

Teacher involvement in active play and its effect on children's physical literacy

HERWINA DEWI LIBRIANTY¹, YUFIARTI, ELINDRA YETTI²

^{1,2}Early Childhood Department, State University of Jakarta, INDONESIA

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Abstract

Introduction : Physical activity is believed to provide many health benefits, especially in early childhood. The best way to keep children physically active is through active play either spontaneously or guided. Active play is the most effective entrance for early childhood teachers in fostering children's love for physical activity as the basis for the development of physical literacy. **Purpose :** The purpose of this study was to determine the effect of teacher involvement in active play on the physical literacy of 5–6-year-old children who were undergoing education at early childhood education institutions. **Method :** This study used a comparative quantitative approach; the sample included 94 children and 15 early childhood educators and was obtained using the convenience sampling technique. Data collection was performed by distributing questionnaires to determine teacher involvement and their role in active play (as stage manager, observers, recorders, motivators, facilitators, models and play partners). Children's physical literacy was determined using physical literacy instruments that were adapted and modified from the Preschool Physical Literacy Assessment (Pre-PLAY) tool (Cairney et al. 2018). The achievement of children's physical literacy is assessed from three aspects known as movement competence, coordinated movement ability, motivation and enjoyment of physical activity through structured and unstructured active play activities. An independent sample t-test was used to identify differences between groups A₁ (high teacher involvement) and A₂ (low teacher involvement). **Result :** The obtained results showed that there was a significant difference between groups A₁ (high teacher involvement) and A₂ (low teacher involvement) with a significance value of <0.05. This means that the physical literacy achievements of children in the high teacher involvement in active play group are better than the physical literacy achievements of children in the low teacher involvement group. **Conclusion :** The high involvement of teachers in their role in active play as stage manager (planner), observers, recorders, motivators, facilitators, models and play partners has significantly contributed to the development of basic movement skills and children's enjoyment of physical activity.

Keywords: early childhood educator, movement competence, motivation, enjoyment, physical activity

Introduction

Active Play and Physical literacy

Physical literacy education is an important aspect of health promotion because it focuses on improving skills, knowledge, behaviors and responsibilities to engage in lifelong active lifestyles (Yi et al. 2020). Physical literacy is closely related to two main domains of health (i.e., physical and psychological) (Kozera 2017). A physically literate person will be able to have a choice based on health priorities and well-being, thereby reducing the risk of various diseases. Parents or guardians are advised to actively participate in the growth and development of the children's physical literacy, especially in developing motor skills (McCallum 2017). Physical literacy must be used as an asset for life and disposition that must be kept and maintained (Almond 2013). Newport mentions that one of the efforts to develop physical literacy in children is to encourage them to love movement through the existence of a supportive environment that gives them the opportunity to do movements every day (Newport 2013). Physical activity should always be a fun part of a child's life, therefore the play approach to children's learning is built on the general view that movement skills and physical literacy develop naturally as a consequence of age, maturity, general movement experience, and self-discovery. (Macnamara, Collins, and Giblin 2015). Children have an ability to build a strong foundation in physical literacy by achieving optimal physical competence through active play (Maude 2013) as the largest portion of children's physical activity occurs in the form of active play (Janssen 2015; Truelove, Vanderloo, and Tucker 2017).

Active play (e.g., running, swinging, jumping and other unstructured activities that can occur indoors or outdoors) is a total body movement during which the children can exert energy in a freely chosen way for fun (Truelove et al. 2017). Through active play, physical exercise time can be seen as a more structured activity than free play. At the same time, free play is also offered to children as an option, for children to decide what they want to do from the various activities and equipment available. (Hussain 2016). A study states that structured

physical activity in the context of sports, has a better positive impact on motor development of preschoolers (Djordjevic et al. 2021). However, according to other experts it is said that the combination of structured activities and free play, with the support (scaffolding) of a teacher will be more effective to improve motor development than just one of them (Patrizia et al. 2019).. Active play can be part of an institution's informal curriculum that facilitates children's learning and development (Hyndman et al., 2012). These various explanations show how closely related active play is with the development of physical literacy in early childhood.

