



Basic Motor Ability: Aquatic Learning for Early Childhood

Lutfi Nur^{1✉}, Anne Hafina², Nandang Rusmana³, Dodi Suryana⁴, Arief Abdul Malik⁵

Universitas Pendidikan Indonesia, Indonesia¹²³⁴

Universitas Siliwangi, Indonesia⁵

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Abstract

This study aimed to determine the impacts of aquatic learning on the basic motoric abilities of early childhood. Experimental research of one group pretest-posttest design was applied in this study. This study involved eight kindergarten students: aged 5-6 years. This study was conducted twice a week for 4 weeks; 60 minutes per meeting. The instruments were structured observation, field notes, and documentation of the child's basic motor consisting of 9 aspects, namely water orientation, water entry, breath control, body position, buoyancy, arm propulsion, arm recovery, leg action, and combined movement. The data analysis technique used was paired sample t-test. The results showed an increase in basic motor skills of early childhood with $P < 0.05$. From 9 aspects of assessment, the aspect of arm propulsion got the highest increase of 31.25% while the water orientation aspect got the lowest increase of 16.7%. The highest achievement of all aspects is achieved in the aspect of water orientation, which indicates that all children can do it well. Therefore, there was a positive influence of the provision of aquatic learning on improving basic motor skills for early childhood.

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✉ Correspondence address :

Jl. Setiabudhi No.229, Isola, Sukasari, Isola, Sukasari, Kota Bandung, Jawa Barat 40154, Indonesia

E-mail: lutfinur@upi.edu

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INTRODUCTION

Motoric ability is defined as a stable situation of motoric system related to the implementation and demonstration of a relatively inherent skill after childhood phase (Lutan, 1988). The influence of biological factor is considered as the main force that influences a person's basic motor skills in spite of age, sex, and body mass composition (Early and Sharpe, 1970; Pissanos, Moore, and Reeve, 1983; Hands, McIntyre, and Parker, 2018). Therefore, this motoric ability plays a role as a foundation for one's skills (Lutan, 1988).

Early childhood has great potential in motor development, especially basic motor skills, therefore, they need to be trained in order to develop optimally (Langendorfer and Lawrence, 1995). At an early age, children prefer playing than anything else so that it is the right stage to introduce them to water activities (Susanto, 2009). Aquatic learning is a learning activity done in the water as media such as swimming pools or various other water media that can be used as a mean of physical activity (Ishak, 2016). Aquatic learning at an early age aims to introduce children to have a pleasant experience in aquatic activities, dare to recognize risks in water activities, and learn the basic movements in the water (Susanto, 2012). This is in line with the aim of early childhood education that helps develop all the potential such as physical, intellectual, emotional, moral and religious since they are birth to 6 years old optimally in comfortable, democratic and competitive educational environments (Permendikbud, 2014).

The implementation of the aquatic learning in the schools cannot be done continuously due to various considerations such as curriculum, methods and evaluations, and learning facilities as well. However, aquatic learning needs to be taught at an early stage. Furthermore, Langendorfer, (1986) revealed that there were pros and cons in the aquatic learning concerned by parents for example the swimming pool standards which may be like the level of depth, water temperature, as well as the atmosphere: too noisy and crowded. Thus, these can affect optimal aquatic learning carried out by most infants and children.

In some developed countries, preschool aquatic programs focus more on the introduction of motor aspects in water as a basis for basic swimming skills (Susanto, 2009). Children are not taught to be great swimmers, but to be able to survive in the water independently and enjoy the activities carried out. Langendorfer, (1990) revealed that the early childhood aquatic learning

process is inseparable from the development of their potentials through three domains namely basic psychomotor skills, basic attitude, and basic understanding. Thus, it is very important to know the benefits of aquatic learning in developing children's potential.

Previous studies stated that aquatic learning was applied to improve motor skills and social abilities for children with special needs (Pan, 2010), and was used as a program to introduce safety in water (Alaniz et al., 2017). However, these studies were still limited to the characteristics of certain samples. This study aimed to investigate at the effect of aquatic learning on basic motor skills in early childhood. This study was considered important to reveal more comprehensively about the contribution of aquatic learning in developing the potential of early childhood.

METHODS

This study was an experimental design in the form of one group pretest-posttest design (Creswell, 2009). Eight students aged between 5 until 6 years of kindergarten in Laboratorium Percontohan UPI Kampus Tasikmalaya were selected purposively: 5 males and 3 females.

This study was conducted for 4 weeks; twice a week lasting 60 minutes per meeting. Every meeting involved (1) preliminary activities (warming up and explanation of learning instructions) for 15 minutes; (2) core activities with 30 minutes of aquatic learning material; and (3) closing activities (cooling down and evaluation) for 15 minutes.

The instruments used in this study were structured observation, field notes, and documentation of the child's basic motor which included water orientation, water entry, breath control, body position, buoyancy, arm propulsion, arm recovery, leg action, and combined movement (Susanto, 2014). Furthermore, the data were analyzed by using paired sample t-test technique through the SPSS version 23 program.

RESULTS AND DISCUSSION

The result of the pretest and posttest of the early childhood motoric basic ability can be seen in **Table 1** as follow :

The score total of the pretest gained by the participants was 130, while the posttest score total was 208, with a difference of 78. The average pretest score was 16.25 and posttest was 26, with a difference of 9.75. The minimal score of

the pretest and posttest were 8 and 19; meanwhile the maximal scores of pretest and posttest were 28 and 36.

