

Differences in locomotor gross motor development level among grade 1 ballet dancers, students with and without co-curricula.

BORHANNUDIN ABDULLAH¹, JACKLYN ANAK JOSEPH², MAISARAH BINTI MOHD SALEH³

^{1,2}Sports Department, Faculty of Educational Studies, Universiti Putra, MALAYSIA

³Faculty of Sport Science and Recreation, University Technology MARA Cawangan Pahang, MALAYSIA

Published online: July 30, 2016

(Accepted for publication June 20 2016)

DOI:10.7752/jpes.2016.s1114

Abstract :

Purpose: The study is a survey form ex post facto and the purpose of this study was to identify the level of locomotor skills among grade one ballet dancers, students with co-curriculum and students without co-curriculum. **Methodology:** A total of 90 students of the boy and girl who are around Klang and Seremban area have participated in this study. Gross Motor Development Tests (TGMD-2) by Ulrich (2000) was conducted to determine the level of locomotor skills of level one primary school students. Statistical analysis Kruskal – Wallis test was used to analyse the mean score between the group of level one primary school students. **Result:** The results showed a group of ballet dancers grade 1 had the highest mean (M=3.13, SD=1.008), compared with a group of students with co-curricular activities (M=2.000, SD=0.000) and a group of students without co-curricular activities (M=2.000, SD=0.000). However, significance differences in the scores also showed significant differences among the three groups with the estimated value of significance is 0.000. **Findings and discussion:** Studies show locomotor skills development of primary school students are still not developing well according to their chronological age.

Keywords: Ballet Dancers, Gross Motor Development, Primary School Students, Locomotor Skill

Introduction

The development of gross motor skill is an important element in developing the locomotor skill level according to chronological age of the children (Hardy, King, Farrell, Machiven, dan Howlett , 2009). This is because of gross motor skills enable them to conduct more complex motor in the next age level as well as to contribute positively impact the daily activities (Thelen, & Smith, 1996; Ulrich & Ulrich, 1999; Wan Asma Wan Ismail, 2000; Watkinson et al., 2001).

The development of gross motor skills of children was affected by time, experience and knowledge (Laura, Hennie & Doreen, 2010). In addition, the development of gross motor skills also varies according to the level of their ages (Parke, 2003). Research by Gallahue and Ozmun (2006), primary school students' level one between the ages of 7, 8 and 9 years considered already fully mastered the fundamental movement phase of gross motor development. The development of gross motor skills at these ages should be in line with their chronological age (Ulrich, 2000).

All students will start learning basic movement skills in the early ages and one of the movements was consist of locomotor skills. Locomotor skills are skills that involve body movement through space and consist of skills such as running, galloping, hopping, leaping, jumping and sliding (Haywood & Getchell, 2009). These skills also involve the movement of the body from one point to another point.

Participation in co-curricular activities is said to be able to improve students' motor development. These activities include sports, clubs and games outside the classroom. Studies show locomotor skills among students depending on their improvement in sports and games (Borhannudin & Tan, 2014). Through the book by David, (2015) student involvement in sports especially football can improve the skills of jumping, running, skipping, rolling, galloping, bouncing and sliding.

In addition, dance is also said to be important in developing the fundamental movement and encourage the development of locomotor skills among primary school students (Lykesas, Tsapakidou, & Tsompanaki, 2014; Kiefer et al., 2011). Dance movements including jumping activities, rolling, slow run and other can help students improve and stable their creativity in motor movements also can help produce diversity in motor reaction. (Castaner, Torrents, Anguera, Dinusova & Jonsson, 2009).

However, gross motor development among level one primary school students in Malayasia did not according to their chronological age. This happen because teachers have a lack knowledge about the motor development of students in the primary school (Masri Baharom , Ahmad Hashim, & Mahaliza Mansor, 2014). Furthermore, the

issue of the implementation of the Physical Education classes have always been considered a subject that is not important in student learning in Malaysia. This is because the parent and the school more focused on other academic achievements (Wee, 2013). This mentality causes the level one of primary school students do not master at the age of locomotor skills which they should have mastered.

In addition, most of the previous studies that study on the level of gross motor are not comparing students in term of the activities such grade one ballet dancer, student involved with co-curriculum and students who are not involved in co-curriculum. The purpose of this study was to identify the level of development of locomotor skills among grade one ballet dancer, student involved with co-curriculum and students who are not involved in co-curriculum.