Teacher Involment In Active Play

The development of children's physical literacy is considerably in the hands of teachers who (in addition to parents, family, peers and coaches) perform physical education lessons (Whitehead 2013). Almond said the teacher's role in the development of physical literacy, among others, is to facilitate a learning environment that encourages children to 'love to be active' and attract their interest through various challenges of fun physical activities. (Almond 2013). Ironically, at preschool institutions, the diagnostic and practical pedagogical skills of ECE teachers are very limited to effectively develop children's physical literacy (Dinham and Williams 2019). Goodway also stated that basically early childhood teachers are not prepared in their degree programs to promote movement competent / Physical Activity. (Goodway 2018). This means that actually early childhood teachers are not well-prepared to train movement competencies or facilitate children's physical activities. Fortunately, Hussain provides a solution for those teachers who do not have a physical education background through the Physically Active Play curriculum (PAP). She suggest that teachers and children can explore and learn together in physically active play as seen in fig 2 .(Hussain 2016).

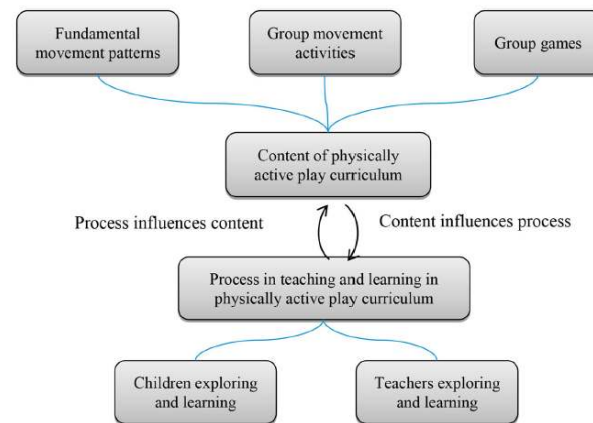


Fig 2. Physically Active Play Curicullum

Active play is the most effective entrance for early childhood teachers in fostering children's love for physical activity as the basis for the development of physical literacy. Teachers have a central role in the process of creating interactional resources for ongoing joint participation in children's play (Pursi and Lipponen 2017). When playing with children, teachers do not need to provide any limitations and act only as observers, narrators, questioners, and resource suppliers because this will eliminate the opportunity to fully support the children (Devi, Fleer, and Li 2018). The proportional support and involvement of teachers are essential in fostering play (Aras 2016). Teachers' involvement provides many benefits in play situations as long as it does not cause distractions that can hinder children's creativity (Sandford et al. 2015). The involvement of teachers during play even affects the type of children's play experience and how children incorporate new knowledge (Bento and Dias 2017). Teachers are indispensable as an active supporter (scaffolding) for children when facing difficult tasks in their physical exercise. (Patrizia et al. 2019). Some forms of teacher involvement in children's games are also categorized by Altun as a planner/organizer, as an observer/guide, as a play partner and as a non-involver. (Altun 2018). Jung adds that when playing with children teachers can engage as observers, advocates, commentators, translators, play followers, facilitators, game leaders, safety/conflict managers, and multiple role takers. (Jung 2013) In line with this opinion, the teacher can take a position as a stage manager and facilitator, namely compiling and providing play materials, designing play areas, playing time, playing rules, deciding what activities are in the game and how teachers can stay connected in the game. game in progress.(Kontos 1999).

As previously explained, the success of children's physical literacy development greatly depends on people who are close to them. The active involvement of teachers in active play will actually provide a stimulus for optimal children's development; however, passive teachers lose great opportunities in carrying out professional duties as educators because they fail to contribute to children's growth and development. Therefore, it is essential to find out how the real influence of teacher involvement in active play on children's physical literacy, especially those teachers who do not have a background in physical education.

Materials and methods

This study aims to determine whether there is a significant difference between the level of physical literacy achievement of children who are in the high teacher involvement in active play group compared to those in the lower one. This is an ex post facto study that uses a non-experimental design with the independent variable of teacher involvement in active play to show causes and effects on children's physical literacy.

