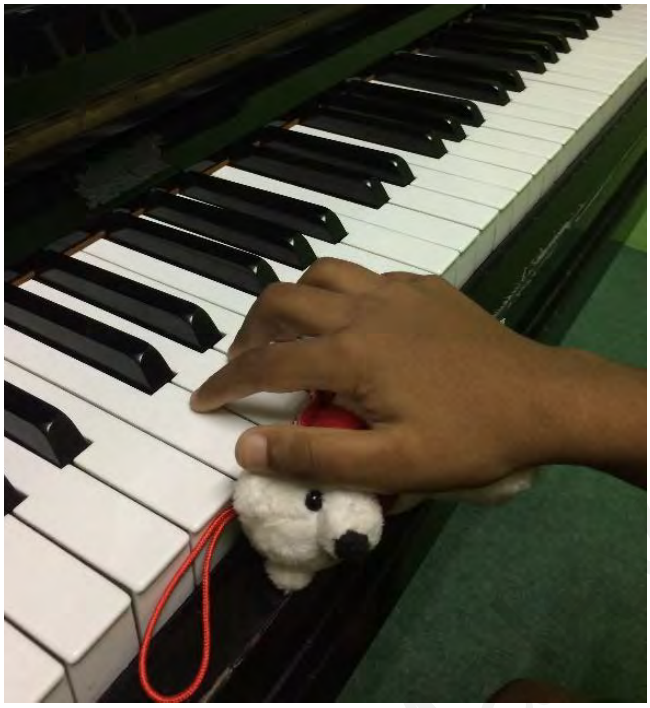

Figure 4.4 Proper Hand Gesture

In this picture, the hand has been placed on the piano with a proper hand gesture and with the help of the soft toy under their palm. As it helps them not to develop their lazy hand. They were told to imagine that there is a little animal living under their hand and they need to be careful in how they place our hands on them. The imagination idea gave the children a sense of protection and responsibility to maintain the proper hand posture to not 'crush' their imaginary animal friend, and gives them more motivation to hold on to the hand posture.

Figure 4.5 Hand Posture after Plush Toy Assisted Learning

Here, as shown the child is no longer in need for the animal's plush toy, as he has developed a proper hand gesture, where it could be seen that each finger is placed on a specific key and it being curved in an appropriate way. As the child progresses over time, this would create a firm hand posture that would help ease and enhances the learning of key playing during lesson, which allows them to further their learning and development in music and piano.

Case 1

During 0'00'' to 0'30'' child A was introduced to the plush toy which the child immediately showed interest and excitement when the plush toy was given to hold. At 0'30'' onwards child A was holding the plush toy and starts to interact with the it by playing and talking. Child A was paying more attention to the plush toy then to the teacher, however once the teacher asked the child what kind of animal would this be and the response was a bear. As the child starts to talk about the bear living in its cave and what it eats, the child being to be so attentive and starts to be even more interactive during this process. The teacher then told the child A, that they can build a cave using our hands

and fingers. At 3’15’’ the teacher created a curved position using the child’s hand and then kept the plush toy inside. As the child works on the finger and sustaining the curve and avoid falling and lifting the fingers up as it will crush the plush toy and allows danger to enter. At 10’00’’ the child starts to be slightly more confident in gripping the plush toy by themself and this process ended till the session ends which is around 15’00’’. This is the process that the child when through in the stage 1. At the very end of the last session on stage 1 there will be an attempt without any guidance, as result will be taken from there.

For the second week session the child A learned to grip the plush toy from the teacher’s hand which happens at 0’00’’and bring it to the C position on to the piano at 0’30’’. At 0’31’’ to 0’55’’ child A was trying to place it correctly on the C position, which then took a longer time as the child was trying to adjust the little finger along with the plush toy. At 1’00’’ the child placed the fingers on the right C position fingering together with the plush toy. At 1’30’’ child A tries to play the keys with the help of the plush toy being held under the palm which lasted for 10’00’’ with stops as the child is still young to continue straight on. At the very end of the last session of stage 2 there will be an attempt without any guidance, as the result is being tabulated from there.

And for the third week, which the child will go through the session without the plush toy, as they will start to work on their imaginary thinking. Child A, starts to imagine on the bear’s house as the child works on the curved hand posture first which is from 0’00’’ to 1’15’’. After that, the child then tries to work on the finger to avoid it from lifting up from 2’00’’ to 6’00’’. During this session, child A has always been reminding that the house should not be crushed. At the end of the session of stage 3, child A result will be tabulated as the child will try to remain its hand posture in position without the help of the animal plush toy and the result is being taken from there.

Case 2

Child B here shows interest and is very eager to learn more using the plush toy. During 0’00 to 0 45’’, child B was holding and interacting with the plush toy and at the same time talking to it. At 1’00, child B starts to ask the teacher even more about the plush toy, and when the teacher asked the child what kind of animal do you think could this be as it could be a white dog, or a big fluffy white dog. During this process the child began to be more productive and creative as the child starts to pretend to take the dog for a walk. As the child was walking and skipping with the dog on the piano at 1’30’’ the teachers ask the child a question where would the dog sleep when it is tired. The child’s response was at home. At 2’00’’ the teacher told to child B that the dog’s home can be build using just our hand and fingers. At 3’00’’ the teacher created a curved position using the child’s hand and kept the plush toy inside. Child B, tries to work on the fingers and sustaining the curve and avoid the fingers from lifting up as it is a home for the dog to rest as it does not want anyone to disturb. At 11’00’’ child B shows confident in gripping the plush toy by themselves and tries to remain the hand posture as the session ended around 13’00’’. This session is the process of stage 1 and at the last session of the week there an attempt without guidance, as result will be taken during that process.

For the second week session the child B learned to grip the plush toy from the teachers hand, which happens at 0’00’’ and bring it to the C position on to the piano at 0’20’’. At 0’30’’ to 1’00’’ child B is working on placing the fingers correctly on to the C position which took slightly longer as the child was adjusting the finger together with the plush toy under their palm. At 1’20’’ child B tries to play the 5 keys with the help of the plush toy being held under the palm which only lasted for 5’00’’ with stops as the child is still young to continue straight on. At the last session of the stage 2 there will a result being tabulated as the child attempt with the help of the plush toy without the guidance of the teacher.

And for the third week, the child will go through the session without the plush toy as they will start to work on their imagination. Child B starts to work on its doghouse as the child began to curve their hand and remain in the posture from 0’00’’ to 1’00’’. After that the child tries to work on the fingers to avoid it from lifting up from 1’10’’ to 4’00’’. During this session, child B always tells that this is a dog house we should learn to take care of it, because it needs to rest and sleep here. At the end of stage 3, child B result will be tabulated as the child remaining its hand posture in position without the help of the animal plush toy and the result will be taken from there. In this case, child B attention was very short as the child could only remain for a certain time, as seen on the timing of the child for every activity was done.

Case 3

Child C shows no interest but willing to try. During 0’00’’ to 1’00’’ child C was introduced to the plush toy which the child took it after a sweet talk with the child. At 1’00’’ onwards child C was holding the plush toy and looking at it by turning it around and feeling it, and at 1’45’’ there was a smile at the child's face as it was engaging to the plush toy but not for long. When the teacher approaches the child and ask what kind of animal do you think could this plush toy be and the immediate response was a dog. As the child was playing with the plush toy the child began to interact and slowly starts to speak out about having a dog back in grandparents’ house. As the conversation starting to pick up, at 4’00’’ the child starts to talk what does the dog do at home and where does it go. Once the teacher starts to ask where would the dog take a rest or have a nap, the response was at home. Then the teacher told the child that they also can build home using our hands and fingers. At 5’30’’ the teacher helps the child to create a curved position using the child’s hand and kept the plush toy inside. As the child works on the finger and sustaining the curve and avoiding it from falling and lifting the fingers up as it will not allow the dog to rest. At 15’00’’ the child tries to grip the plush toy as this session ended

around 20’00’’. This process happens in stage 1 and the end of the stage the result is then being tabulated.

For the second week session the child C learn to grip the plush toy from the teachers hand and still the child shows a minimal interest but there is still effort in the child trying to engage happens at 0’00 and bring it to the C position on to the piano at 1’00’’. At 1’15’’to 3’00’’ child C was trying to place the fingers correctly on the C position along with the plush toy being held under their palm. At 3’15’’ child C tries to play the keys with the help of the plush toy to remain the hand posture which lasted for 6’00’’. At the end of the stage 2 the result is being tabulated.

For the third week, which the child will work without the help of the plush toy and start to work on their imagination skills. Child C starts to talk more after going through 6 session in two weeks. At the child works on the curved hand posture first from 0’00 to 1’00’’ and then the child work on the fingers to avoid it from lifting it up from 1’50’’ to 2’30’’. During this session, child C start to talk about the dog and trying to work on the dog house, as the child tries to remain his hand posture without falling or lifting the fingers up. In this case, child C was not keen to work on the piano but wants to try because of the plush toy that had interact him. At the end of session of stage 3, child C result will be tabulated when then the child tries to remain the hand posture in position without the help of an animal lush toy.

Case 4

Child D is not very keen and does not show interest and does not want to get close to the plush toy. During 0’00’’ to 10’00’’ child D was being introduced to the plush toy as the child does not want to enter to the class and it took a very long time for the child to sit with the teacher and get in touch with the plush toy. At 12’00’’ child D still resists to even touch the piano. As the teacher, approaches the child, and sat on the same level and being comfortable with the child, then slowly the child showed interaction as the

child response to the teacher. During this time, there is no recording as the child had a breakdown and it had taken a while for the child to be back as normal and to continue. At 0’00, the child was holding the plush toy, but did not show interest in finding out more about it. As the teacher explain on how to hold the plush toy and what is the purpose of the plush toy to the child till 5’00. As the child decided to work together for a moment, the child began to create a curved position with the help of the teacher by holding the hand. At 10,00 the teacher helps the child on the fingering and sustaining the curve and avoiding it from falling and lifting the fingers way up high. The child then tried gripping and creating the curved without the help of the teacher. At 15’00 the child did not want to continue as the child doesn't show interest in any of it such as the piano, and the plush toy. As there is not much of seconds of involvement of the child with the plush toy, the result is still being tabulated at the end of stage 1.

