



Increasing Gross Motor Skill Through Fundamental Skill Development Program

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Abstract

The aim of this study was to examine Canadian movement program called fundamental skill development programs implemented in Indonesia to increase children's gross motor skills. By using a quasi-experiment, the matching-only pretest-posttest control group design, the sample was divided into two groups (N = 25 to the experimental group, N = 25 to the control group). The Gross motor skills were measured using the Test of Gross Motor Development - Second Edition TGMD - 2 Ulrich (2000). The experimental group was given training for eight weeks, 1 session per week and each session lasting 60 minutes. Statistical analysis was performed using paired sample t-test and independent sample t-test. The results showed that there is an increase in gross motor skills in the experimental group with $P < 0.05$. Then the results of independent sample t-test by comparing the Gain score between experimental group and the control group is significant difference with $P < 0.05$. It can be concluded that the fundamental skill development programs significant effect on gross motor skills in the first-grade student.

How to Cite

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INTRODUCTION

Gross motor skills are defined as skills that can reach the entire motor of the limbs, in the form of movement or displacement and body stretching (Woodfield, 2004 in Wong and Cheung, 2010). It consists of locomotor skills such as running, jumping, hopping, sliding, skipping, galloping and object control skills such as throwing, catching, striking, and kicking. Gross motor development is very important for children. The acquisition of motor skills must be owned by the child as a basis for mastering the next motor skills that are more complex and useful for improving the quality of life in the future (Stork and Sanders, 2008). In addition, an increase in gross motor skills in children is associated with the acquisition of specific skills in physical activity outside of school (Raudsepp and Pall 2006). In other words, one determinant of a person's quality of life is to actively move and exercise, while to be able to move and exercise, one must master complex motor skills, and the mastery of complex skills can be obtained by mastering rough motor skills first. Rough motor development not only prepares children for more complex motor skills, but also influences the development of cognitive functions, such as the development of cell-to-cell connections (Lutan, 2001); efficiency of control and working memory (Haapala, 2013) and help overcome learning difficulties (Sumarlis, 2005). Not only that, the ability to perform movements and physical actions for a child is also associated with self-confidence and the formation of self-concept (Sukamti, 2010).

Physical education is a supporting factor on how gross motor skills of children can be developed. The demand for the right physical education program is an important study to be done. One of the proper learning strategies is to play. Playing will be able to facilitate the child's desire to learn motor skills, because the world of children is a world of play (Gallahue, 1996). The child will quickly absorb learning if the child is enjoy and unencumbered with learning. In addition, play can also provide benefits for the cognitive, physical, and emotional child (Stork and Sanders, 2008). Therefore, in order for children's abusive motor skills to increase effectively, the learning program must be through the game. However, often the learning programs that students get in school do not facilitate the child to move with the appropriate duration and intensity. The learning program focuses on fun and participation only. It would be better if the games performed by the child in planned and structured, with which the

child's motor can develop optimally (Stork and Sanders, 2008). Therefore the role of teachers is very important in providing a planned and structured play activities for the development of children's motor skills, due to gross motor skills can be developed through learning and training (Payne and Issacs, 2012).

One of child movement program that has been used in Canada is the Fundamental Skill Development Program (Sask Sport Inc, 2001). This program aims to provide opportunities for children to practice the gross motor skills by providing a lot of reps. Because the developers of this program believe that gross motor skills will develop when the child does a lot of repetition in the exercise. In addition, this program has a belief that in designing a motion program for children should have a learning element of fun. In addition, the program has a clearly structured time allocation, so the intensity of child movement can be inferred better than programs already implemented in schools that do not have a structured learning stage. So the program is considered able to increase the participation of children's movement with the game patterns listed in each program theme and increase the intensity of motion of children with a clear allocation of time. However, Canada's condition with our different country is assumed to be a factor affecting the outcome of the learning program on the success of gross motor learning of the child. Because motor development is influenced by other factors such as environmental factors (Venetsanou and Kambas, 2009; Chow and Chen 2010). Therefore, this paper reports the difference of elementary student's gross motor skills between the one who given fundamental skill development program and the one who given physical education as usual by teacher.

METHODS

The Matching-only Pretest-Posttest Control Group Design was used to answer research question (Fraenkel et al., 2012), by giving treatment to two sample groups. The first group called Experimental groups (N = 25, 13 boys, 12 girls) were treated with fundamental skill development program and the second group called control groups (N = 25, 12 boys, 13 girls) were treated physical education as usual by their teacher. The sample is a 1st grade elementary student of UPI Lab-School.

The experiment group receiving Fundamental skill development program for eight weeks, one session per week. The program contains modified games from sports games and

simple games that have a theme to develop a child's gross motor. The games are divided into 5 categories: (1) Ballance jump / quick feet/landing games; (2) Mani-pulation game; (3) Miscel-laneous movement ga-mes; (4) Tag games, and (5) Manipulation / tag games. Each session was held for a maximum of 60 minutes with the stages specified in the guide-lines of this program. The steps are: (1) Warm up for 5 minutes; (2) Broad-based skill development games for 10 minutes; (3) developmental sport-specific games for 20 minutes; (4) Lead-up game for 20 minutes, and (5) cool-down for 5 minutes.