Participants

The sampling in this study used a convenience sampling technique by recruiting 94 students (5–6-year-old children), who were undergoing education at 5 institutions of early childhood education, and 15 teachers in Jambi City, Jambi Province, Indonesia.

Procedure and instruments

The teacher involvement in active play data were obtained through a questionnaire in the form of teacher self-assessment, which was adapted from the work of Silver Strong (Silver Strong & Associates 2011). Teacher involvement is assessed based on his/her role as: (1) stage manager of playing activities; (2) observer and recorder of playing activities; (3) facilitator; (4) role model; (5) motivator of play activities; (6) and play partners in games in an effort to develop children's motor skills. There are 5 categories of roles that the teacher can choose based on his/her experience in the field, i.e.; not playing a role (score 1), beginner role (score 2), skilled role (score 3), expert role (score 4) and senior expert role (score 5). Teacher involvement is categorized as high if the teacher is at least performing a skilled role (score 3) for all of his roles in active play. Meanwhile, children's physical literacy was determined using physical literacy instruments that were adapted and modified from the Preschool Physical Literacy Assessment (Pre-PLAY) tool (Cairney et al. 2018). The achievement of children's physical literacy is assessed from three aspects known as movement competence, coordinated movement ability, motivation and enjoyment of physical activity. Observation of the assessment was performed when children underwent active play activities with their teachers in a structured or unstructured manner for at least 5–6 days using active play facilities at early childhood institutions.

Data collection and analysis

Then, the data were tested for the requirements, which included a (a) normality test with the Liliefors technique and a (b) homogeneity test using the Bartlett technique. Independent sample t-test was used to identify differences between groups A_1 (high teacher involvement) and A_2 (low teacher involvement).

Result

The results of observations of 94 respondents in 5 institutions of early childhood education showed that 73 children in the high teacher involvement in active play group (group A_1) attained the mean score of physical literacy of 114.61. Meanwhile, 21 children in the low teacher involvement in active play group (A_2 group) attained the mean score of physical literacy of 96.33. Thus, the mean score of children's physical literacy in the high teacher involvement in active play group was higher than that in the group with low teacher involvement. The results of hypothesis testing show that the physical literacy achievements of children in the high teacher involvement group A_1 significantly differ from those in the low teacher involvement group A_2 because the significant value is less than 0.05 as shown in Tables I and II.

Table I. Tukey's test of high (A_1) and low (A_2) teacher involvement in active play

| | Group Statistics | | | | |
|--------------------------------|------------------|----|----------|----------------|-----------------|
| | G1 | N | Mean | Std. Deviation | Std. Error Mean |
| A ₁ _A ₂ | 1 | 73 | 1.1495E2 | 11.21989 | 1.31319 |
| | 2 | 21 | 96.3333 | 4.78888 | 1.04502 |

Table 2. Independent sample test on teacher involvement in active play

| Independent Samples Test | | Levene's Test for Equality of Variances | | T-test for Equality of Means | | 95% Confidence Interval of the Difference | | | | |
|--------------------------------|-----------------------------|---|------|------------------------------|--------|---|-----------------|-----------------------|----------|----------|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| A ₁ _A ₂ | Equal variances assumed | 16.235 | .000 | 7.388 | 92 | .000 | 18.61187 | 2.51926 | 13.60840 | 23.61534 |
| | Equal variances not assumed | | | 11.090 | 78.595 | .000 | 18.61187 | 1.67825 | 15.27113 | 21.95262 |

The results of this test show that there were differences in physical literacy data between students in the high teacher involvement in active play group and those who were in the low teacher involvement group. The distribution of physical literacy scores of children who were in the high teacher involvement in active play group was approximately 74.63%, which meant that children's physical literacy was prominent, and the remaining 25.37% of children were still in the limited physical literacy category. In contrast, in the low teacher involvement in active play group, there were only 6.1% of children with prominent physical literacy, and the remaining 94% of children knew that they had limited physical literacy, as illustrated by Figure 1.