As for the second week session, child D still shows the same progress from the last session. As there is some slight improvement as the child began to work along with the plush toy with a minimal touch. At 3’00’’ the child starts to put the hand on the piano and started to press randomly the keys and at 6’30’’ the teacher tries to engage with the child by holding her hand and placing it to the C position. As it takes a while, as the child refuse to work even longer. The child often gets melted down and takes a while for the child to again engage with the activity. At the end of stage 2 the result is being tabulated.

For the third week, is where the child works without the help of the plush toy and starts to work on the creativity side, which is the imagination. As the child had gone through 6 session in two weeks, the child began to show slight confident, as the child began to talk and also play the piano as the child has gained confidence, trust, and even bond with the teacher. During this stage, the child talked about the plush toy, as it looks like a dog and often repeats, “ I would want to hold the dog”. As the process goes on the child still resists to work with the plush toy along with the piano playing but works at it

for certain time period. At the end of session of stage 3, child D result will be tabulated when the child tries to remain the hand posture in position without the help of an animal plush toy.

Case 5

Child E here love to explore and want to try till the child satisfied. During 0’00 to 1’00, child E was holding and interacting with the plush toy. At 1’30’’, the teacher asked what kind of animal do you think it could be and the child response was a bear. As the child looked at it and said polar bear because it is white. During this process the child began to be more productive and creative as the child starts to play with the bear. At 3’00’’ the teacher asked the child, where would you think the bear would like to rest and the response was an igloo. At 4’30’’ the teacher told that the bear’s igloo could be built using our hands and fingers as it works like a home too. At 5’00’’ the teacher created a curved position using the child’s hand and kept the plush toy inside. Child E, tries to work on the fingers and sustaining the curve and avoid the fingers from lifting up. At 10’30’’ child E shows a very confident level in gripping the plush toy by themself and tries to remain the hand posture. Child E is a very positive child as, the child keeps on trying till the child is able to grip it in a correct way. This session ended around 15’00’’. This session is the process of stage 1 and at the last session of the week, the child will attempt without any guidance, as result will be taken during the process.

For the second week session the child E learned to grip the plush toy from the teacher’s hand, which happens from 0’00’’ and bring along the plush toy to the C position on to the piano at 0’30’’. From 0’45’’ to 6’00’’ child E is working on placing the fingers correctly on to the C position which took longer as the child was adjusting the finger along with the plush toy under the palm. At 10’00’’ child E tries to play the 5 keys with the help of the plush toy being held under the palm which then lasted for 10’00’’ with stops as the child is very keen into getting it right. At the end of the last session of stage

2, there will a result being tabulated as the child attempt with the help of the plush toy without the guidance of the teacher.

During the third week of the session, the child will go through the session without the plush toy as they will start to work on imagination and creativity. Child E starts to work on the bear house as the child began to curve their hand and remain in the posture from 0’00’’ to 1’15’’. After working on the hand posture, the child continues to work on the fingers to avoid it from lifting up between 1’30’’ to 5’00’’. During this session, child E was very careful in lifting the finger and trying to maintain the posture as the child needs to take care of the bear. At the end of stage 3, child E result will be tabulated as the child works on remaining the hand posture in position without the help of an animal plush toy and the result will be taken from there.

Case 6

Child F is willing to try something new and would love to explore. During 0’00’’ to 1’20’’ child F was introduced to the plush toy which the child immediately took it and start playing with it. At 1’30’’ onwards child F was interacting with the plush toy as the child began to play it on the table and on the piano and there is a connection between the child and the plush toy. The teacher approaches the child and asks what kind of animal do you think the plush toy be and the response was a bear. Child F did not speak much, as the child was shy and does not get along fast with others. As the child was holding the plush toy at 5’00’’ the teacher asked the child about where could the bear rest and how could we build a place to rest for the bear using our hands and fingers. At 8’00’’ the teacher then showed the child on how create a curved position using the child’s hand and

kept it inside. During this session, the video has disconnected as the child started to cry and refuse to do be touched. Once the child is calmer after few meet up and some talking between the teacher and the child, the child manages to work with the teacher to create a curved position. As the child works on the fingers and sustaining the curve and avoiding it from lifting the fingers up. It took about roughly 20 minutes the child tries to grip the plush toy. This process happens in stage 1 and at the end of stage 1 the result is then being tabulated.

For the following week session, the child F learn to grip the plush toy from the teacher's hand. During this process the child gain slightly confident being with the teacher as the child approaches the teacher without any hesitation. At 0'00'' to 2'00'' the child works on bringing the hand position to the C position on to the piano. From 3'00'' onwards child F was trying to place the fingers correctly on the C position along with the plush toy being held under the palm. At 5'30'' child F tries to play the keys with the help of the plush toy to remain the hand posture which then lasted till 10'00''. At the end of stage 2 the result is being tabulated.

For the third week, is when the child works without the help of the plush toy and start to work on their imagination skills. Child F starts to approach the teacher and even tries to speak after going through 6 session in two weeks. As the child starts to feel comfortable, the child starts working on his hand posture in curving. At 0'00 to 3'00'' and then the child tries to work on the fingers to avoid it from lifting it up between 3'00 to 5'30''. During this session, child F start to talk to the teacher about the bear and trying to work on the den, as the child tries to remain the hand posture without falling or lifting the fingers up in this situation, child F want to try to work on the piano because the child feels comfortable with the teacher and allows the teacher to work together. The child felt happy as the plush toy makes the child comfortable. At the end of the session of stage 3,

child F result will be tabulated hen the child tries to remain the hand posture in position without the help of an animal plush toy.

Case 7

Child G is very keen and show much interest in learning piano and at the same time using the plush toy approach. During 0’00 to 0’30’’, child G was interacting with the plush toy, by talking and playing. As child G was interacting with the push toy, the child starts to interact with the teacher and show much interest as the child approaches the teacher. At 1’00’’, child G approaches the teacher by asking what kind of animal could this plush toy be. It lasted about 1’15’’ to identify what kind of plush toy. According to the child, the plush toy represents a bear. During this process the child began attached and fallen in love with the plush toy, where the child began to interact and talk to the plush toy. As the teacher approaches the child regarding a place to rest for the bear, at 2’30’’. The child’s response was a home. At 3’20’’ the teacher asked the child to curve the fingers. As the teacher tries to help the child to bring the hand to a curve position and place the plush toy under the palm. Child G, tries to work on the fingers and sustaining the curve and to avoid the fingers from lifting up as it is to protect the bear from other animal in entering into the home. At 15’30’’ child G shows confident in gripping the plush toy by themselves and tries to remain the hand posture as the session ended around 25’00’’. This session is the process of stage 1 and at the last session of the week there an attempt without guidance, as the result will be taken during that process and being tabulated.

For the second week session the child G learned to grip the plush toy from the teacher’s hand which happens from0’00’’ and bring it to the C position on to the piano at 0’30’’. At 1’00’’ to 2’30’’ child G works on placing the fingers correctly on to the C position which made it more difficult as the child had to adjust the finger alongside with the plush toy being placed under their palm. At 4’00’’ child G tries to play the 5 keys with

the help of the plush being held under the palm which then lasted till 5’30’’ with stops. At the last session of the stage 2 there will be a result being tabulated as the child attempt with the help of the plush toy without the guidance of the teacher.

At the third week, the child will go through a process without the plush toy as they will start with the imagination. Child G began to work on the bear house as the child began to curve their hand and remain posture from 0’00’’ to 1’30’’. After working on remaining, the child then tries to work on the fingers to avoid it from lifting up from 1’50’’ to 4’00’’. During this session, child G frequently remind themselves that the bear house have to be taken care as it helps the bear to stay safe. At the end of stage 3, child G result will be tabulated as the child works on remaining the hand posture in position without the help of the animal plush toy and the result will be taken from there. In this case, child G shows interest at the very beginning of the session and is very keen to work along.

Case 8

Child H shows interest and very keen to learn along with the plush toy. At 0’00’’ to 1’00’’, child H was holding and playing along with the plush toy. At 1’30’’, child H starts to ask the teacher about the plush toy. During this process the child began to be more interactive and productive as the child began to play along with the plush toy, which is a bear. During this process, the child pretends to play with the bear as the child walk the bear on the piano. As the child was walking on the piano at 2’30’’ the teacher asks the child where can we put the bear to rest. The child response was a home. Around 3’30’’ the teacher created a curved position using the child's hand and kept the push toy inside. Child H, tries to work on the fingers and sustaining the curve and avoid the fingers from lifting up as it is a home for the bear to rest. At 10’00’’ child H shows confident in gripping the plush toy by themselves and works on remaining the hand posture as the

session ended around 15’00’’. This session is the process of stage 1 and at the last session of the week there and attempt without guidance, as result will be taken during that process.

For the second week session the child H learned to grip the plush toy from the teacher’s hand, which happens at 0’00’’ and bring it to the C position on to the piano 0’30’’. At the 0’50’’ to 1’00’’ child H works on placing the fingers correctly on to the C position which took slightly longer as he child was adjusting the finger together with the plush toy under their palm. At 1’30’’ child H tries to play the 5 keys with the help of the plush toy being held under the palm which only lasted for 5’00’’ with stops as the child is still young to proceed longer. At the very last session of the stage 2 there will be a result being tabulated as the child attempts with the help of the plush toy without the guidance of the teacher.

At the third week, the child will then go through the session without the plush toy as they will start to work on their imagination. Child H starts to work on the bear house as the child began to work on curving their hand and remain in the posture from 0’00’’ to 1’30’’. After that the child tries to work on the fingers to avoid it from lifting up from 1’50’’ to 5’00’’. During this session, child H always tells that this is a bear house and we should be careful, because it is a home for the bear. At the end of stage 3, child H result will be tabulated as the child remaining its hand posture in position without the help of the animal plush toy and the result will be taken from there. In this case, child H is very keen and very eager to know everything.