The instrument for measuring gross motor skills of children used in this study was Test of Gross Motor Development - Second Edition (TGMD-2) developed by Ulrich (2000). The test includes 12 motion tests categorized into two Subvariables, Locomotor (run, gallop, hop, leap, horizontal jump, slide) and Object Control (striking a stationary ball, stationary dribble, catch, kick, overhand throw and underhand roll). TGMD-2 has high reliability with Cronbach alpha 0.91 (locomotor), 0.85 (object control), and 0.88 (total TGMD-2)(Chow & Chan, 2011)

RESULTS AND DISCUSSION

The result shows that gross motor skills of children at the time of pretest are as follows: experimental group; total TGMD (M = 51.08; SD = 9.522) locomotor sub-test (M = 28; SD= 6.7); object control sub-test (M = 23; SD = 6.05); and for the control group; total TGMD (M = 51.28; SD = 12.18) loco-motor sub-test (M = 28; SD = 8.63) object control sub-test (M = 23.3; SD 5,59). Meanwhile posttest scores for experi-mental group;, total TGMD (M = 65.16; SD = 13.449) locomotor sub-test (M = 33.2; SD = 6.05) object control sub-test (M = 32; SD = 10.5); and for the control group; total TGMD (M = 61.28; SD = 11.025) locomotor sub-test (M = 30.3; SD = 8.89) object control sub-test (M = 31; SD = 7.61).

Based on mean of total TGMD score in the ex-perimental group and the control group it was shown that each group shows an increase. In the experimental group, the total TGMD score of the child at the time of pretest (M = 51.08; SD= 9.522) inc-reased to (M = 65.16; SD= 13.449) at posttest. Even in the control group, at the time of pretest the total TGMD score (M = 51.28; SD= 12.18) increased to (M = 61.28; SD = 11.025) (chart 1).

Furthermore, data on the mean and stan-dard deviation of N-Gain score (posttest minus

pretest) of gross motor from experimental group and control group report that N-Gain score in ex-perimental group (M = 14,08; SD = 7.47) was larger than the N-Gain score in the control group (M = 10; SD = 6.77). In order for the difference in scores to be seen, a graphic in **chart 2** is made.

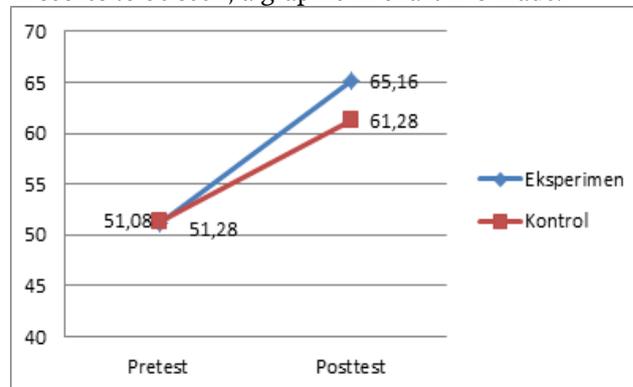


Chart 1. Rough Motor Improvement Before and After Treatment

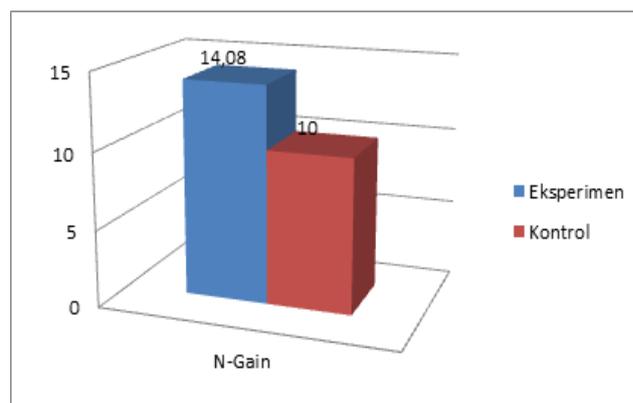


Chart 2. Graph of Average Scoring of N-Gain Experiment Group and Control Group

Chart 1 shows that gross motor skills are increasing in both groups. Then also seen that the increase in the experimental group looks bigger than the control group. The results of hypothe-sis testing also showed that there is a significant influence of children in sports program on gross motor skills ($P < 0.05$).

This fundamental skill development pro-gram contains modified games from sports games and simple games that have a theme for develo-ping a child's gross motor.

