

Gross Motor Development Level Of The Children Age 9 Years: A Case Study

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1. Introduction

Physical education plays a role in contributing to the growth and development of the children through the learning experience to meet the needs of the psychomotor, cognitive, and affective domain [1,9,8,11]. All children will go through a learning process based on Physical Education syllabus as set out in the primary school integrated Curriculum (KBSR). In the Physical Education curriculum, children have been encourage to develop fitness, skill and sportsmanship. The focus of this study is about teaching of fitness in gross motor skills which consist of the locomotors and manipulative skills. Children age seven to nine years have been involved in teaching and learning process based on these skills. Children will apply all the locomotors and manipulative skills since they are in level one primary school.

Elements of gross motor development will be developed, nurtured and learned through the subject of Physical Education in KBSR, implemented in all primary schools through the country. Gross motor development is very important as basic movement to allow children to engage in physical activity and learning activities. Development has been defined by researcher [12], as a process of continuous change in motor behavior during the life cycle. Researcher [16], also explains the development of gross motor as a change in the ability of nerve-muscle system in the control of motor skills throughout life as a results from the interaction between tasks, the individual and the environment. In gross motor movement and behavior, children need guidance and ongoing training so that they can maintain the movement that are related. According to the researcher [4], the primary goal of Physical Education subject is to provide opportunities to all school children to have efficiency in gross motor skills.

2. Literature Review

Gross motor development is an important element to be developed according to chronological age so that children will not fine difficulties to engage in more complex motor behavior at a higher age [26,27,29]. Review of the Physical Education and Health subject regarding developmental aspects [31], shown that the gross motor development of children, can be achieved. However, the children seemed to be not interested in getting involved in the gross motor activities.

Researcher [19], found that the development of motor skills for children are affected by time, experience and knowledge. Gross motor development has varied in complexity, which the children cannot perform well. In addition, the development of gross motor skills for children vary according to the increment of their age level, [3,23]. Resulting the movement of the body in children is through the combined senses of sight, mind and movement [19]. Gross motor development is critical in the formation of the gross motor skills of children. According to researcher [13], children age 7, 8 and 9 years old should have mastered the basic movement phase of gross motor development. Gross motor development at this age should be in accordance with chronological age [29]. Gross motor development of children ages 7, 8 and 9 years should be at a good level [28]. Researchers

attempted to detect whether there are development and improvement of gross motor development scores (GDMQ) of the child's ability to perform locomotors and manipulative activities in accordance with their age level. The Health and Physical Education teachers should be more exposed to and focus on how to measure the performance of children in terms of increasing the level of physical fitness. This occurs because the teachers are less knowledgeable in gross motor development of the school children. Physical Education teachers are not exposed to the practical measurement of any form of test about the gross motor development at the school level. The Physical Education curriculum also does not have a validate instrument and procedure to measure this aspect. As a result, many teachers of children age 9 years do not know the level of gross motor development. Therefore, these skills are not being monitored.

Gross motor development is important because it contributes to the involvement of children in sports activities in the future, [24,15]. Children who do not have competency in gross motor development are not unable to perform efficiently. They are most likely behind the actual gross motor development, [13,14, 23, 28, 25]. Measurement component of motor development is often used as a basis for assessing the progress of an individual based on chronological age. However, the Test Gross Motor Development / TGMD-2 , Ulrich is the most suitable to measure gross motor of the children in this research.

2.1 Sampling

Overall, a total of 64 male children ages 9 years from the National School Mutiara Perdana, Bayan Lepas, Penang have been selected as subjects in this study. The sample has been selected through the Cohen Table Power of Sampling [7].

2.2 Instruments Of Gross Motor Development.

TGMD Test-2 [28] has been used as an instrument in this study. According to the researcher [28], locomotors skills are defined as run, hop, gallop, leap, horizontal jump, and slide. Meanwhile manipulative skills are defined as dribble, catch, kick, overhand throw, and underhand roll. If the examiner does not wish to compare student test scores with normative data then the instructions, procedures and performance criteria can be adapted to meet the unique needs of the child. The test takes 15-20 minutes to administer per child. Set up and clean-up may take an additional 10 minutes. There is some measuring of distances. To avoid delays and reduce time spent retrieving balls the examiner should gather several balls to use and move the student through the test items quickly.