4.2.2 Non PTAL Group

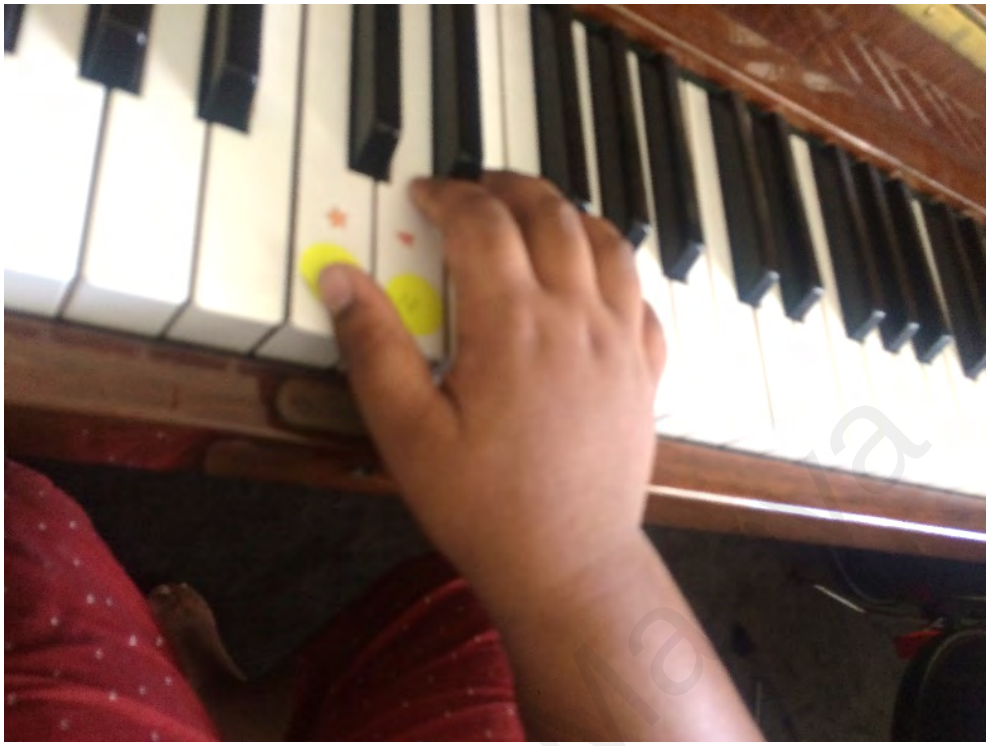

Figure 4.6 Learning without Plush Toy

Here is an example of a child without the help of an animal soft toy. As shown in this picture, the hand has displayed a lazy hand posture. Children with no animal soft toy support tend to rest their hand on the piano more often as it requires more muscles and strength to hold on to a proper posture, which in turn, children are more inclined to not do so. The lazy hand would then cause ineffective learning long term as a constant reminder would be needed and the child would not be able to play all the keys without errors.

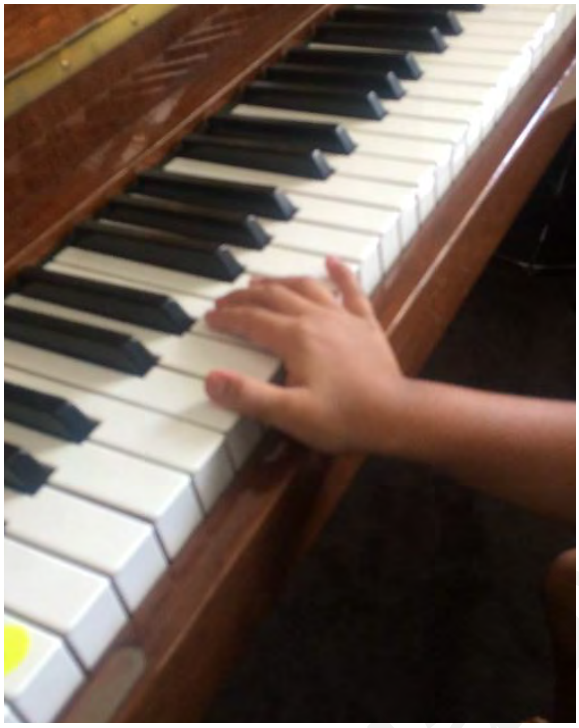

Figure 4.7 Attempt at Piano Playing Hand Posture

As the child is learning to curve his finger and trying to place them on the right key using a proper hand posture, he was having trouble with expanding his fingers to reach each key as his palm was leaning against the piano. The child also has troubles with his palm leaning towards one side and causes his fingers to only be able to reach a certain key. This would not be ideal as the child would end up with two fingers on the same key, hence lead to more error keys played.

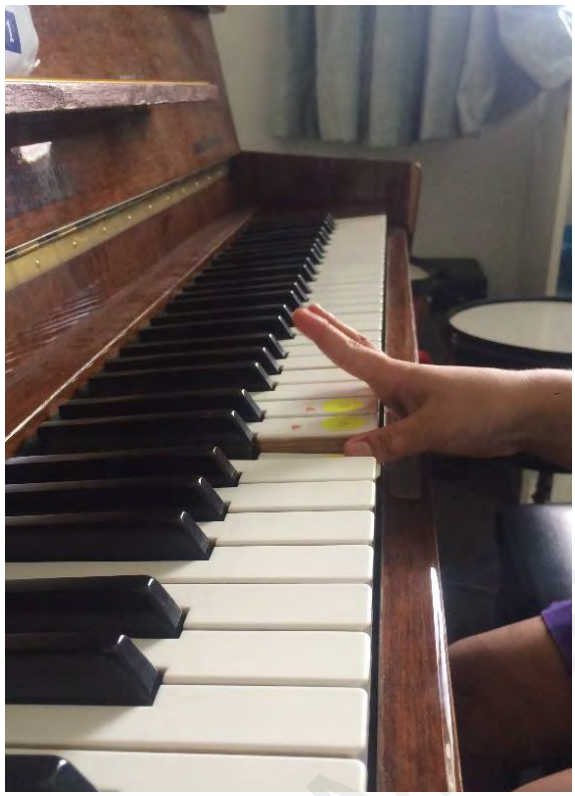

Figure 4.8 Incorrect Hand Posture

In this picture, the child is holding a note. He is learning to hold the note down with a correct hand posture and trying to learn to curve the hand at the same time. In this picture when he presses the one key down, the rest of his fingers start to come up. This would be an issue as muscle would contract over time while playing piano and later on would eventually lead to a muscle cramp on the hand. As for a long-term effect, young children's hand muscle are still rapidly developing at this stage, this would cause more harm in their muscle development, leading to bigger domino effect which would affect the child's physical development as a whole.

Case 1

Child A loves music and shows interest on piano. There has not been any exposure on piano towards the child. The teacher explained to the child about on how to play the piano. The child was introduced to hand posture and learn to curve which happens from 0'00'' to 5'00''. Working on placing the fingers on the keys and curving the hand takes longer time as the child tends to lift the fingers up while pressing a note each time. This

session is the process of stage 1 and at the last session of the week there an attempt without guidance, as the result will be taken during that process and being tabulated.

For the second week session the child A began to work on placing the proper hand position on to the C position at 0’00’’ to 3’00’’. During this session the child learns to curve the hand without assistant from the teacher as the child learns to place the correct hand posture and curved fingers on the C position. At 5’00” child A began to play the notes from C to G as they learned earlier. There were many stops and errors as the child tries to remain the hand posture and the fingering by holding it down towards the key. At the last session of the stage 2 there will be a result being tabulated as the child attempt without any guidance from the teacher.

At the third week, the child will go through a process of placing the hand on the C position and in a finger are in a curve position. At 0’00’’ to 4’00’’ the child struggle as the child could not balance the fingers which is being placed on each key. After figuring it out with few attempts, the child manages to place the hand and the finger with a proper hand posture without the help of the teacher. Later the result will be taken from there and being tabulated.

Case 2

Child B shows interest but the child is a little shy as the child is not used to someone new. The teacher explained to the child about on how to play the piano. The child was introduced to hand posture and learn to curve which happens from 0’00’’ to 2’00’’. As the child was to shy to work along with the teacher, the child tends to stop frequently and place her head down. Working on placing the fingers on the keys and curving the hand takes longer time as the child tends to lift the fingers up while pressing a note each time. This session is the process of stage 1 and at the last session of the week there an attempt without guidance, as the result will be taken during that process and being tabulated.

For the second week session the child B began to work on placing the proper hand position on to the C position at 0’00’’ to 7’00’’. During this session the child learns to curve the hand without assistant from the teacher as the child learns to place the correct hand posture and curved fingers on the C position. At 10’00” child B began to play the notes from C to G as they learned earlier. There were many stops and errors as the child tries to remain the hand posture and the fingering by holding it down towards the key. At the last session of the stage 2 there will be a result being tabulated as the child attempt without any guidance from the teacher.

At the third week, the child will go through a process of placing the hand on the C position and in fingers are in a curve position. At 0’00’’ to 10’00’’ the child struggle as the child was shy and did not want much contact with the teacher. The child could not balance the fingers that are being placed on each key. After figuring it out with few attempts, the child manages to place the hand and the fingers, which proper hand posture without the help of the teacher. Later the result will be taken from there and being tabulated.

Case 3

Child C was very keen to learn the piano. The teacher explained to the child about on how to play the piano. The child was introduced to hand posture and learn to curve which happens from 0’00’’ to 4’00’’. Working on placing the fingers on the keys and curving the hand takes longer time as the child tends to lift the fingers up while pressing a note each time as their hand are very small and does not have a very strong muscle grip. This session is the process of stage 1 and at the last session of the week there an attempt without guidance, as the result will be taken during that process and being tabulated.

For the second week session the child C began to work on placing the proper hand position on to the C position at 0’00’’ to 5’00’’. During this session the child learns to curve the hand without assistant from the teacher as the child learns to place the correct

hand posture and curved fingers on the C position. At 7’00” child C began to play the notes from C to G as they learned earlier. There were many stops and errors as the child tries to remain the hand posture and the fingering by holding it down towards the key. At the last session of the stage 2 there will be a result being tabulated as the child attempt without any guidance from the teacher.

At the third week, the child will go through a process of placing the hand on the C position and in fingers are in a curve position. At 0’00’’ to 5’00’’ the child struggles a while as the child could not balance the fingers which is being placed on each key. After figuring it out with few attempts, the child manages to place the hand and the finger n a proper hand posture without the help of the teacher. Later the result will be taken from there and being tabulated.

