

Improving the Imaginative Ability of High School Students through the Inquiry Teaching Model in Physical Education

Ega Trisna Rahayu¹ and Adang Suherman²

¹University of Singaperbangsa Karawang, Karawang Indonesia

²Faculty of Sport and Health Education, Universitas Pendidikan Indonesia, Jln. Dr. Setiabudhi, Bandung, Indonesia
ega.trisna.rahayu@staff.unsika.ac.id

Keywords: Imaginative Ability, Inquiry Teaching Model.

Abstract: The purpose of this research is to identify and analyze comprehensively the students' imaginative ability through the application of inquiry teaching model in physical education which is expected to give a positive achievement of curriculum goal. The method used to reveal the research problem is the experimental method, with the design of The Randomized Pretest-Posttest Control Group Design. The implementation of the treatments was done which coming from two companion selected schools, namely SMA Negeri 6 Bandung and SMA Pasundan 8 Bandung, West Java, Indonesia. The sampling technique used is Cluster Random Sampling. The number of samples in this study were 55 students consisting of 39 students in the experimental group and 26 students in the control group. The study was conducted for 16 weeks on every subject of physical education. The instrument used to measure students' imaginative abilities is a developed questionnaire instrument directed at Guilford. The results of this research are: 1) The application of inquiry model in physical education has a significant effect on the improvement of students' imaginative ability. 2) Implementation of direct teaching model has no significant effect on the improvement of students' imaginative ability. 3) The application of the inquiry teaching model shows the difference of influence with the more effective effect of the direct teaching model in physical education on the improvement of the imaginative ability of the students.

1 INTRODUCTION

Imagination is a cognitive process that is a complex of mental activity in which elements in the mental activity are separated from sensory sensations. Imagination involves synthetics that combine aspects of memory, memories or experiences into a mental construct that is different from the past or it becomes a new reality in the present or even the anticipation of reality in the future. Imagination is generally regarded as one of the "higher mental functions," which are often associated with fantasies, wishful thinking, or problem-solving forms originally different from the ordinary. Imagination is generally regarded as the basis of artistic expression, and the power of creativity as a higher mental function. Since imaginative ability is an indicator or part of creativity aspect, therefore the imaginative ability is very important for the development of students because it has a big effect on the totality of a person's personality in the process of human life. Teresa Amabile, a professor at Harvard Business School, explores the

issue of creativity based on her research findings that anyone with normal intelligence is essentially capable of performing creative work. Similarly, the results of research conducted, the imaginative ability in the creativity of students in Indonesia is very low compared with other countries. Therefore, in addition to improving the learning system that supports the development of imaginative abilities in creativity, it is necessary also that the existence of a system by the teacher in knowing how far learners can be committed in developing their imaginative abilities. In physical education teaching that is essentially an integral part of the overall education system, it aims to develop aspects of health, physical fitness, critical thinking skills, emotional stability, social skills, reasoning and moral actions through physical activity (McKenzie et al., 2006). In the intensification of education as a lifelong process of human development, the role of physical education is very important, providing opportunities for students to be directly involved in teaching experiences through systematic physical activity, play, and sports.

Debriefing of the learning experience is directed to foster while forming lifestyle healthy and active throughout life. Barnett et al. (2008) suggests that the entire content (topic and subtopic) of skills-derived subjects should encourage students to observe the process until creation. To encourage learners to produce creative and contextual work, it is advisable to use a learning approach that produces project-based learning work. Principles of learning that learners are told to learners to find out, and from a textual approach to a scientific approach. So to strengthen the scientific approach (scientific) need to apply discovery/inquiry learning (discovery/inquiry learning) (Gallahue and Cleland-Donnelly, 2007).