In addition, the percentage of early childhood basic motoric development can be seen in figure 1. There were 9 evaluation aspects consisted of water orientation (A1), water entry (A2), breathe control (A3), body position (A4), buoyancy (A5), arm propulsion (A6), arm recovery (A7), leg action (A8), and combined movement (A9).

Table 1. The result of the early childhood motoric basic ability

	Pretest	Posttest	Gain
Total	130	208	78
Mean	16,25	26	9,75
Deviation Standard	6,36	5,55	1,91
Minimal Score	8	19	
Maximal Score	28	36	

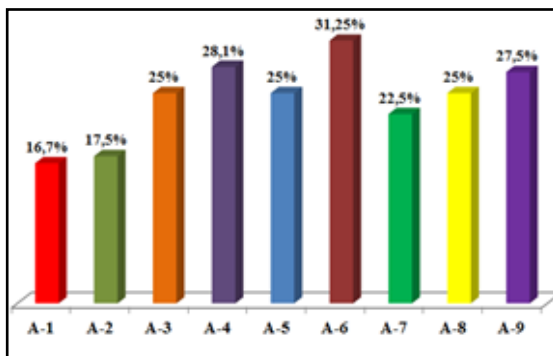


Figure 1 the percentage graphic of the basic motoric development based on the evaluation aspects.

Based on **Figure 1**, it showed that the evaluation aspect of water orientation (A1) was the lowest score with 16.7%. This happened because it already got a high score at the pretest session. Meanwhile, the evaluation aspect obtaining highest score was arm propulsion (A6) with 31.25%.

The percentage graphic on the early childhood basic motoric development on figure 2 showed the participants' pretest and posttest scores. It displayed that participant number 4 got the highest posttest score with 90%. Meanwhile, the highest different score between pretest and posttest were obtained the participant number 2 and 8 with the ability improvement of around 30 %.

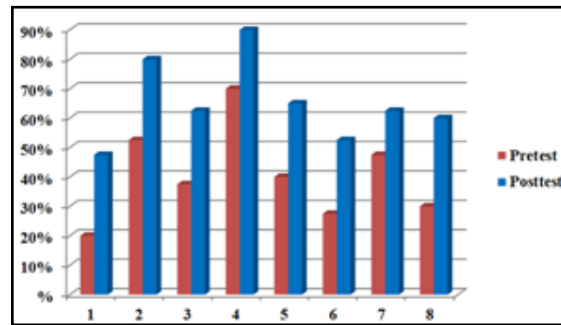


Figure 2. The percentage graphic on the early childhood basic motoric development based on the evaluation of the participants.

Based on the aforementioned result of this study, it showed that there was a positive improvement from the pretest to the posttest. This reflected that the treatment given to the participants gave effects to the children's motoric development. But, it was still too early for the researchers to make this as the foundation to take a conclusion since it needed the hypothesis test with paired sample t-test technique to prove it.

Table 2. The result of data analysis of the early childhood basic motoric

Analyzed Data	Result
H0 Reject Criteria	• t count > t table • sig. < 0,05
t-count	14,449
t-table	1,894
Sig (p)	0,000
Conclusions	H0 rejected

From **Table 2**, it can be seen that the result of the data analysis revealed that H0 was rejected. It meant that there was an influence of aquatic learning treatment toward the basic motoric ability on the early childhood. Through the planned learning, the abilities of each participant in the learning process run as expected. Aquatic activities gave the students experience to play in the new atmosphere by observing by their teachers and parents as well. Overall, aquatic learning is related to motion activities, which starts from the beginning of the child's learning to warm up, go down the stairs, walk freely along the width of the pool, put face into the water, play water and be taught basic swimming.

The same statement was stated by Rocha, et al. (2018) that the implementation of aquatic

or swimming exercises gave a positive contribution to the basic skills of children's swimming. This can be seen from the increase in the score of initial and final observations regarding the basic motor skills of children in aquatic learning. In addition, based on field notes from each meeting, the child's ability to develop seems like children who were initially afraid to enter the pool but after being treated, they were brave enough to do it themselves. Other findings, they could do the other activities such as putting their face into the water, controlling their breath, floating, walking in the water balance, showing the movement of arms and legs in a simple manner and a combined movement.

Strengthening the research findings, Ishak (2016) revealed that aquatic learning approaches had a greater influence than conventional learning approaches in improving swimming abilities and skills. Moreover, Costa, et al. (2012) suggested the use of a shallow pool in developing basic abilities in early childhood. Preschool aquatic learning model is strongly recommended to be implemented at the age of 4-6 years since it has good results in early childhood psychomotor improvement (Susanto, 2012).

Based on predetermined assessment indicators, overall it showed a significant increase in children's basic motor development in aquatic learning. The highest achievement occurred in the aspect of water orientation, all children were able to do it well. However, the achievement of learning outcomes related to the combined movements is still not optimal.

CONCLUSION

Based on the findings and discussions, it can be concluded that aquatic learning can be implemented at the early childhood to improve their basic motoric ability. Teachers' and parents' attentions are needed to observe them when learning. It is expected that further study can involve many participants and differentiate this learning approach with another one to investigate the further affects.

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