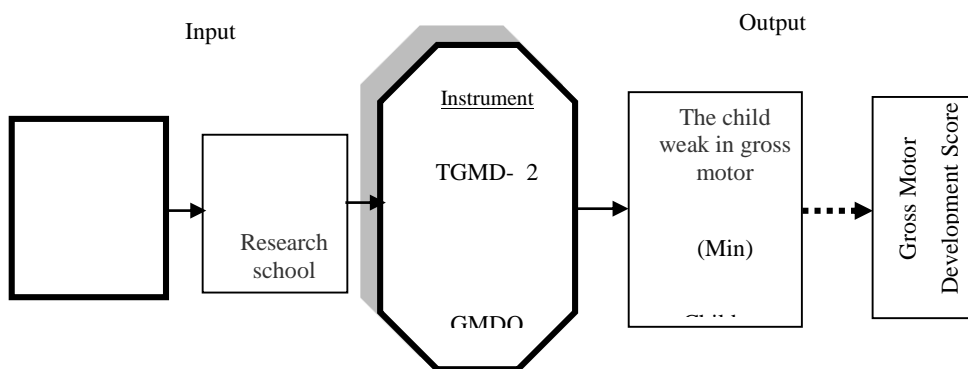


Figure 1: Conceptual Framework shows the level of Gross Motor Skills of Children 9 years.

Usually only one session is required to get through the test, but to provide favorable circumstances so that the evaluation is optimal, several sessions may be needed for certain children.

2.3 Equipment and procedure review

Research related to the level of gross motor development of children involves the following equipment: four sets of Sony (DRC-SR42) with a 40x optical zoom capability, Four tripod (Stein Seizer SZ-01), Software Ultimate Studio 14, a desktop computer, Pro CS4 Adobe Premiere, Skytel, Measuring Tape, Bladder Nut, 4 Rubber Balls, Plastic Bat, Batting tee, Basketball, 4 Plastic Balls, Foot Ball, Tennis Ball, Baseball / Soft Ball, Score Form Motor Development Test, [28], and four Handheld digital camera.

2.4 Data analysis

Statistical analysis of gross motor development test in this study has been done by using SPSS Windows 14.5. Descriptive statistical analysis also has been carried out in this study.

3. Methodology

This research uses exploratory design (exploratory). The purpose of this study is to evaluate the Locomotors Standard Score (LSS), Age Equivalent Locomotors Score (AELS), Manipulative Standard Score (MMS), Age Equivalent Manipulative Score (AEMS) and Gross Motor Development Score (GMDQ) in children ages 9 years. Figure 1 shows the conceptual framework of the study.

4. Results

Overall a total of 64 male children age 9 years from the National School Mutiara Perdana, Bayan Lepas, Penang have being selected as the sample of the study.

4.1 Descriptive information on the Gross Motor Development of children age 9 Years.

Descriptive statistic has used to obtain values of mean and standard deviation scores of LSS, MSS, AELS, AEMS and GDMQ. Table 1, showed the result for the subject of chronological age is between 8.23 years to 9.83 years ($M = 9,30$, $SD = .431$). Overall, subjects obtained mean LSS ($M = 3.34$, $SD = .127$), AELS ($M = 4.61$, $SD = .629$), MSS ($M = 3.91$, $SD = 1.277$),

Table 1 Descriptive statistics for Overall Score Based on Age

Variables	Class	N	mean	SD	Descriptive Rating
AGE (IV)	9 Years	64	9.30	.431	-
LSS (DV)	9 Years	64	3.34	.127	Very poor
AELS (DV)	9 Years	64	4.61	.629	Poor
MSS (DV)	9 Years	64	3.91	1.276	Poor
AEMS (DV)	9 Years	64	5.52	.619	Poor
GMDQ (DV)	9 Years	64	61.79	6.441	Very poor

Table 2 showed of the subjects of 9 years experienced a delay in Age Equivalents Locomotors Score (M = 4.70) and a delay in Age Equivalents Manipulative Score (M = 3.79). Children aged 9 years 1 day to 9 years 11 months 29 days counted as 9 years [28]. The findings show that children 9 years of age have experienced delays in locomotors and manipulative equivalents. The finding show that, the subjects age 9 years have problems in gross motor development.