Case 4

Child D is a very eager child and full with curiosity. Child D can’t wait to play the piano as the child was so excited. The teacher explained to the child about on how to play the piano. The child was introduced to hand posture and learn to curve which happens from 0’00’’ to 5’00’’. Working on placing the fingers on the keys and curving the hand takes longer time as the child tends to lift the fingers up while pressing a note each time. This session is the process of stage 1 and at the last session of the week there an attempt without guidance, as the result will be taken during that process and being tabulated.

For the second week session the child D began to work on placing the proper hand position on to the C position at 0’00’’ to 5’00’’. During this session the child learns to curve the hand without assistant from the teacher as the child learns to place the correct hand posture and curved fingers on the C position. At 10’00” child D began to play the notes from C to G as they learned earlier. There were many stops and errors as the child tries to remain the hand posture and the fingering by holding it down towards the key. At

the last session of the stage 2 there will be a result being tabulated as the child attempt without any guidance from the teacher.

At the third week, the child will go through a process of placing the hand on the C position and in fingers are in a curve position. At 0’00’’ to 5’00’’ the child struggle as the child could not balance the fingers which is being placed on each key. After figuring it out with few attempts, the child manage to place the hand and the finger n a proper hand posture without the help of the teacher. Later the result will be taken from there and being tabulated.

Case 5

Child E is not interested in learning the piano. Child E refuses to learn the piano at the beginning stage, after pursuing and talking the child then agreed to work along with the teacher and showed slight liking towards the piano. The teacher explained to the child about on how to play the piano. The child was introduced to hand posture and learn to curve which happens from 0’00’’ to 10’00’’. Working on placing the fingers on the keys and curving the hand takes longer time as the child tends to lift the fingers up while pressing a note each time. This session is the process of stage 1 and at the last session of the week there an attempt without guidance, as the result will be taken during that process and being tabulated.

For the second week session the child E began to work on placing the proper hand position on to the C position at 0’00’’ to 8’00’’. During this session the child learns to curve the hand without assistant from the teacher as the child learns to place the correct hand posture and curved fingers on the C position. At 10’00” child E began to play the notes from C to G as they learned earlier. There were many stops and errors as the child tries to remain the hand posture and the fingering by holding it down towards the key. At the last session of the stage 2 there will be a result being tabulated as the child attempt without any guidance from the teacher.

At the third week, the child will go through a process of placing the hand on the C position and in fingers are in a curve position. At 0’00’’ to 10’00’’ the child struggle as the child could not balance the fingers which is being placed on each key. After figuring it out with few attempts, the child manage to place the hand and the finger n a proper hand posture without the help of the teacher. Later the result will be taken from there and being tabulated.

Case 6

Child F loves music and shows interest in piano and the teacher as the child could get along with the teacher. The teacher explained to the child about on how to play the piano. The child was introduced to hand posture and learn to curve which happens from 0’00’’ to 5’00’’. Working on placing the fingers on the keys and curving the hand takes longer time as the child tends to lift the fingers up while pressing a note each time. This session is the process of stage 1 and at the last session of the week there an attempt without guidance, as the result will be taken during that process and being tabulated.

For the second week session the child F began to work on placing the proper hand position on to the C position at 0’00’’ to 4’00’’. During this session the child learns to curve the hand without assistant from the teacher as the child learns to place the correct hand posture and curved fingers on the C position. At 5’00” child A began to play the notes from C to G as they learned earlier. There were many stops and errors as the child tries to remain the hand posture and the fingering by holding it down towards the key. At the last session of the stage 2 there will be a result being tabulated as the child attempt without any guidance from the teacher.

At the third week, the child will go through a process of placing the hand on the C position and in a finger are in a curve position. At 0’00’’ to 7’00’’ the child struggle as the child could not balance the fingers which is being placed on each key. After figuring it out with few attempts, the child manages to place the hand and the finger n a proper

hand posture without the help of the teacher. Later the result will be taken from there and being tabulated.

Case 7

Child G shows slight interest on piano. Child G tends to work along with the teacher by listening very carefully on how to play. The teacher explained to the child about on how to play the piano. The child was introduced to hand posture and learn to curve which happens from 0’00’’ to 8’00’’. Working on placing the fingers on the keys and curving the hand takes longer time as the child tends to lift the fingers up while pressing a note each time. This session is the process of stage 1 and at the last session of the week there an attempt without guidance, as the result will be taken during that process and being tabulated.

For the second week session the child G began to work on placing the proper hand position on to the C position at 0’00’’ to 5’00’’. During this session the child learns to curve the hand without assistant from the teacher as the child learns to place the correct hand posture and curved fingers on the C position. At 10’00” child G began to play the notes from C to G as they learned earlier. There were many stops and errors as the child tries to remain the hand posture and the fingering by holding it down towards the key. At the last session of the stage 2 there will be a result being tabulated as the child attempt without any guidance from the teacher.

At the third week, the child will go through a process of placing the hand on the C position and in fingers are in a curve position. At 0’00’’ to 6’00’’ the child struggle as the child could not balance the fingers which is being placed on each key. After figuring it out with few attempts, the child manage to place the hand and the finger n a proper hand posture without the help of the teacher. Later the result will be taken from there and being tabulated.

Case 8

Child H loves music and shows interest on piano and willing to work along with the teacher. The teacher explained to the child about on how to play the piano. The child was introduced to hand posture and learn to curve which happens from 0’00’’ to 5’00’’. Working on placing the fingers on the keys and curving the hand takes longer time as the child tends to lift the fingers up while pressing a note each time. This session is the process of stage 1 and at the last session of the week there an attempt without guidance, as the result will be taken during that process and being tabulated.

For the second week session the child H began to work on placing the proper hand position on to the C position at 0’00’’ to 5’00’’. During this session the child learns to curve the hand without assistant from the teacher as the child learns to place the correct hand posture and curved fingers on the C position. At 10’00” child A began to play the notes from C to G as they learned earlier. There were many stops and errors as the child tries to remain the hand posture and the fingering by holding it down towards the key. At the last session of the stage 2 there will be a result being tabulated as the child attempt without any guidance from the teacher.

At the third week, the child will go through a process of placing the hand on the C position and in fingers are in a curve position. At 0’00’’ to 8’00’’ the child struggle as the child could not balance the fingers which is being placed on each key. After figuring it out with few attempts, the child manages to place the hand and the fingers and a proper hand posture without the help of the teacher. Later the result will be taken from there and being tabulated.

4.3 Quantitative Observation of the PTAL and Control Group

In this study, there are five factors that is being calculated and tabulated in these two groups. The first factor is the duration of exposure to the plush toy as the child is being exposed to the plush toy for the duration of 1 minute with the increment of 20 seconds across 3 stages. The control group that was not exposed to the plush toy would

not have any time of exposure with the plush toy for all 3 stages. The number errors of the keys played, duration of hand position held in seconds were tabulated and discussed below.

In this study, all 16 children with and without plush toy worked on the same song which is the piece that is “Let’s Play C” , “Let’s play C D”, “Let's play C D E”, “More exercise on C D E”, ”Let’s play C D E F” and “Let's play C D E F G” This exercise is being taught before the children start to play it on a song which is the Ker Ren Lai and Mary had a little lamb. There are 5 keys that are C, D, E, F and G involved in this study and only uses right hand.

Each song is half a minute (30 seconds) long as the songs were all still new and unfamiliar to them it took them for about 3 minutes to play after going through the 3 stages and some children were lesser than that. The session was held 3 times a week, and some of the kids only practices during lesson as they do not have a piano or a keyboard to work on elsewhere.

4.3.1 Children responds to PTAL

Below is the table of each student with and without the help of the plush toy.

Table 4.1: With Animal Plush Toy Assistant During Stage 1

Child	Seconds of PTAL	No of Errors	Duration (seconds)
A	20	25	30
B	25	25	40
C	30	22	40
D	30	20	30
E	10	15	20

F	15	20	40
G	10	12	10
H	20	20	30

Table 4.2: With Animal Plush Toy Assistant during Stage 2

Child	Seconds of PTAL	No of Errors	Duration (minutes)
A	15	10	3
B	20	15	2
C	20	10	2
D	10	10	2
E	10	12	3
F	15	15	2
G	10	9	5
H	15	11	3

There were 3 sessions per week, which accumulates to a total of 12 sessions for this study to complete. As each child learned through a session of 15 to 30minutes depending on their capability in lasting throughout the session as they are as young as four years old. The first three stages, was the stage that the animal plush toy being introduced to the children and those without the animal plush toy will work on their hand posture straight.

There were 8 children who learned using the animal plush toy. In stage 1 which was known as the introduction was to introduce the animal plush toy as an assistant in helping the child in developing a proper hand posture. During the first attempt of the first child, had 25 number of errors and in duration of 30 seconds of hand posture with 20 seconds of PTAL. This first attempt was being calculated overall from the first 3 sessions that the child has attended. However, on the second attempt, which was the stage 2 after having worked with the animal plush toy, for 15 seconds the duration is 3 minutes as the child number of errors are only 10.

The following second and third child during their first attempt in stage 1, had 25 and 22 number of errors with 25 and 30 seconds of PTAL and the duration of 40 seconds of hand posture each. However, on the second attempt after working the animal plush toy for 20 seconds for each, and there is 2 minutes of the child number of errors are only 15 and 10.

The fourth child had 20 numbers of errors and duration of 30 seconds of hand posture during their first attempt with only 30 seconds of PTAL while on the second attempt after having 10 seconds of PTAL the child numbers of errors are 10 in duration of 2 minutes. The fifth child has one of the shortest numbers of error in the first attempt itself, which is 15, and in duration of 20 seconds after working with PTAL for 10 seconds. After the second attempt the child has 10 seconds of PTAL and the child number of errors is 12 in duration of 3 minutes remaining the hand posture.

The sixth child, had 20 number of errors and duration of 40 seconds of hand posture with15 seconds of PTAL during their first attempt while working towards the second attempt the child had slight improvement as there is only 15 errors after the child had 2 minutes of hand posture with only 15 seconds of PTAL. Moving to the seventh child, on their first attempt the child managed with only 12 number of errors with only duration of 10 seconds of hand posture and 10 seconds of PTAL. In the stage two, which

is the second attempt the child had 9 number of errors with only 5 minutes of duration after working with PTAL for 10 seconds.