Inquiry teaching model is one model to improve students' imaginative ability. Once the importance of developing students' imaginative abilities can be observed from the shifting roles of teachers who previously dominated the classroom, now there are more opportunities for students to take a more active and creative role in a fun learning environment. However, it will be difficult to build a good understanding of the students, if the physical and mental are in a state of distress. Student creativity is possible to grow and develop well if the family environment, community, and school environment, also support them in expressing their imaginative ability (McKenzie, 2007). Friedman et al. (2008) put an argument that gives a meaning that the inquiry learning model can be used to develop creativity, because in the inquiry model the learning process is when the teacher framing the problem and the students start to think and move, and the students are given the freedom to explore possible answers. Essentially, the teacher asks a question that can lead to some kind of thinking from the student, which ultimately the student can provide answers of his own thinking. In the inquiry model, in addition to answering questions given by the teacher, students are also allowed to do/do it. This strategy is used by teachers in physical education teaching in order to promote student thinking, to solve problems and give students the freedom to explore. Previous research conducted by Jaakkola and Washington (2012) has tested an inquiry model of student creativity in primary school. As well as ongoing research has been done by Nurlaelah (2009) who apply inquiry model in high school students through guidance and counseling.

The novelty of this research is that there is no research revealing related to improve the imaginative ability of students in physical education through the application of inquiry learning model (McKenzie et al., 2000). Due to the description above, the results of this study are expected to change the paradigm of the

teaching of physical education teachers who initially tend to apply teacher-centered teaching patterns to student-centered teaching patterns that provide comprehensive benefits for learners in cognitive, psychomotor, and affective aspects. It also can prove the truth of the theory, the results of research and test the effectiveness of the application of teaching patterns indirect teaching or in this study the inquiry learning model in improving imaginative imagination of students who at least expected to be a significant contribution to society, nation and state in creating a generation full of imaginative in creativity in the future.

2 METHODS

The method used to reveal the problem in this research is the experimental method with the design of The Randomized Pretest-Posttest Control Group Design. The reason is that the researcher wants to see how far the treatment of the two types of treatment is the inquiry learning model in the experimental group and the conventional instructional model (direct instruction) in the control group to increase the students' imaginative ability.

The implementation of the treatments was conducted in High School. By taking high school as a city of Bandung as a population, which comes from two schools selected by companion, namely SMA Negeri 6 Bandung and SMA Pasundan 8 Bandung. The sampling technique used is Cluster Random Sampling. The number of samples in this study were 55 students consisting of 39 students (26 male students and 13 female students), and in the experimental group and 26 students (17 male students and 9 female students) in the control group with the background rear of education and socioeconal equivalents. The number of samples in this study was 55 students consisting of 39 students in the experimental group and 26 students in the control group. The study was conducted for 16 weeks on every subject of physical education at school. The instrument used to measure students' imaginative abilities is a developed questionnaire instrument directed at Guilford. Analysis of research data using ANCOVA test through SPSS 22.

3 RESULTS AND DISCUSSION

The average acquisition and standard devaluation of imaginative imaginary skills of high school students

in the self-learning model group and direct instruction group are presented in the following table 1:

Table 1: Average Value and Standard Data Group Deviation.

Research Group	N	Minimum	Maximum	Mean	Deviation Standar
<i>Inquiry Teaching Model (Pretest)</i>	39	21,00	47,00	37,9231	5,59316
<i>Inquiry Teaching Model (Posttest)</i>	39	42,00	54,00	49,4103	3,43142
<i>Direct Instruction Model (Pretest)</i>	26	30,00	47,00	36,5769	4,50043
<i>Direct Instruction Model (Posttest)</i>	26	25,00	48,00	37,1154	5,49419
Valid N (listwise)	26				

The results of the imaginative ability of high school students are produced through two measurement process using imaginative capability instrument which is one of the indicators of creativity instrument. The measurement data is presented in table 1, pre-test data for imaginative ability in the experimental group had a minimum score of 21.00, a maximum score of 47.00, an average of 37.9231, while the mean post-test was a minimum score of 42, 00, maximum value 54.00 and average value 49,4103. In the control group obtained the pre-test obtained is a minimum value of 30.00, a maximum value of 48.00, an average of 37.1154, for the final test score (post-test) is a minimum value of 25.00, a maximum value of 48, 00, with an average grade of 37,1154 students. The conclusions of the data are listed in table 1 it can be seen that the inquiry learning model has a significant effect on the improvement of the imaginative ability of high school students. Through Ancova test will be known the influence of inquiry learning model and direct instruction model (direct instruction) to increase the imaginative ability of students together.