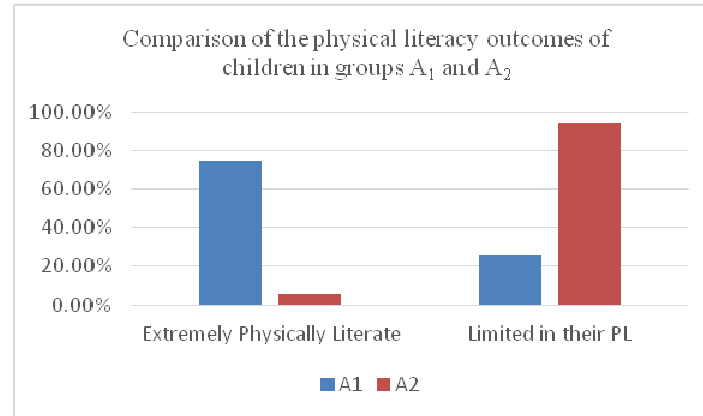


Fig. 1. Comparison chart of children's physical literacy outcomes in the high (A_1) and low (A_2) teacher involvement in active play groups

Based on the distribution of children's physical literacy scores between groups with high and low teacher involvement, it can be seen that there were still 6.1% of children whose physical literacy scores were categorized as prominent in groups where the teacher involvement in active play was low. In contrast, there were still 23.57% of children with limited literacy scores even though the teacher involvement was high in active play. The existence of 6.1% of children with prominent physical literacy was observed because there were many opportunities where children spontaneously created active play activities using what they found, which affected the achievement of their locomotor abilities such as running, climbing, hanging, jumping and sliding. Teachers were very rarely or even never involved in designing active play activities and fully gave children freedom to perform activities according to their wishes. The teachers only supervised and helped if the child asked for help. However, children in the low teacher involvement in active play group appeared to be poorly trained in some stability movements such as standing on one leg, playing hopscotch or games that required them to control objects such as playing rope, dribbling with their feet or playing basketball, even though they were enjoying the game and did not hesitate to get involved.

Meanwhile, there were approximately 17 children (23.57%), who were still categorized as having limited physical literacy even though they were in groups where the teacher involvement was high in active play. From a total of 17 children, 9 of them were spread across 2 institutions with special active play schedules. Active play activities could not occur all the time owing to limited space to play; thus, children lost an opportunity to intensively upgrade their motor skills. This clearly reduced the opportunity for children to perform active play activities during their break time. Then, the remaining 8 children were spread across 3 institutions without any restrictions on active play, and the teacher also stimulated the children with a variety of rich active play experiences. This required further investigation into what caused the development of children's physical literacy to not increase optimally even though they also had considerable opportunities for active play and they were in the care of teachers with high involvement in it. This is why it is stated that physical literacy is a complex construction that is affected by various internal factors such as children's physical condition, behaviour, affective and cognitive development as well as external factors such as the opportunity for organizing physical activity for the children, attitudes and expectations from those who are closest to them and cultural background (Belanger et al. 2018; Longmuir and Tremblay 2016).

Discussion

The higher children's physical literacy score in the high teachers' involvement in active play group compared to that in the lower one shows that the active involvement of educators is essential. A similar result was also obtained by Tandon et al., who showed that active teachers' involvement increased children's physical activity and reduced sedentary behaviour (Tandon, Saelens, and Christakis 2015). The test results in this study show that teacher involvement significantly affected the development of children's physical literacy where children who got support and guidance from the active role of teachers had better average score than those who did not get such support. Ozgunlu and Veziroglu Celik suggest that when teachers are appropriately involved and

provide appropriate feedback and reinforcement during play, this supports children's learning and development. Teacher's active observation during play is important for overcoming problems faced by children while playing without disturbing the nature of the playing process; teacher's active observation supports and strengthens children's development and learning (Özgünlü and Veziroğlu Çelik 2018). Basically, play is a way for children and even adults to learn. Fun games allow children to explore and practice new skills. The involvement of teacher facilitates his/her role as a model in exemplifying how to use various play tools and actively supervising the safety and security of playing children. Good and warm relationship between the teacher and children is the main purpose of developing physical literacy. Even though the games are initiated by children, the teacher support them through encouragement and challenges the children to try new things that test the limits of children's skills (Early Years Physical Literacy Research Team 2017).