The last child, which is the eighth child during the stage 1 attempt, there were 20 number of errors and duration of 30 seconds of hand posture and 20 seconds of PTAL. During the second attempt, which the child manages to have only 11 number of errors with only 3 minutes of duration in remaining the hand posture after working with PTAL for 15seconds.

Table 4.3: With Animal Plush Toy Assistant Stage 3

Child	Seconds of PTAL	No of Errors	Duration (minutes)
A	8	6	6
B	8	6	6
C	8	6	5
D	7	6	4.6
E	8	5	5.3
F	7	5	4.3
G	8	6	8.3
H	9	4	5.9

As seen above in table 4.3, majority of the students showed the duration played on average are the same amount of time, working together with the animal plush toy as an assistant. They also displayed almost the same number of errors, which are five to six errors in the same setting. During this process, most of the children displayed longer period of time in remaining the hand posture with the help of the animal assistant plush

toy. The longest duration shown by one of the students could hold, with the help of the animal plush toy is for about 8.3 minutes. Despite the number differences, each student showed an improvement as compared to before learning how to hold an animal assisted plush toy in their palms. The controlled numbers before assistant was slightly higher, and it being after one try, students had an increase in duration with the same amount of errors played.

The table 4.4 shows the average result of children with PTAL before and after the grasp of plush toy.

Table 4.4: Average Result of Error Keys Played and Number of Trials for Children with Plush Toy Animal Assisted Learning of Before and After

Number of Children	8	
Average Duration of plush toy grasp (Seconds)	60	
	Before	After
Average numbers of error keys played	6.54	5.43
Average number of trials taken to achieve continual playing	7.86	5.63

This result shows the improved of children with PTAL as the number of error keys played has dropped from 6.54 to 5.43 and the number of trials taken to achieve continual playing was also decreased from 7.86 to 5.63. This result supports the prior results as calculated by each and every child as the mean error keys played and number of trials have both reduced after the grasp of plush toy.

4.3.2 Non PTAL Group

There are 3 sessions per week, which accumulates to a total of 12 sessions for this study to complete. As each child will go through roughly from 15 to 30minutes of a session depending on their capability in lasting throughout the session as they are as young as four years old. The first three stages, are the stage that the child is being introduced to the piano as this group of children is without the animal assistant. As they are being introduced to the piano and how to curve the fingers and the hand happens in stage 2 and stage 3 is the placement on the piano.

There are 8 children that were working without the animal plush toy. In stage 1 which is known as the introduction is to introduce the piano. During the first attempt of the first child, 16 number of errors were recorded in duration of 20 seconds of hand posture (see Table 4.5). This first attempt was calculated overall from the first 3 sessions that the child has attended. However, on the second attempt, which is the stage 2 (see Table 4.6), the child was able to hold in a proper hand posture for 1 minute with 10 number of errors.

The following second and third child during their first attempt in stage 1, had 20 and 25 number of errors and the duration of 25 and 15 seconds of hand posture each. However, on the second attempt after working on the curve, numbers of errors are 15 and 10 each with duration of 45 and 50 seconds.

The fourth child, had 14 number of errors and duration of 30 seconds of hand posture during their first attempt while on the second attempt the child number of errors are 10 in duration of 1 minutes. The fifth child in the first attempt result is 18 and in duration of 10 seconds. After the second attempt the child number of errors is 15 in duration of 40 seconds remaining the hand posture.

The sixth child, had 20 number of errors and duration of 20 seconds of hand posture during their first attempt while working towards the second attempt the child had slight improvement in remaining the hand posture but remaining the number of errors for both stages but with 50 seconds in duration. Moving to the seventh child, on their first attempt the child managed with only 25 number of errors with only duration of 15seconds of hand posture. In the stage two, which is the second attempt the child had 18 number of errors with only 1 minutes of duration.

The last child, who is the eighth child during the stage 1 attempt, there were 20 numbers of errors and duration of 25 seconds. During the second attempt, which the child manages to have only 18 number of errors with only 1 minutes of duration in remaining the hand posture.

Table 4.5: Without Animal Plush Toy assistant during stage 1

Child	Seconds of PTAL	No of Errors	Duration (seconds)
A	0	16	20
B	0	20	25
C	0	25	15
D	0	14	30
E	0	18	10
F	0	20	20
G	0	25	15
H	0	20	25

Table 4.6: Without Animal Plush Toy Assistant during Stage 2

Child	Seconds of PTAL	No of Errors	Duration (seconds)
A	0	10	1.0
B	0	15	0.45
C	0	10	0.50
D	0	10	1.0
E	0	15	0.40
F	0	20	0.50
G	0	15	1.0
H	0	18	1.0

As seen above in Table 4.7, there was no support of the animal plush toy, and there were more errors played while they work on the hand posture to play a song. The errors range from 8 to 9 errors played. Duration for this group of children in remaining the hand posture without the help of the animal plush toy is shorter as compared to those with the support of an animal plush toy. They were only able to maintain the proper hand posture for a very short period, in which the shortest is 1 minute to the longest being 4 minutes.

Table 4.7: Without Animal Plush Toy Assistant Stage 3

Child	Seconds of PTAL	No of Errors	Duration (Seconds)
A	0	8	3
B	0	9	2.8
C	0	8	3.4
D	0	8	2.2
E	0	8	1
F	0	8	4
G	0	8	3.9
H	0	8	3.3

The table below shows the average result of children without PTAL before and after.

Table 4.8: Average Result of Error Keys Played and Number of Trials for Children without Plush Toy Animal Assisted Learning of Before and After

Number of Children	8	
Average Duration of plush toy grasp (Seconds)	0	
	Before	After

Average numbers of error keys played	7.81	8.11
Average number of trials taken to achieve continual playing.	5.39	2.86

This result shows the improved of children with PTAL as the number of error keys played has increased from 7.81 to 8.11 and the number of trials taken to achieve continual playing has decreased from 5.39 to 2.86. This result suggests that children tend to have a mean increment in average number of error keys played without PTAL. However, this result shows that the average number of trials taken was decreased by 2.53, suggesting that children without PTAL could achieve a lower number of trials taken after some practice despite the aid of the plush toy. The method that is being used to obtain data for the above table is by direct observation with timing as mention in the chapter 3.

4.4 **Result**

As young children learn how to play piano for the first time, they tend to have more psychological barrier such as anxiety, stress and would not be able to hold on to the hand posture for a longer period of time as their muscles are still developing. The result of the study shows that not only children had better results, but also a calmer mind and the capability to enjoy as well.

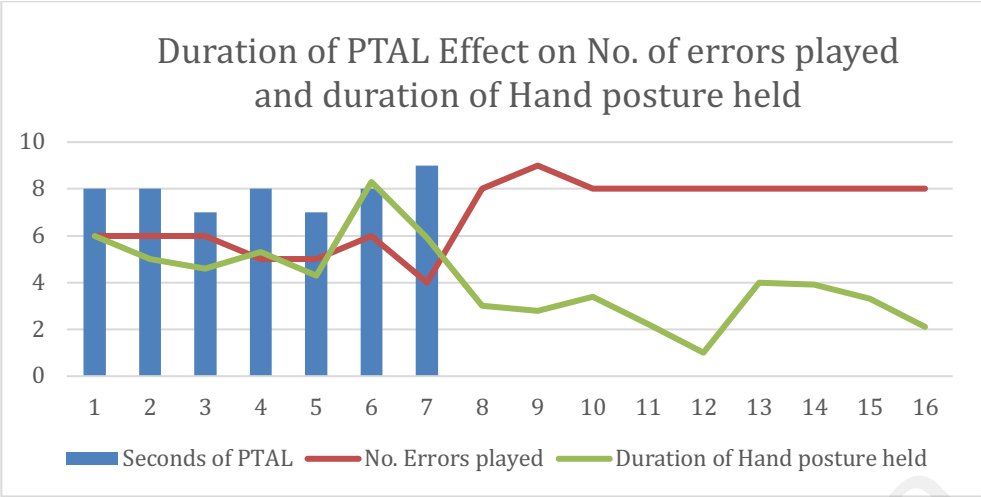

Figure 4.9: Duration of PTAL effect on numbers of errors played and duration of hand posture held.

This 4.1 graph demonstrates that children with the help of the plush toy exhibit improvement and had less error in holding the proper posture. Students with the help of the soft toy tended to have more relaxed hands as they place their hands on the notes C - G after a certain period of time. The 8 students were calmer and less agitated during the lessons. They tended to have more fun with the imaginative animal that was living in their hand, which gave them a sense of responsibility. With the help of the soft toy, there is more sustainability of hand posture as a sense of responsibility was instilled in them. According to Fine (2002), using animal as assistant do creates a bond between the child and the animal. Having an animal as an assisted learning also produce calmness towards children. It also allows the child to be more confident. Animal shows positive reinforcement towards learning, a sit helps children to be more attentive, able to pay attention during lesson and develop their interest (Rowan, 1981).

Students from the control group (i.e. the one without the soft toy), exhibit poorer hand posture and hand muscles often contracted with straightened fingers pointing up. This group had more errors while holding the notes with proper hand posture. They tend to forget to keep their hands in the correct position and often flatten later on. During this process, the students' stress level increases as they require more muscle strength to hold

the correct posture. As this process continued, the students demonstrated less determination to hold the posture as they were constantly trying to rest their palms on the piano. Children at the very young age has always have hand positioning issue as their hands are very small and they are still working on their fine motor skills. It takes a longer time and extra effort to to produce a proper hand posture and grip (Cantan, 2016).

4.5 **Discussion**

Table 4.9 is a comparison being tabulated between the experiment and the control group. The experimental group shows a longer duration in maintaining the hand posture with an average of 55.75 seconds while the control group is able to maintain their hand posture for about 30.35 seconds only. The difference that we could see in code 1 with both groups is that, the experimental group appeared to be more interested than the controlled group. Based on the result, the children love working on it, as it's more enjoyable to work on something that is hands on rather than just a traditional way of learning to play the piano. Since the children have imagined having a support underneath their hand, it provides a sense of sustainability that would promote their muscle memories. Hence increase the speed of learning as muscle memories of a proper hand posture is instilled within a child, less strength would be needed to pertain on the piano and move around on the piano.

