Journal of Education and Learning (EduLearn)
Vol. 13, No. 2, May 2019, pp. 263~267
ISSN: 2089-9823 DOI: 10.11591/edulearn.v13i2.12184

The integration of imagery training to increase gymnastic skill learning outcomes

Aqim Visalim[1], Sri Winarni[2], Tri Ani Hastuti[3]
[1,2]Master's Program, Yogyakarta State University, Indonesia
[3]Faculty of Sports Science, Yogyakarta State University, Indonesia

Article Info

Article history:

Received Jan 7, 2019
Revised Mar 8, 2019
Accepted Mar 24, 2019

Keywords:

Cartwheel
Imagery training
Learning outcomes

ABSTRACT

Imagery training had been proven to improve skills in some athletes in sports training. Yet in education, it left a big question. The purpose of this research was to prove whether the learning process integrated by imagery training could improve learning outcomes in cartwheel skill. The research method used Classroom Action Research method with two cycles. Each cycle consisted of four stages, namely: preparation, implementation, observation, and reflection. The action was conducted by the integration of imagery training in learning cartwheel motion. Data collection techniques used observation and performance test. The increase of learning outcomes in skill aspects of 34 students reached 58.82% in the first cycle, and increased to be 76.67% in the second cycle. The result of the study showed that through learning process integrated by imagery training could improve learning outcomes in gymnastic material about cartwheel skill.

Corresponding Author:

Aqim Visalim,
Master's Program in Sports Sciences,
Yogyakarta State University,
Jalan Colombo No.1, Karang Malang, Caturtunggal, Depok, Sleman, D.I Yogyakarta, Indonesia.
Email: aqim.prakoso@gmail.com

1. INTRODUCTION

The main theoretical insight that appears to inform epistemic and pedagogical reason to know students learning outcomes is in explicit references of Benjamin Bloom's taxonomy [1] and the principles of functional analysis, especially for the six learning categories, namely: knowledge, understanding, application, analysis, synthesis, and evaluation. The first three abilities, namely: knowledge, understanding, and application, are categorized as low cognitive level. While the three other abilities, namely: analysis, synthesis, and evaluation are referred to as high cognitive level. Besides Bloom's cognitive study, there are attempts to include affective taxonomies (i.e. Bloom, Masia, and Krathwohl) [2] and psychomotor (i.e. Dawson) [3]. The affective domain includes acceptance, attention, response, adjustment, appreciation, and unification. The psychomotor domain includes imitation (modelling), usage, accuracy, coordination, and naturalization. In this article, learning outcomes that will be reached as the goal is the results of learning skill (psychomotor).

The psychomotor assessment has specific goal to assess students' physical skills where rough muscles and smooth muscles are used to express or interpret information. Psychomotor learning outcomes stated by Simpson (1956) is that psychomotor learning outcomes appear in the form of skill and ability to act on students [4]. This psychomotor learning outcomes is the continuation of cognitive learning (understanding object) and affective learning outcomes (which only appears in the form of tendencies to behave) [5, 6]. It means that students will not be able to perform the motor skill if they do not have knowledge about this skill. Therefore, this research also centers on observational learning theory where cognition can improve the ability to dynamically explore and influence the environment for desired results.

The observational learning theory specifies several stages of imitation (modelling), namely: attention, retention (memory), reproduction (repetition), and motivation [7]. The attention process occurs when an individual obtains information from an environment. The information obtained is then selected and overwritten in memory; this process is called as retention. The information considered important is stored and will be re-emerged when needed in the future. This information will be emerged by students when needed.

Taktek (2008) in his study obtains information that imagery is useful for maximizing retention [8]. Imagery is a simulation form using all senses but the whole experiences occur in the mind [9-11]. In other words, imagery is re-emerged stored memory in a meaningful image by involving senses such as visual, kinaesthetic, hearing, touch, and smell. Imagery is a cognitive training without a physical motion to imagine the sport performance in the mind. Strong imagination leads to the creation of nerve impulses similar to the real performance, for imagery is a brain language. In a real sense, the brain cannot distinguish between actual physical event and clear imagination of the similar event. Therefore, imagery can be used by brain to provide strong repetition, elaboration, intensification, and sequence of skill execution [9, 12].

Imagery and video modelling can improve understanding, and then memory retention can be performed on students learning about a certain skill and needed to obtain motor skill [13]. Students who have retention about a certain skill can perform that skill according to their retention; this process called as production process. The success of students in conducting a certain skill and added with the strengthening of the environment will make a motivation for students.