At each session, selected games based on the skills that are expected to be mastered by the child. Programs that contain games that fit de-ploppmentally appropriate practice can indeed have an effect on rough motor boosts of children, as in a study conducted by bakhtiar et al (2010) in teh-ran iran who studied the effect of selected exerci-se on motor development of 3rd-grade

elementary school students. The results revealed that the selected exercise is given to 20 children over eight weeks, three sessions per week and each sessions lasting 45 minutes had a significant effect the difference in gross motor skills assessed through the TGMD-2 instrument compared with 20 female students who were the control group. In addition, another study conducted by Wang Joanne (2004) found that treatments given to 60 3-5 year olds ie creative movement program twice a week for 30 minutes each time in six weeks

were found gross motor skill for the experimental group was significantly increased ($p < 0.05$) than the control group. Then on the research was conducted by Gustiana (2010), it was found that the game modification gives a significant influence on the ability of gross and cognitive motor of early childhood as well as the learning process more fun and participative. Thus, learning with game modification can be considered as an alternative for early childhood learning.

Table 1. Results of Hypothesis Testing

Analyzed Data	Analysis Technique	H0 Reject Criteria	t-count	t-table	Sig. (p)	Conclusions
Pretest - Posttest Score Experiment Group	Paired sample t test	• t count > t table • sig. < 0,05	9,415	1,710	0,000	Ho rejected
Pretest - Posttest Score Control Group	Paired sample t test	• t count > t table • sig. < 0,05	7,379	1,710	0,000	Ho rejected
Pretest - Posttest Score Experiment Group	Independent sample t test	• t count > t table • sig. < 0,05	2,022	1,676	0,049	Ho rejected

Then the results of hypothesis testing show that fundamentals of skill development program give a significant influence to the gross motor skills of children compared with control group. This is because there are different elements between the fundamental skill development program and the usual learning by the teacher. The fundamentals of skill development programs provide an opportunity for children to reproduce more skills due to greater child participation. This is because in the fundamental skill development program, children are happy to follow every game provided. The games provided in this program are very interesting, easy to understand and safe to do by the child. The sense of security that a child feels when playing because the equipment used is modified in such a way that the child is not afraid of injury, for example, the ball played by the child for the game throwing catch, the ball used is not hard and not too big.

In addition, the game provided theme-based, the game contains a story that can be imagined by the child, as in the game "watch out alligator", the child is presented with a story about a farmer who is on the way home from the garden, on the way, the farmer must cross the river, in the river there are crocodiles. Farmers can cross the river by jumping from rock to rock so as not to be caught by crocodiles. In this game, children are selected two or three people to play as crocodiles and the rest play a role as a farmer. The child is-

very happy to use his imagination and play a role directly in the role he imagines.

It was also shown in **Chart 1** that the gross motor skills of children in the control group increased. This means that the usual learning done by physical education teachers in UPI Lab school has been successful in developing children motor skills. This success is not necessarily the personal success of the teacher, but the result of teacher interpretation of SK and KD expected by Diknas. One example of the KD sounds of child motor in grade 1 elementary school is "Practicing locomotor skills through simple games and traditional games." And indeed in accordance with the theory put forward on the assumption that gross motor development of children will be optimized with games that match the level children development.

While in **Chart 2** shows that the gross motor skills of children in the experimental group more increased compared with the control group. This is due to the learning in the experimental group using a program that facilitates the intensity and duration of optimal exercise in developing children's gross motor skills. Although the fundamentals of program development skills are better at improving the gross motor skills of the children. But there are still shortcomings of the program. This is because the program is created by different developers of culture and language with us. So that there are things that must be

modified, for example, the group of sons and daughters in learning is unified / undifferentiated, although there is no difference in physical development between the two groups, in terms of learning ethics / norms prevailing in society, this is not acceptable. Also, use the term or game name. In this program, there is the name of the game "Dog Catcher" which, when translated more or less "Dog Catcher". The use of the name of this dog is not in accordance with the ethical norms prevailing in our society because connotations are not good.

Some of the above discussions reveal that this study is of relevance to the reinforcing theories that the provision of integrated childhood motion programs through physical education learning has an effect on rough motor skills of children. gross motor skills of children is important because these skills are the basis for children to master more complex skills, by mastering more complex skills, it is expected that children will be involved in physical activities such as sports so that the realization of active life style in order to improve the quality of life of children itself and further improve the quality of life of the nation in the future.

CONCLUSION

Based on the results of the study and discussion, it can be concluded that the movement program originating from Canada called fundamental skill development program capable of being the right program applied in Indonesia and give effect to the increase of motor skills of child because (1) There is difference of mean of motor skill significant children between pretest and posttest in the experimental group; (2) There was a significant difference in mean gross motor skills among pretest and posttest in the control group; (3) There was a significant difference in mean score of N-Gain of gross motor skills among the experimental and control groups.

The implications of these results can fill the void of the optimization of lower-grade elementary school physical education programs. Motion program in this research is an alternative program to improve gross motor skills through structured and planned stages from preliminary to closing, so that its presence can be used as a reference in planning the physical education program in Indonesia.

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