Table 4.9: Comparison between the Experiment and the Control Group

Experimental	Control
Duration: 55.75 seconds (mean)	Duration: 30.35 seconds (mean)
Code 1: Children appeared interested once animal soft toy (PTAL) was presented.	Code 1: Children were not as motivated as compared to the experimental group.
Code 2: Children was able to maintain the hand posture after holding the PTAL.	Code 2: Children were able to maintain the hand posture but for a very minimal time.
Code 3: Children was able to recall when the teacher mentioned the PTAL.	Code 3: Children were not able to recall the hand posture easily.

In code two, the advantage of having an animal soft toy as a tool, had a remarkable impact towards this child in the experimental group.as children develop their hand posture and able to remain for almost a minute in a proper posture. With the help of the animal soft toy, children gain more confident in placing and maintaining the posture, as they remember that a little dog needs to live under your hand and we need to maintain it that position as we do not want then to be crushed. As for the control group they could only maintain for a certain time only, as it was a slightly difficult task as they didn't have the support for the hand to create a proper hand posture.

Here In code three, the capability of the experimental group could be seen as they could recall on how to pick the animal soft toy from the piano, with the correct and proper grip using all five fingers and then letting it go, and straight to the keys and place it on the piano with a proper curved hand and fingers. While they learn to play each note, the

little fingers did remain in its position without lifting the other fingers up or even having a sloppy hand or also known as the lazy hand as it rests on the piano. For the control group, they do know where to put their keys but then it doesn't remain in a proper hand posture.

4.6 Conclusion

In conclusion, the results show a decrease in numbers of error keys played with children of PTAL after one minute shows the improvement of piano learning efficiency of the child. Along with the increase in interest and focus, which is shown by the duration of hand, position held suggests that children were benefited through PTAL. The next chapter would discuss on the conclusion of findings from this research as well as the limitations found throughout the research process.

CHAPTER 5: CONCLUSION

5.1 Introduction

In this chapter, it summarizes on the research paper that is presented. There will be a summary of the findings from the literature review and methodology on the use of a soft toy as an animal assisted with children ages four to six years old to create a proper hand posture in piano-playing was effective. There would also be discussions on the limitations and suggestions for future research found on this chapter.

5.2 Summary of Findings

The purpose of this research paper is to explore the benefits of using an animal plush toy as a tool in developing children's motor skills. In chapter one, it shows that the purpose of the study, where does the research objective and the question meets the point and they are applicable to the research.

The following are the five-research question obtained from the research:

1. The plush toy plays an important role in creating a proper hand gesture which creates the curve of the hand. The plush toy helps the children to develop curved fingers by gripping the plush toy. The plush toy helps to fill the empty space in the hand and by that it helps the child to create a natural grasping posture and able them to hold that posture before playing the piano. The use of the plush toy at the very young age also develop a relaxation by not stressing the hand not allowing force on their fingers. It gives the younger children less stressful in trying to maintain the fingers and hand in a proper position. It is also fun and enjoying and brings joy to the younger children. The plush toy involvement gives another level in teaching younger children

2. Difference could be seen from the outcome of the children with and without the plush toy. The children with plush toy able to maintain the curved hand posture and curved finger. Children with the help of the plush toy sustain the

hand position by using the imagination ideas that was told during the start of the research. By using the imagination, that was created earlier on, the children tend to maintain the posture, and over time it helps to create a firm hand posture which allows them to curve and maintain the fingers during playing the piano. While for children without the plush toy, requires more muscle strength to create the proper hand posture as there is no plush toy to support their grip and positioning their hand and fingers accordingly. These children have to constantly remind them to lift their hand up and not rest them on the piano.

3. Children that worked with the plush toy demonstrates with slightly longer duration in maintain the hand posture with minimal errors after working closely with the plush toy. The longest duration shows by one of t he child is for about 8.3 minutes. Even there is number difference from each students but it shows an improvement before involving the plush toy and after involving with the plush toy.

4. Children start to talk about the animal and work on the imagination. They learn to grasp the plush toy using a proper grasp on t heir hand. The children tend to pick the plush toy and fills the space inside their hand, with that it allows their hand to create a proper hand posture. As they turn their hand and place it on the position which allows them to work on curving their fingers. As the plush toy is placed below their hand to maintain the posture and to avoid lazy hand gesture. As they work on their imagination which helps them to maintain t heir hand posture and curved finger, the plush toy is then being removed from their palm.

5. The use of the plush toy as a tool in teaching piano as young as four is allowing younger children to be creative, allowing them to explore ideas, allowing younger children to be more imaginative. Younger children does not

know how to express themselves, and introducing plush toy into learning allows them to be more open and able to express themselves to someone that is not familiar to them. This plush toy allows children to be more sociable rather than traditional method of teaching whereby, teacher tells you to play C and u should play the C. the plush toy gives the child a chance to speak and come out with ideas and develop their imagination by creating a story.

In chapter two, it focused on literature review. In this chapter it was discovered that animal assisted therapy is important to children as it helps children to develop children their interest, improve their attention skills which allows them to be even more focused and improve their self-esteem. However, there is still yet validated research to show that Animal Assisted Learning could be in cooperated in music learning.

Introducing music during the early years of a child is very important. As researchers and specialist has pointed out that it is very important and necessary to introduce music to young children as it helps them to develop their fine motor skills, language skills, attention, self-confident, and even their social interaction skills. Music also allows them to be creative and able to being expose to different kind of music from rhythm to pitch.

Chapter three describes the methodology and the design of the research. It described the sample of children where the data is being collected, the procedure of the process. Chapter four is about analysing the data and interpreting the result, which led to the conclusion of the findings to be successful, or not.

The following are findings obtained from the literature reviews:

1. There are numerous numbers of literature on animal assisted learning that works along with the special need children. There is less literature on animal assisted with normal kids as animal assisted usually works well with special needs in which is the limitation to our study as there is no sufficient past study

conducted on young children. There are many literatures that links to early childhood development that is useful in this research. The early music education for children literature is mostly on music and movement and less literature on instrumental for young children. With the finding of the literature reviews, there are yet to be any literature of AAT for music learning in young children. However, the large amount of literature including theories shows that music at an early age would be beneficial for children in which is also correlated to the whole development of a child such as the other aspects of intelligence of multiple intelligences.

2. Summary in methodology is that the study was done using naturalistic observations. This method was successfully implied and was to the study's advantage as it allows young children to feel more comfortable and was able to perform as requested instead of having to face difficulties during observations. However, the time factor was a major limitation in this study. As this is a new study, this study should be done in a longitudinal or a cross sectional approach of study. This study was conducted with only one-month duration for the completion of study, which could not validate the duration and improvement of the student to show a significant result. Second limitation of the study in this method is the lack of control of children's attendance in school. Children should be in school often as it is difficult to conduct result with the other children that is always in school. The inconsistency of children's attendance makes it harder to have an accurate comparison of children's learning progress as some would have more practice and some would have less. Hence, the result would have outliers or inconsistent results.

This study had a few limitations. First, students could not be consistently tested as some were absent during the session days, and some of them had been absent for a longer period because of unwell, and also on holiday. Second, the length of time available for the study. Because the study took time gaining the parent approval, along with school holiday, and weather consent as children fall sick.

Chapter four which shows the results of the study shows that young children who were exposed to PTAL was able to improve their piano playing hand postures as compared to those who were not exposed to PTAL. This finding suggests that PTAL is an effective teaching method towards young beginner piano playing children.

The summary of chapter 4 findings

1. Improving Attention Span using PTAL. The study found that children concentrate even more, they are able to focus and work on the task given. Children that used the PTAL shows improvement in attention span as well as sustainable hand posture.

2. In this study, children that is involved along with PTAL shows a vast improvement which allows them to curve and stay in position at a very young age which is at four years old. There are a very minimal errors such as lifting their fingers up as they play the notes, as this occur as they are still young to control on their wrist and finger muscles. They are able to control and stay in position with the hand posture.

The result of this study showed that the use of the animal plush toy as an assisted tool, improves the children hands posture in learning piano. With the animal plush toys, children as young as four years old could maintain the hand posture and play the keys in a curved position with minor errors.

The result of the data show that there is improvement and less errors in using the soft toy as a tool. The implication of the data would be that the approach can be continued more often on a regular basis.

5.3 Suggestion for Future Research

This result of this study suggests that the effectiveness of a plush toy that is used as an animal assisted to create a proper hand posture in piano playing for children age four to six years old. This study is a pioneering attempt in use of animal plush toy as a tool in learning piano. This study suggests the following future research. First this study needs to have a longer duration as the process can be extended into working not only right but also using the left hand. Children could work on using both hands and the result could be seen in a bigger scale and more efficient result.

Second this study should have more children that is involved in this study as there will be more variation of student and a bigger outcome. Children should work on always attending the session as it is important to maintain the studies process. Throughout the research, children should remain the same as it will affect the process and the result.

Thirdly, the questions that were being asked from this study include: Would the subjects have sustained more of the development of hand posture and learning piano at a very young age? Would the subject begin to use the approach and continuing the process on a daily basis? Would this study, allows the subject to create more interest in learning piano at a very young age?

5.4 Conclusion

The use of a plush toy as an animal assisted with children ages four to six years old to create a proper hand posture in piano playing was effective. When the experiment began, each child had an area of weakness where it's their first time in learning piano. After a few sessions, most of the children are able to play and to produce a proper hand posture with the help of the plush toy.

This study shows that children of early years could benefit from this learning method as it would help them in the piano playing hand posture as the PTAL could act as an effective aid of increase of interest and awareness which leads to the better performance and improvement of piano playing as a whole. This learning method of PTAL also assist children with their muscle's sustainability during piano playing hand postures.