The involvement of adults in the play environment is an important aspect to be the focus of attention related to their role in developing or evaluating interventions to facilitate children's social skills, physical competence and creativity and how they design active games that accommodate the needs and uniqueness of children in different contexts and with different groups of children (e.g., gender differences and children with special needs) (Sandford et al. 2015b). Based on the above mentioned discussion, it can be concluded that the results of this study are relevant to the existing research. The significant difference between high and low teachers' involvement in active play on children's physical literacy is confirmed. The school age group (5–11 years old) is recognized as a critical period in the development of physical activity patterns and healthy lifestyle behaviours. High-quality physical education is important for developing lifelong physical activity behaviours that are highly dependent on interactions between teachers and students (Morgan et al. 2018). Children can build this strong foundation in physical literacy through active play to achieve optimal physical competence (Maude 2013). Therefore, physical activity should always be an enjoyable part of children's daily life, and active play in a safe and attractive environment is the best way to keep children physically active (Canadian Paediatric Society 2008). To achieve this development, children need support, guidance and encouragement through various tasks according to their stage of development to be able to proactively participate in gaining the needed skills (Macnamara, Collins, and Giblin 2015).

Thus, high teacher involvement in active play affected children's physical literacy in 5 institutions of early childhood education compared to that with low teacher involvement. It is clear that children who are well stimulated by the highly involved in active play teachers show better achievements in movement competence, ability to perform coordinated movements as well as motivation and enjoyment with physical activities compared to children who are in a group with teachers whose involvement in active play is low, in which they do more spontaneous active play activities because teachers are more likely to let children choose their own games and do them as they like. In fact, according to Vidoni et al., in an effort to develop physical literacy in early childhood, teachers can design 2 types of physical activity, i.e., structured and unstructured activities so that children get a variety of playing experiences (Vidoni, Rivera, and Sato 2015).

The findings in the field show that teachers practice mostly unstructured physical activity because they are considered not requiring much preparation and involvement. Although these two types of physical activity are recommended for the development of children's physical literacy, Roach argues that free play is not an adequate way to improve movement skills; in contrast, the use of structured play programs is a very useful approach for developing movement skills in preschool children (Roach 2016). In essence, teachers cannot rely on only one type of physical activity for the development of children's physical literacy because the development of basic movement skills, which is one of important elements of physical literacy, requires teacher support and guidance so that children correctly perform the movements. If the teachers only observe and get involved only when they see problems in the field, the children are less well-stimulated, which will affect their non-optimal performance in three aspects of basic mobility, i.e., stability, locomotor and manipulative abilities.

Limitation

The limitation in this study is that generalizing conclusions cannot be made because the study applies only casuistically to the selected respondents with several specified criteria and limited number of participants

Conclusions

The physical literacy of 5–6-year-old children in the high teacher involvement in active play group (A₁) is more prominent than that in the group of children where the teacher involvement is low (A₂). The results of statistical tests show that the hypothesis, which states that there are differences in physical literacy data between children in the high teacher involvement in active play group and those who are in the low teacher involvement group, is proven. The percentage of children with prominent physical literacy achievements in the high teacher involvement in active play group is indeed much higher than those with limited physical literacy. The involvement of teachers in active play should not be limited to supervising or simply providing tools to play. Teachers can be more optimally involved by performing other supporting roles such as a stage manager (planner), observer, recorder, motivator, facilitator, model and play partner for children. Although the teachers may not have a physical education background, their high involvement in these 6 roles significantly contributes

to the development of movement competence, coordinated mobility, motivation and enjoyment of children with active play. These are three basic elements that determine the optimal development of physical literacy because they will become the basics for children to love physical activity and have the desire to actively participate in it throughout their life. The authors of this study recommend that future studies measure and compare the suitability of physical literacy achievement with physical activity because the condition of children's physical literacy reflects how their daily physical activity is performed. It is important to determine using more objective measuring instruments (such as heart rate measurement as well as an accelerometer or pedometer) whether children meet the recommended physical activity requirements per day and adhere to screen time restrictions.

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