Further, the researcher integrates imagery training in conveying cartwheel motion material in gymnastic learning. In sports, the systematic use of imagery has been recognized as a medium to facilitate the increase of performance through skill and strategy learning [9, 12, 14-16]. The result of Ay, Halawaweh, and Al-Taeib's research (2013) states that the combination of imagery and physical trainings in learning process can improve students' motor skill [17]. The result of the research reinforces the theory that imagery is useful for an individual learning a certain motion.

This learning process becomes a reference in facilitating students to master cartwheel motion. The attention will be maximized by an explanation from the teacher and video presented in the beginning of the lesson. The retention will be maximized by imagery training. Further, it is expected that students can conduct the production process by performing cartwheel motion according to the correct technique. As motivation, the teacher will help students to correct their mistakes that still occur and provide a positive reinforcement when students are able to perform cartwheel motion correctly.

In performing the imagery training, it needs a training program in order to improve individual ability [18]. The similar opinion is also stated by Guillot and Collet who state that the script imagery training is strategy that must be prepared when implementing imagery training program, the script will determine the success of imagery training [19].

2. RESEARCH METHOD

The research conducted was Classroom Action Research (CAR). The cycle design in this research used Kemmis model consisting of preparation, implementation, observation, and reflection [20]. The research analysis was carried out in a qualitative descriptive. Research subjects were the eighth grade students of SMP (Junior High School) Negeri 7 Yogyakarta totaling 34 students. The action conducted was the integration of imagery training in cartwheel learning. The imagery training program used to train cartwheel motion in gymnastics learning was organized into three stages. The initial stage was to train cartwheel motion in gymnastic learning. The second stage was to tie the keywords and imagine cartwheel motion. While the third stage contained of cartwheel motion training with trigger words. The retrievals of data research were through performance test using performance instrument of cartwheel skill and observation using observation implementation learning sheets. The performance test was conducted on the assessment of learning outcomes on cartwheel skill with an instrument in the form of a checklist. The observation was conducted during the on-going learning process to find out the implementation of the learning.

3. RESULTS AND ANALYSIS

3.1. First cycle

The result of this research is conducted in two cycles whereas each cycle consists of two learning meetings. The result of cartwheel skill learning in the first cycle (see Table 1) shows that only 20 students reaching the completeness criteria, or around 58.82% of total students. It is because students seem to not understand on how to perform imagery training. The learning with integration of imagery training is a new method for students. The low level of understanding in students about imagery causes them not to understand the function of imagery training, thus they cannot utilize imagery training completely. The other obstacle in

implementing the first cycle is the fear of students when performing cartwheel motion. It is seen when students are instructed to perform cartwheel motion. There are some students who need to be always exemplified before they perform it, and some perform it carelessly due to high fear. However, this condition is diminished during the second meeting. The possibility happens because before the implementation is conducted, students have never performed cartwheel motion. In the first meeting, the teacher requires all students to try performing cartwheel motion; it makes them more willing to perform it in the second meeting.

Table 1. Data distribution of learning outcomes skill in the first cycle

Explanation	Result	Percentage
Complete	20 students	58.82%
Incomplete	14 students	41.18%
Total	34 student	100%

3.2. Second cycle

The success of the criteria in the first cycle has been not yet fulfilled, thus it drives the research continued to the second cycle as shown in Table 2. From the result of the reflection activity in the first cycle, the researcher and collaborators compile a plan for an improvement. The planning compiled is conducted in two actions.

Table 2. The reflection result of the first cycle and its improvement in the second cycle

Reflection Result of the First Cycle	The Improvement in the Second Cycle
The low level of understanding in students about imagery training occurs because the teacher's explanation about it is not sufficiently understood by students.	The teacher plays a video model on how to perform imagery training in gymnastics.
Many students show their fear when performing a cartwheel motion.	The teacher provides an LCD used for the learning so students can freely watch the video model about a cartwheel motion and assist them in analyzing the incorrect motion.

From the data above, the information obtained is that after conducting observation and reflection in the first cycle, a compiled plan will be conducted in the second cycle. Based on the observation, the improvement result conducted shows that the learning in the second cycle works better and more effective by explaining the process of how to perform imagery training. Moreover, the video display of imagery training model is used to give more understanding for students about what they should do when performing imagery training.

Furthermore, with the provision of LCD during the implementation of learning process to watch the video motion model, it facilitates students in analyzing their mistakes and making improvement towards their mistakes. This process is called as observational learning initiated by Albert Bandura. In this process, students experience the process of anthesis, retention, production, and motivation [7]. After watching the video model, students have knowledge about the correct cartwheel motion; this process is called as atensional. Students' activity in storing important information in their effort to perform their skills is called as retention process. The information obtained will be emerged when students perform the cartwheel motion; this process is called as production. Further, when students succeed in performing the cartwheel motion correctly, a motivational process will occur. In this process, students will be motivated to perform the cartwheel motion well, as their understanding in accordance with the motion seen in the video model.