REFERENCE

Andrea. (2012). Piano student in need of a hand position fix?. Retrieved 4 May 2020, from https://www.teachpianotoday.com/2012/04/12/how-to-correct-hand-position-in-young-piano-students-its-qa-day/

Andreasen, G., Stella, T., Wilkison, M., Szczech Moser, C., Hoelzel, A., & Hendricks, L. (2017). Animal-assisted therapy and occupational therapy. *Journal Of Occupational Therapy, Schools, & Early Intervention*, *10*(1), 1-17. doi: 10.1080/19411243.2017.1287519

Bastien, J.W. (1988). *How to teach piano successfully* (3rd ed). N.A. Kjos Music Co, San Diego, Calif

Beckwith, M. (1970). *So you have to teach your own music*. West Nyack, N.Y.: Parker Pub. Co.

Beliavsky, N. (2006). Revisiting Vygotsky and Gardner: Realizing Human Potential. *The Journal of Aesthetic Education,* 40(2), 1-11. doi: 10.1353/jae.2006.0013

Besson, M., Chobert, J., & Marie, C. (2011). Language and Music in the Musician Brain. *Language And Linguistics Compass*, *5*(9), 617-634. doi: 10.1111/j.1749-818x.2011.00302.x

Biddle, K. A., Nevarez, A. G., Henderson, W. J. R., & Kerrick, A. V. (1965). *Early childhood education: Becoming a professional*. New York: Sage publication.

Blumenfeld-Jones, D. (2009). Bodily-Kinesthetic Intelligence and Dance Education: Critique, Revision, and Potentials for the Democratic Ideal. *The Journal Of Aesthetic Education*, *43*(1), 59-76. doi: 10.1353/jae.0.0029

Bond, V. (2012). Music's Representation in Early Childhood Education Journals. *Update: Applications Of Research In Music Education*, *31*(1), 34-43. doi: 10.1177/8755123312458292

Budahn, Nichole M. (2013). *Effectiveness of Animal-Assisted Therapy: Therapists' Perspectives*. Retrieved 2 April 2020 from Sophia, the St. Catherine University repository website:
https://sophia.stkate.edu/cgi/viewcontent.cgi?article=1159&context=msw_papers

Burton, L.H. (1989). Musical understanding through creative movement. In B. Andress (Ed.), *Promising practices: Prekindergarten music education* (pp.97-104). Reston, VA: Music Educators National Conference.

Cantan, N. (2019). Plan the ultimate first piano lesson for a five year old beginner. Retrieved 8 December 2019, from https://colourfulkeys.ie/plan-the-ultimate-first-piano-lesson-for-a-five-year-old-beginner/

Care for the child development: Participant manual. (2012). Retrieved 11 May 2020, from https://www.unicef.org/earlychildhood/files/3.CCD_-_Participant_Manual.pdf

Carlton, E. (2000). Learning Through Music: The Support of Brain Research. Retrieved 16 April 2019 from https://www.childcareexchange.com/article/learning-through-music-the-support-of-brain-research/5013353/

Chandler, C. (2012). Animal Assisted Therapy in Counseling. New York: Routledge, https://doi.org/10.4324/9780203832103

Cherry, K. (2010). *The everything psychology book* (2nd ed.). Avon, Mass.: Adams Media.

Cherry, K. (2019). Preoperational Stage of Cognitive Development in Young Children. Retrieved 17 July 2019, from https://www.verywellmind.com/preoperational-stage-of-cognitive-development-2795461

Cherry, K. (2019). The Pros and Cons of Naturalistic Observation. Retrieved 8 January 2020, from https://www.verywellmind.com/what-is-naturalistic-observation-2795391

Cherry, K. (2019). What Are Piaget's Four Stages of Development?. Retrieved 14 January 2020 from https://www.verywellmind.com/piagets-stages-of-cognitive-development-2795457

Christiner, M., & Reiterer, S. (2018). Early Influence of Musical Abilities and Working Memory on Speech Imitation Abilities: Study with Pre-School Children. *Brain Sciences*, *8*(9), 169. doi: 10.3390/brainsci8090169

Collins, A., & Clary, L. (1987). *Sing and play: Book 1*. Champaign, IL: Stipes Publishing Co.

Cory, C. K. (1977). *Mainstreams Primer Method: Primer Pianist A* (W. Noona & C. Noona, Eds.). Dayton, Ohio: The Heritage Music Press.

Covert, A., Whiren, A., Keith, J., & Nelson, C. (1985). Pets, Early Adolescents, and Families. *Marriage & Family Review*, *8*(3-4), 95-108. doi: 10.1300/j002v08n03_08

Creswell, J., & J. David Creswell. (2018). *Research design*. New York: Sage Publication.

Davis, K., Christodoulou, J., Seider, S., & Gardner, G. (2011). The Theory of Multiple Intelligences. Retrieved 16 July 2018, from https://www.academia.edu/33279655/The_Theory_of_Multiple_Intelligences

Denham, S., Bassett, H., Way, E., Mincic, M., Zinsser, K., & Graling, K. (2012). Preschoolers' emotion knowledge: Self-regulatory foundations, and predictions of early school success. *Cognition & Emotion*, *26*(4), 667-679. doi: 10.1080/02699931.2011.602049

Shonkoff, J., & Phillips, D. (2000). *From neurons to neighbourhoods: The Science of Early Childhood Development.* Washington, D.C.: National Academy Press. https://doi.org/10.17226/9824.

Dockett, S., & Fleer, M. (1999). *Play and pedagogy in early childhood: Bending the rules*. (1 ed.) Sydney: Harcourst Brace.

Elkind, D. (2007). *The power of play: How Spontaneous imaginative activities lead to happier, healthier children*. Cambridge, Mass.: Da Capo Lifelong.

Feierabend, J. (1992). Music in early childhood. In B. L. Andress & L. M. Walker (Eds.), *Readings in early childhood music education* (pp. 26-31). Reston, VA: Music Educators National Conference

Feierabend, J. (1995). Music and Intelligence in the Early Years - John M. Feierabend Ph.D. - GIA Publications. Retrieved 9 August 2018, from http://www.giamusic.com/music_education/feier_musicandintelligence.cfm

Fine, A.H. (2000). *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice*. San Diego, CA: Academic Press.

Fine, A. H. (2002). Animal-assisted therapy. In M. Hersen & W. Sledge (Eds.), *Encyclopaedia of Psychotherapy* (pp. 49-55). New York: Elsevier Science.

Fine, A. H. (2006). *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (2nd Ed.). London: Academic Press.

Fine, A. H. (2010). Incorporating animal-assisted therapy into psychotherapy. *Handbook On Animal-Assisted Therapy*, 169-191. doi: 10.1016/b978-0-12-381453-1.10010-8

Frederickson, M. (2010). The National Standards for Music Education: A Transdisciplinary Approach in the Applied Studio. *Music Educators Journal, 97*(2), 44-50. Retrieved May 11, 2019, from www.jstor.org/stable/40960202

Gardner, H. (1983). *Frames of the mind*: *The theory of multiple intelligences*. New York: Basic Books.

Gardner, H. (1993). *Frames of the mind: The theory of multiple intelligences*. New York: Basic Books.

Gardner, H. (1997). Is there a moral intelligence? In M. Runco (Ed.), *The creativity research handbook.* Cresskill, NJ: Hampton Press.

Gardner, H. (1999). *The disciplined mind: What all students should understand.* New York, NY: Simon & Schuster.

Gardner, H. (2006). *Five minds for the future.* Boston, MA: Harvard Business School Press.

Gardner, H. (2006). *Multiple intelligences: New horizons (Rev. ed.)*. New York, NY, US: Basic Books.

Gat, J. (1965). *The technique of piano playing.* London: Collett's Holding's LTD

Gee, N. R. (2011). Animals in the classroom. In P. McCardle, S. McCune, J. A. Griffin, L. Esposito, & L. S. Freund (Eds.), *Animals in our lives: Human-animal interaction in family, community, & therapeutic settings* (pp. 117-142). Baltimore, MD: Paul H. Brookes Publishing Co.

Greata, J. (2005). *An introduction to music in early childhood education*. Clifton Park, NY: Thomson Delmar Learning.

Gresham, F. M., & Elliot, S. N. (1984). Assessment and classification of children's social skills: *A review of methods and issues*. School Psychology Review, 13, 292-301.

Golandsky, E. (1995). *The Taubman techniques, Volume 1, Introductory principles and concepts* (Available from the Taubman Institute of Piano, Medusa, New York). [Motion Picture]

Hackett, P., & Lindeman, C. (1995). *The musical classroom- backgrounds, model, and skills for elementary teaching.* (5th ed.). New Jersey: Pearson Prentice Hall.

Hajar, R. (2015). Animal-assisted therapy. *Heart Views*, *16*(2), 70. doi: 10.4103/1995-705x.159228

Haley, M. (2004). Learner-Centered Instruction and the Theory of Multiple Intelligences With Second Language Learners. *Teachers College Record*, *106*(1), 163-180. doi: 10.1111/j.1467-9620.2004.00326.x

Healy, J. (2011). *Endangered Minds: Why our Children don't think and what we can do about it*. Riverside: Simon & Schuster.

Hegarty, M. (2010). Components of Spatial Intelligence. *The Psychology Of Learning And Motivation*, 265-297. doi: 10.1016/s0079-7421(10)52007-3

Hipple, M. L. (1975). *Early childhood education- Problems and methods*. California: Pacific Palisades.

Hoffman, A. (2013). Compelling Questions about Music, Education, and Socioeconomic Status. *Music Educators Journal*, *100*(1), 63-68. doi: 10.1177/0027432113494414

Jenkins, B. (2016). Your Music Lessons. Retrieved 15 August 2019, from http://yourmusiclessons.com/blog/teaching-piano-to-be-a-three-year-old/

Kaiser, P., Downie, M., & Birringer, J. (2008). Thinking Images. *PAJ: A Journal Of Performance And Art*, *30*(2), 17-37. doi: 10.1162/pajj.2008.30.2.17

Katcher, A., & Wilkins, G. G. (1997). Animal-assisted therapy in the treatment of disruptive behavior disorders in children. In A. Lundberg (Ed.), *The Environment and Mental Health: A Guide for Clinicians,* (pp. 193-204). Mahwah, NJ: Lawrence Erlbaum Associates

Keenan, T., Evans, S., & Crowley, K. (2016). *An introduction to child development* (3rd ed.). London, Eng.: Sage Publications.