Table 2 The analysis showing the age equality

Age	Mean Value				
	Chronological Age	Age Equivalents locomotors	Age Equivalents Manipulative	lokomotif Delay	manipulative Delay
9 Years	9.30	4.61	5.52	4.70	3.79

5. Discussion

The result of descriptive analysis indicated that the performance of children age 9 years do not develop to the level of Age Equivalents Locomotors Score, Manipulative Standard Score and Age Equivalents Manipulative Score. The lowest score of all is LSS and MSS. This finding indicated the subjects of children 9 years experienced lowest gross motor developmental level based on the mean scores of the LSS, AELS, MSS, AEMS and GMDQ. AEMS(M = 5.62, SD = .62) and GMDQ (M = 61.79, SD = 6.44). The scores indicated the position of children aged subjects were actually in the proper group age. The dependent variable is LSS, MSS, AELS, AEMS and GMDQ and the dependent variable is children aged 9 years.

According to Table 1, the descriptive rating [28] for the LSS, AELS, MSS, AEMS and GMDQ show that the performance of children age 9 years are poor of Age Equivalents Locomotors Score, Manipulative Standard Score and Age Equivalents Manipulative Score. Meanwhile, the performance in Locomotors Standard Score and Gross Motor Development Score are very poor. Therefore, his finding the children of age 9 years experienced poor in level gross motor development. This finding explained that the performance skills of the child should be increased parallel as the age of children increased, [20], but children age 9 years in this study showed are not achieved to the level, so that appropriate intervention should be given for the children gross motor recovery.

This situation occur because children do not know the gross motor skills. According to the researchers [21; 22], lack of knowledge in locomotors skills cause to the whole body movement, stability and flexibility. This finding explained that the problem in locomotors skills are closely related to problems in the manipulative skills. The finding of this study is in line with previous study [5], which stated that manipulative skills have an impact on locomotors skills.

Children age of 9 do not showed a good patterns of gross motor development according to chronological age. This group was still left behind in the AELS, AEMS and Age Equivalents. Delay in the AEL and AEM showed that children age 9 years experienced serious problems in gross motor development. Delays in gross motor skills development explained that the pattern of motor development vary because not all children achieved a similar point at the same age. The children age 9 years who suffered from gross motor development should be supported by providing an appropriate intervention program to improve gross motor development according to their chronological age. According to the researcher [12], children at the age of 9 years should be ready for gross motor development according to chronological age. AEL and AEM Score of children nine years should have mastered basic locomotors skills and manipulative skills. This situation is supported by the findings of the study [2], that increasing age in childhood will affect not only physical characteristics but also influence their skills. Based on the findings, children at the age of 9 years are at the critical phase in gross motor development. Their gross motor development was not according to their chronological age. As conclusion, the gross motor of children in this study are not developed regarding locomotor and manipulative according to the age equivalence.

6. Conclusion

Gross motor development of children should receive attention and being monitored by the teachers who teach physical education. They have to ensure that children do not experience problems in the development of gross motor skills. Unfortunately, the teachers did not know the sub-skills tested in determining the level of gross motor development of children ages 9 years. This factor may have a major impact on the proficiency of the movement and development of gross motor skills of children ages 9 years. This occurs because the physical education curriculum for trainee teachers at the Institute of Teacher Education is seen as not providing teachers with the need to test gross motor development of children, The teachers should strive to attract children to participate actively in the learning of Physical Education in schools.

The problem of testing the knowledge of science gross motor development among children occurred because of Physical Education, trainee teachers at the Institute of Teacher Education do not provide knowledge about the TGMD-2 test, the method of implementation and the need to test gross motor development of children. Relevant parties should introduce relevant test and measurement test of gross motor development of children to teacher trainers and teachers in order to help and child in gross motor development in line with their chronological age. Knowledge should be given to teachers teaching the subject to help them develop teaching and learning programs for children.

7. Future Research

It is recommended that testing or measurement of gross motor development will be used as the main fields for physical education teachers as these will assist them in planning teaching and learning of the children. Therefore, developing a small game for children with delayed physical development can help to improve the level of gross motor development. Knowledge about the level of gross motor development of children can help them to choose the appropriate sport for life-long [4]. This is important because the early childhood development will continue to experience delays in their gross motor development as they are adults.

In determining the gross motor development of the children develop according to chronological age, educational administrators need to ensure the teachers of Physical Education should perform their roles. Children who do not developed gross motor skills according to chronological age, will faces more injuries when involved in sports activities, [10]. In conclusion, gross motor skills should be develop according to the level of the children age.

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