Table 3. Data distribution of learning outcomes skill in the second cycle

Explanation	Result	Percentage
Complete	26 students	76,47%
Incomplete	8 students	23,53%
Total	34 student	100%

The data distribution of learning outcomes skill in the second cycle (see Table 3) shows that there is an increase of learning outcomes skill in cartwheel with the completeness criteria about 26 students or 76.47% of total students. It is because the learning process in the second cycle has more effective and efficient learning time due to the high level of students understanding on imagery training program and keyword, when performing cartwheel skill. Students also learn to analyze other students' mistakes thus when

they perform cartwheel motion, they do not make the similar mistakes. Students who are able to analyze other students' motion and correct the mistakes indicate that these students have a good understanding. It is in line with Bloom's taxonomy theory which shows that the peak stage of the learning process is the ability to evaluate [21].

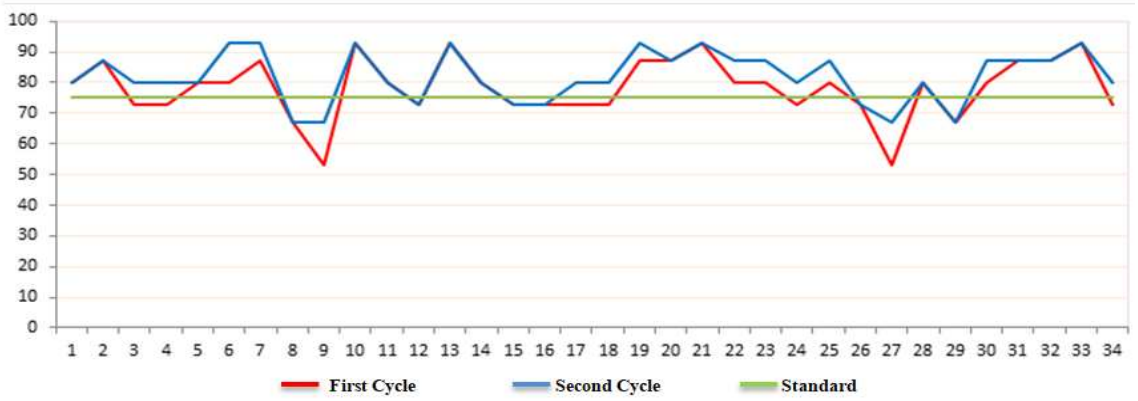

Figure 1. The graph of improvement of learning outcomes skill in cartwheel

The overall results conducted show that there is an increase of learning outcomes skill in cartwheel in each student (see Figure 1). It proves that cartwheel skill in each student can be enhanced through imagery training.

4. CONCLUSION

The integration of imagery training in learning process of sports and health physical education can improve skills to the eighth grade students of SMP (Junior High School) Negeri 7 Yogyakarta. The increase that occurs in skill aspects can be known from the first cycle reached 58.82%, while on the second cycle, it becomes 76.67%.

The result of this research can be used by teachers as reference in the use of effective learning method to improve students learning achievements. Teachers are suggested to use integrated method of imagery training combined with scientific approach. In addition, the success of students learning is also influenced by internal factors such as students' understanding about the motion and their courage in implementing skill. Teachers must provide understanding to students about skill that will be taught thus they are able to understand and implement its understanding in skill activity.

ACKNOWLEDGEMENTS

This research is conducted because of the assessment of several contributing parties, such as teachers and students from the school used as the research sample, collaborators for helping the research process and supervisors for always guiding researchers in this article.

REFERENCES

[1] Bloom, B., M. Engelhart, E.J. Furst, W. Hill, and D. Krathwohl, *Taxonomy of educational objectives volume I: The cognitive domain*, ed New York: McKay Publishers, 1956.
[2] Bloom, B., B. Masia, and D. Krathwohl, *Taxonomy of educational objectives volume II: The affective domain*, ed *New York: McKay Publishers*, 1964.
[3] Dawson, W., *Extensions to Bloom's taxonomy of educational objectives,* ed Sydney: Putney Publishers, 1998.
[4] Simpson, E.J. "The classification of educational objectives, psychomotor domain," *Illinois Teacher of Home Economies*, vol. 10, pp. 110-144, 1966.
[5] Rintala, P., Pienimäki, K., Ahonen, T. I. M. O., Cantell, M. A. R. J. A., and Kooistra, L. I. B. B. E., "The effects of a psychomotor training programme on motor skill development in children with developmental language disorders," *Human Movement Science*, vol.17, no. 4-5, pp.721-737, 1998.
[6] Bushnell, E. W., & Boudreau, J. P., "Motor development and the mind: The potential role of motor abilities as a determinant of aspects of perceptual development," *Child development*, vol.64, no. 4, pp.1005-1021, 1993.