Material & Methods

Studies conducted in the form of ex post facto. The study design was chosen because of the characteristics of the subjects involved occur naturally and the researchers did not make any manipulation on this feature. The study includes a total of 90 boys and girls around the Klang and Seremban. All subjects were tested using a scale GMDQ-2 which consists of 12 basic gross motor skills development, consists of 6 of locomotor skills and 6 manipulative skills. However, for this study a subject only perform 6 locomotor skills (running, hoping, galloping, jumping, sliding, leaping). Equipment used to implement the locomotor skills are: (i) A set of video recorders (ii) Laptop (Acer) (iii) Cone (iv) measuring tape (vi) bean bag. Researchers use sets of video recorders to record raw score of the tests carried out on the basis of recordings made. All of the skills recorded transferred into notebook and placed in a folder for each subject. Each subject was given two attempts for each skill and recorded and then evaluated according to the criteria in scale GMDQ-2. Scoring 1 is for subject that can meet the criteria and skills test score of 0 is given if the subject is unable to meet the criteria for proficiency testing conducted.

Result

Locomotor scores were analysed descriptively to evaluate the mean, standard deviation, minimum and maximum score (Table 1). While Table 2 shown the mean, standard deviation, minimum score and maximum score for each group. Table 3 shows frequency of the overall score for locomotor and Table 4 shows the frequency of locomotor score for each group.

Table 1: Overall score for locomotor skills

Item	Value
N	90.00
Mean	2.38
Standard Deviation	0.79
Minimum score	2.00
Maximum score	4.00

Table 2 : Locomotor skills scores by groups of students

	Mean	Standard deviation	Minimum	Maximum
Ballet	3.130	1.008	2.000	4.000
With Co-curriculum	2.000	0.000	2.000	2.000
Without Co-curriculum	2.000	0.000	2.000	2.000

Table 3 : Frequency of overall score for locomotor skills

Locomotor Score	Frequency	Percentage	Percentage of reliability	Cumulative percentage
2	73	81.1	81.1	81.1
4	17	18.9	18.9	100.0
Total	90	100.0	100.0	

Table 4 : Frequency of locomotor score for each group.

Group	Score	Frequency	Percentage
Ballet	2	13	43.3
	4	17	56.7
Total		30	100
With co-curriculum	2	30	100
	Total	30	100
Without co-curriculum	2	10	100
	Total	30	100

The level differences between the three groups by using no-parametric as data distribution is not normal, and using the Kruskal – Wallis test results showed that the ballet dancer has the highest mean rank at 62.50 compared to the students with co-curriculum and students without co-curriculum have the same mean rank 37.00 (Table 5).

Table 5 Mean rank

	Group	N	Mean rank
Locomotor	Ballet	30	62.50
	With co-curriculum	30	37.00
	Without co-curriculum	30	37.00
	Total	90	

As for the significance of the score differences between grade 1 ballet dancer, students with co-curriculum and students without co-curriculum the score indicates that there are significant differences between the three groups with an estimated values of significance is 0.000 (Table 6).

Table 6 The score difference of significance between group

	Locomotor
Chi-Square	41.452
Df	2
Asymp. Sig.	.000
a. Kruskal Wallis Test	

Discussion

The results of descriptive analysis (Table 2) shows the performance for all three groups, grade 1 ballet dancer 1 (M=3.13, SD=1.008), students with co-curriculum (M=2.000, SD=0.000) and group without co-curriculum (M=2.000, SD=0.000). for the Kruskal-Wallis test (Table 6) were children who participated in ballet has the highest mean rank (62.50), while groups of students with co-curriculum and without co-curriculum have the same mean rank (37.00). In addition, this study also explained that the performance skills of student should be improve in line with the current age of the child and appropriate training should be given in the early stages of child development.

The results show that all three groups of children still did not dominate locomotor skills in line with their chronological age. This will only impact on the development of physical characteristics of the children but also in the other skills (Abigail, 2008). However, in this study there was a significant difference between the three groups. Furthermore, the same findings were reviewed by Masri Baharom, Ahmad Hashim, dan Mahaliza Mansor, (2014) shows that the pattern of locomotor skill among level one primary school students are not at the level of their chronological age.

In addition, teachers also must be given knowledge to implement the tests of gross motor and motor skills education. The findings by Jackman dan Stagniti (2007), states that lack of the resources, training, experience and involvement of teachers in the process of motor development is contributing factors related learning students did not get a good gross motor skill. Meanwhile, results of study by Hardy, King, Farrell, Machiven, dan Howlett (2009) shows an increase in basic motor skills when students go through the program. In addition, students are involved in a dance show their locomotor skills better than those involves with co-curriculum activities and without co-curriculum activities. Results of other studies also showed the same findings that dance activities help to improve stability and coordination, and also movement that involve complex balance (Kiefer et al., 2011).