Lai Keun, L., & Hunt, P. (2006). Creative dance: Singapore children's creative thinking and problem-solving responses. *Research In Dance Education*, *7*(1), 35-65. doi: 10.1080/14617890600610661

Kornhaber, M., Fierros, E., & Veenema, S. (2004). Multiple intelligences: *Best ideas from research and practice*. Boston: Pearson Education.

Kruger, K. A., Trachtenberg, S.W., & Serpell, J.A. (2004). *Can animals help humans heal? Animal-assisted interventions in adolescent mental health*. Philadelphia, PA: Center for the Interaction of Animals and Society, University of Pennsylvania, School of Veterinary Medicine 1-37.

Kuparadze, George. (2015). Formation of Speech Sounds in Children. *Proceedings of the 4th International Conference on English Pronunciation: Issues & Practices*. Prague, Czech Republic, May 21-23, 78.

Kuther, T. (2017). *Lifespan development: Lives in Context*. London: Sage Publication Inc.

Lazear, D. (1997). *Seven ways of teaching*. Calne: Skylight Pub.

Lervin, J. R. (1976). Cognitive Learning in children*: Theories and strategies*. Cambridge, MA: Academic press.

Levine, M. M., & Bohn, S. (1986). Development of social skills as a functioning being reared with pets. Proceedings of Delta Society International Conference. Living Together*: People, Animals, and the Environment* (pp 27). Delta Society International Conference, Boston: MA.

Levinowitz, L. (1998). The Importance of Music in Early Childhood. *General Music Today*, *12*(1), 4-7. doi: 10.1177/104837139801200103

Liew, A. L., & Lam, M. H. (2006). Survey on early childhood music education in Malaysia. In Ramona Mohd Tahir, C.J. Chan, Shahanum Mohd Shah and K.C. Pan (Eds.), *Perspectives of music education in Malaysia*. Shah Alam: University Publication Centre (UPENA).

Lightfoot, C., Cole, M., & Cole, S. (2005). *The Development of Children* (5th ed.). New York: Worth Publisher.

Loo, F. Y., & Loo, F. C. (2011). Chinese science in relaxation: Piano playing technique redefined. *Australian Journal of Basic and Applied Sciences, 5*(12), 1241-1248.

Loo, F. Y., & Loo, F. C. (2013). Mapping Melodic Contours on Taiji Diagram: Taijiquan Physical and Philosophical Perspectives in Action. *International Journal of Asian Social Science, 3*(2), 405-415.

Loo, F. Y., Evens, G. I., Hashim, M. N., & Loo, F. C. (2015). Tension release in piano playing: Teaching Alexander Technique to undergraduate piano majors. *Procedia-Social and Behavioral Sciences, 174*, 2413-2417.

Loo, F. C., & Loo, F. Y. (2015). Visual perception of phrasing in a tai chi routine using different music accompaniments. *Procedia-Social and Behavioral Sciences*, *174*, 3044-3048.

Loo, F. C., Loo, F. Y., & Chua, Y. P. (2019). Congruence in Music and Movement Enhances the Perception of Sports Routine Quality. *Revista Música Hodie*, 19. doi.org/10.5216/mh.v19.58191

Mallonee, R. (1998). Applying Multiple Intelligence Theory in the Music Classroom. *The Choral Journal, 38*(8), 37-41. Retrieved May 5, 2019, from www.jstor.org/stable/23552494

McCardle, P. (2011). *Animals in our lives*. Baltimore: Brookes.

McLeod, S. (2018). Jean Piaget's Theory of Cognitive Development. Retrieved 16 November 2019, from https://www.simplypsychology.org/piaget.html

Michelaki, E., & Bournelli, P. (2016). The Development of Bodily - Kinesthetic Intelligence through Creative Dance for Preschool Students. *Journal of Educational And Social Research*. doi: 10.5901/jesr.2016.v6n3p23

Miendlarzewska, E., & Trost, W. (2014). How musical training affects cognitive development: rhythm, reward and other modulating variables. *Frontiers In Neuroscience*, *7*. doi: 10.3389/fnins.2013.00279

O'Haire, M., McKenzie, S., Beck, A., & Slaughter, V. (2013). Social Behaviors Increase in Children with Autism in the Presence of Animals Compared to Toys. *Plos ONE*, *8*(2), e57010. doi: 10.1371/journal.pone.0057010

Ojose, B. (2008). Applying Piaget's Theory of Cognitive Development to Mathematics Instruction. *The Mathematics Educator*, *18*(1), 26-30.

Owens, R. (2008). *Language development* (7th ed.). Boston: Pearson Education.

Paley, V. (2004). *A Child's Work: The Important of Fantasy Play*. Chicago [Ill.]: University of Chicago Press.

Palley, L., O'Rourke, P., & Niemi, S. (2010). Mainstreaming Animal-Assisted Therapy. *ILAR Journal*, *51*(3), 199-207. doi: 10.1093/ilar.51.3.199

Palmer, M. & Sims, W. (1993). *Music in prekindergarten – planning and teaching*. Reston, VA: MENC.

Papatheodorou, T., & Moyles, J. (2012). *Cross-cultural perspectives on early childhood*. Los Angeles: Sage Publications.

Parlakian, R., & Lerner, C. (2016). Beyond Twinkle, Twinkle: Using Music with Infants and Toddlers. Retrieved 19 July 2019, from https://www.zerotothree.org/resources/1514-beyond-twinkle-twinkle-using-music-with-infants-and-toddlers

Pica, R. (2009). Learning by leaps and bounds: Make a little music. *Young Children*, *64*(6), 74–75

Pichot, T., & Coulter, M. (2006). *Animal-assisted brief therapy: A Solution focused approach*. New York, NY: Routledge.

Qi, G. (2012). The significance of music in early childhood education. Educating young children: Learning and teaching in the early childhood years, *118*(2). Retrieved from The Significance of music in early childhood education. Educating young children: Learning and teaching in the early childhood years. (2012), 18(2). Retrieved from

https://www.academia.edu/1958828/The_significance_of_music_in_early_childhood_education

Rainbow, B. (1966). *Music in the classroom.* Portsmouth, NH: Heinemann.

Rock, A. (2019). Important Types of Play in Your Child's Development. Retrieved 25 January 2020, from https://www.verywellfamily.com/types-of-play-2764587

Rose, P. (2014). Effects of movement, tempo, and gender on steady beat performance of kindergarten children. *International Journal Of Music Education*, *34*(1), 104-115. doi: 10.1177/0255761414533309

Rowan, A. (1981). Animals in Education. *The American Biology Teacher*, *43*(5), 280-282. doi: 10.2307/4447262

Rowel, L. (2014). Music and child development Archives - Minds on Music - Kindermusik. Retrieved from https://www.kindermusik.com/mindsonmusic/tag/music-and-child-development/

Šafranj, J., & Zivlak, J. (2018). Spatial-Visual Intelligence in Teaching Students of Engineering. *Research in Pedagogy*, *8*(1), 71-83. doi: 10.17810/2015.72

Saliba, K. (1991). What is the Orff-Schulwerk approach to teaching? In P. Carder (Ed.), The *eclectic curriculum in American music education: Contributions of Dalcroze, Kodaly, and Orff* (pp. 145-149). Reston, VA: Music Educators National Conference.

Schellenberg, E. (2004). Music Lessons Enhance IQ. *Psychological Science*, *15*(8), 511-514. doi: 10.1111/j.0956-7976.2004.00711.x

Serpell, J., & Mccune, S. (2018). WALTHAM Pocket book of responsible pet ownership. Retrieved 19 May 2019, from https://www.waltham.com/dyn/_assets/_docs/waltham-booklets/human-animal-interactions/responsible_pet_ownership_book_waltham.pdf

Simatwa, E. (2010). *Piaget's Theory of Intellectual Development And Its Implication For Instructional Management At Presecondary School Level*, *5*(7), 366-371. Retrieved from https://academicjournals.org/ERR2

Singleton, N., & Shulman, B. (2014). *Language development*. Burlington, MA: Jones & Bartlett Learning.

Solan, M. (2016). Talk to the animals: Animal-assisted therapy offers emotional support - Harvard Health Blog. Retrieved 28 January 2020, from https://www.health.harvard.edu/blog/talk-to-the-animals-animal-assisted-therapy-offers-emotional-support-2016102810527

Steinhoff, A. (2016). The Importance of Music in Early Childhood Development. Retrieved 17 July 2019, from https://novakdjokovicfoundation.org/importance-music-early-childhood-development/

The Benefits of Music Education. (2014). Retrieved 5 September 2019, from https://www.rcmusic.com/getmedia/443b86ec-47ce-44b7-97e8-4860ffd91335/RCM_MusicEducationBenefits.aspx

Thompson, M. J. (2009). Animal-assisted play therapy: Canines as co-therapist. In G. R. Walz, J. C. Bleuer, & R. K. Yep (Eds.), *Compelling counselling interventions*: *VISTAS 2009* (pp. 199-209). Alexandria, VA: American Counselling Association.

Urichuk, L., & Anderson, D. (2003). *Improving mental health through animal-assisted therapy*. Alberta, Canada: Chimo Project.

Uszler, M. (1991). The keyboard teacher and the process of teaching. In S. Gordon, E. Mach, & M. Uszler (Eds.), *The well-tempered keyboard teacher* (pp.52-71). New York: Schirmer Books.

Vygotsky, L. (1979). Consciousness as a Problem in the Psychology of Behavior. *Soviet Psychology*, *17*(4), 3-35. doi: 10.2753/rpo1061-040517043

Weikart, P. S., Schweinhart, L. J., & Larner, M. (1987) *Movement curriculum improves children's rhythmic competence*. High/Scope Resources, 8-10.

Weinert, F., & Helmke, A. (1998). The neglected role of individual differences in theoretical models of cognitive development. *Learning And Instruction*, *8*(4), 309-323. doi: 10.1016/s0959-4752(97)00024-8

Xiao, X., Puentes, P., Ackermann, E., & Ishii, H. (2016). Andantino. *Proceedings Of The The 15Th International Conference On Interaction Design And Children - IDC '16*. doi: 10.1145/2930674.2930689

Young, S., Glover, J. (1998). Music in the early years. London: The Falmer Press.