[7] Hergenhahn, B., R., and Olson, M., H, *Theoris of learning*, *s*even edition, ed Jakarta: Kencana, pp. 367, 2008.
[8] Taktek, K., Zinsser, N., and St-John, B, "Visual kinesthetic mental imagery: Efficacy for the retention and transfer of a closed motor sklill in young children," *Canadian Journal of Experimental Psychology*, vol. 62, pp. 174-187, 2008.
[9] Cox, R. H., *Sport Psychology: Concept and Applications*, ed New York: McGraw-Hill, 2011.
[10] Cumming, J., and Ramsey, R. "Sport imagery interventions," in *S.* Mellalieu and S. Hanton (Eds.), *Advances in applied sport psychology: A review*, ed London: Routledge, 2009.
[11] Morris, T., Spittle, M., and Watt, A. P., *Imagery in sport*, ed Champaign: Human Kinetics, 2005, pp. 120.
[12] Ampofo-Boateng, K. *Understanding sport psychology,* ed Selangor, Malaysia: UPENA, 2009.
[13] Stewarts, S. M. "The effects of mental imagery, video modeling, and physical practice on the rate of acquisition of a new figure skating sklill," Tesis master, Universitas of Alberta, 2006. MAI 44/05, 96.
[14] Cumming, J., and Williams, S. E. "The role of imagery in performance,", in *S. Murphy, Handbook of sport and performance psychology*. ed New York: Oxford University Press, 2012.
[15] Doussoulin, A., and Rehbein, L., "Motor imagery as a tool for skill training in children," *Motricidade, vol.* 7, pp. 37-43, 2011.
[16] Mousavi, S.H., and Meshkini, A., "The effect of mental imagery upon the reduction of athletes anxiety during sport performance," *International Journal of Academic Research in Business and Social Sciences*, vol. 1, no. 1, pp. 342-346, 2011.
[17] Ay, K. M., Halawaweh, R. S., Al-Taieb, M. A., "The effect of movement imagery training on learning forearm pass in volleyball," *ProQuest,* vol. 134, pp. 227-239, 2013.
[18] Rattanakoses, R. G. "Effect of imagery practice program on imagery ability in Thailand adolescent cyclist," *International Journal of Academic Research in Business and Social Sciences*, vol. 2, pp. 114-133, 2012.
[19] Guillot, A., and Collet, C. "Construction of the motor imagery integrative model in sport: A review and theoretical investigation of motor imagery use," *International Review of Sport and Exercise Psychology*, vol. 1, pp. 31-44, 2008.
[20] Arikunto, S., *Classroom action research* (in Bahasa), ed Jakarta: PT Bumi Aksara, pp. 16, 2012.
[21] Arikunto, S., *Basics of educational evaluation* (in Bahasa), ed Jakarta: Bumi Aksara, pp. 2-3, 2013.

BIOGRAPHIES OF AUTHORS

Aqim Visalim was born in Kebumen. He is graduated from Physical Education, Health and Recreation study program in Sebelas Maret University, Surakarta in 2016. He is currently taking his master program on Sports Sciences study program with the concentration Sports Education in Yogyakarta State University. He also receives the title "Guru (Gr.)" or called as profesional teacher in Teacher Profesional Education program in Yogyakarta State University in 2018. He has been actively doing and publishing researches since 2016.

Sri Winarni was born in Banjarnegara. She is graduated from Sports and Health study program in IKIP Bandung in 1994. She receives her master title with the study program Sports Education in 2003 and doctorate title with the similar study program in 2012 in UPI Bandung. Currently, she is working as a teaching staff (lecturer) in the Faculty of Sports Sciences both for Bachelor and Master Programs with the expertise "Development of Physical Education Curriculum at School"

Tri Ani Hastuti was born in Klaten. She is graduated from IKIP Yogyakarta with the study program Sports Education in 1999. She receives her master title in Yogyakarta State University with the study program Management Education in 2008. Currently, she is taking her doctorate education in Semarang State University with the study program Sports Education. She is working as a teaching staff (lecturer) in Yogyakarta State University in the Faculty of Sports Sciences with the expertise "The Facilities and Infrastructure of Physical Education)".