However, through this study shows the development of the locomotor skills of level one primary student is still in a serious stage. The development of locomotor skills did not in line with their chronological age. At their age, they should be ready to master new skills.

Conclusion

Gross motor development in primary school students especially for locomotor skills need to be taken seriously by teachers. This development is very important for them to do their daily activities such as walking to school, crossing the drain, jumping, sliding and other locomotor skills.

Therefore, teachers should prepare themselves with adequate knowledge in the education of locomotor skills. It is compulsory for the students to ensure they will do not have any difficulties in performing complex activities in future. In addition, the implementation of physical education classes should also be taken seriously and not feasible for granted. Physical Education teachers have to work harder to attract level one primary school students to do physical activities during conducting the physical education classes.

Recommendations

The performance of the three groups showed differences in the level of their locomotor skills. It is recommended that the assessment and measurement of locomotor skills and especially for gross motor

development must be implemented in the early stages of schooling practiced by educators to identify and suggest the intervention program for improving motor development of the children. In addition, implementation and evaluation of specific measurement can help the children to master the gross motor skills along with their chronological age. At the same time, observers have suggested the children to participate in co-curriculum activities that can help to improve their gross motor skills.

References

- Abigail, F. (2008). *Relationships between physical activity and motor and cognitive function in young children*. Ph.D. thesis, Faculty of Medicine University of Glasgow.
- Borhannudin, Abdullah & Tan., K. K. (2014). The differences of gross motor development level among taekwondo athletes. *Journal of Scientific Research 19 (Innovation Challenges in Multidisciplinary Research & Practice)*, 187-191.
- Castaner, M., Torrents, C., Anguera, M. T., Dinuosva, M., & Jonsson, G. K. (2009). Identifying and analyzing motor skill responses in body movement and dance. *Behavior Research Methods*, 41(3), 857-867.
- David, N. (2015). *National Soccer Coaches Association of America Complete Soccer Coaching Curriculum for 3-18 years old Players: Vol I*. Westerly: Coaching Media Group.
- Gallahue, D. L., & Ozmun, J. C. (2006). *Understanding motor development: infants, children, adolescents, adults* (6th ed.). Boston: McGraw-Hill.
- Hardy, L. L., King, L., Farrell, L., Machiven, R., & Howlett, S. (2009). Fundamental movement skills among Australian preschool children. *Journal of Science and Medicine in Sport*.
- Haywood, K. M., & Getchell, N. (2009). *Lifespan motor development (5th ed.)*. Champaign, IL: Human Kinetics.
- Jackman, M., & Stagnitti, K. (2007). Fine motor difficulties: The need for advocating for the role of occupational therapy in schools. *Australian Occupational Therapy Journal*, 54(3), 168-173.
- Kiefer, A. W., Riley, M. A., Shockley, K., Sitton, C. A., Hewett, T. E., Cummins-Sebree, S., & Haas, J. G. (2011). Multi-segmental postural coordination in professional ballet dancers. *Gait and Posture*, 34(1), 76-80.
- Laura, G., Hennie, N., & Doreen, B. (2010). The gross motor function classification system: an update on impact and clinical utility. *Journal of Paediatric and Physiotherapy* 22 (3), 315-20.
- Lykesas, G., Tsapakidou, A., & Tsompanaki, E. (2014). Creative dance as a means of growth and development of fundamental motor skills for children in first grades of primary schools in Greece. *Asian Journal of Humanities and Social Studies*, 2(1), 211-218.
- Masri Baharom, Ahmad Hashim, & Mahaliza Mansor, (2014). Gross motor development level of the children age 9 years: A case study. *International Journal for Innovation Education and Research*, 2(11), 129-135.
- Moyles, J. (1989). *Just Playing? The Role and Status of Play in Early Education*. Maidenhead: Open University Press.
- Parke, B.N. (2003). *Discovering programs for talent development*. United States: Corwin Press Inc.
- Thelen, E., & Smith, L. B. (1996). *A dynamic systems approach to the development of cognition and action*. MIT press.
- Ulrich, B.D., Ulrich, D.A. (1999). Dynamic systems approach to understanding motor delay in infants with down syndrome. *Perceptual and Motor Skill*, 84, 867-870.
- Ulrich, D.A. (2000). *Test of Gross Motor Development*. Austin, TX: PRO-ED.