Table 2: The Ancova test Results.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2739,971 ^a	2	1369,986	103,550	,000
Intercept	784,266	1	784,266	59,278	,000
PRETEST	381,815	1	381,815	28,859	,000
MODEL	2084,682	1	2084,682	157,569	,000
Error	820,275	62	13,230		
Total	132232,000	65			
Corrected Total	3560,246	64			

a. R Squared = ,770 (Adjusted R Squared = ,762)

Based on table 2 above, then the data concluded some research results, among others: Sig Value. pre-test by 0.000. <0.05. That is, pre-test has a significant effect on the post-test. Sig value. model of 0.000. <0.05. That is, the learning model has a significant effect on the post-test. Sig value. Corrected Model of

0.000. <0.05. That is, there is a difference in the influence of the two learning models between the inquiry learning model and the direct learning model.

Inquiry learning model is a student-centered model to be directed to active learning through the problems presented by the teacher in the form of questions. Implementation of the model of learning to provide a learning situation provides a student-centered learning process through the investigation of a problem. Student-centered learning and students are taught how to learn and solve problems through a process of inquiry. The main purpose of the inquiry learning model is to develop intellectual skills, creativity and be able to solve problems scientifically. In physical education, the inquiry learning model is designed to invite students directly into the scientific process into a relatively short time (Stodden et al., 2008). Students are mentored and encouraged to explore the possible answers to these questions as solutions then poured into motion activity. An overview of the scenario of the inquiry learning model, suggests that there are several learning segments in the inquiry model: "Set induction, elements, scatter space, levels, pathways, directions, games, reviews and closures". The active learning process undertaken by students can develop students' understanding by asking, investigating and observing by themselves rather than being told only by the teacher so that the inquiry learning model is a science-based learning model. In tandem with this, asserts that "The inquiry model can be used to develop students' intellectuals, help students become expressive, creative and possessing psychomotor skills." As evidenced by the results of Schlenker's research, indicating that inquiry training can improve understanding of science, be productive in creative thinking, and students become skilled in obtaining and analyzing information.

Differences in students 'creativity in terms of differences in treatment in both groups, namely in groups that use inquiry learning model, students' creativity score has increased, while in groups using a direct learning model has decreased the score. Differences in treatment in both groups can affect student creativity. Questions posed by teachers in learning using inquiry models provide a stimulus to brain synapses, which strengthening the synapses makes the brain cells grow. Rourke and Coleman (2010) explain that "Another important aspect of brain development at the cellular level is a dramatic increase in the connections between neurons (nerve cells)". New knowledge gained from the student's learning experience through the inquiry process (inquiry) contributes to the addition of new synapses,

while knowledge gained while retained will strengthen existing synapses. Whereas if existing synapses are not reinforced by a meaningful learning experience, then the synapse will be replaced by other synapses or the synapse will fall. (Rourke and Coleman, 2010).

explains that "The connections used will be strengthened while the untapped ones are replaced by other connections or will disappear. That is, in neuroscience (neuroscience), these unused connections will be trimmed ". So, in the end, the concept of inquiry learning model that has been disclosed above can give effect to the increase of student creativity.

4 CONCLUSIONS

The conclusion of the research results, has implications as follows:

- For the school can maximize the strategy and learning model at the time of facilities and infrastructure less support the purpose of learning and educational goals;
- For physical education teachers:
 - Can pay more attention to the appropriate learning approach used in teaching and learning process;
 - Can be more critical of the problems encountered in the learning process;
 - Can better understand and study about scholarship especially in understanding of learning models;
 - Can pay attention to the development of students' imaginative abilities in the learning process takes place;
 - For teachers who have used the inquiry learning model can continue to deepen this model, so that the quality of learning will be in a better direction.
- For students, can be motivated to be more serious in following learning physical education so that the results and goals can be achieved according to expectations so that knowledge can be beneficial for both yourself and for others.

Based on the results of processing and data analysis obtained answers to research questions that have been proposed. The conclusions obtained are as follows: (1) Application of inquiry learning model in physical education has a significant effect on students' imaginative ability. (2) Implementation of direct learning model has no significant effect on

students' imaginative ability. and (3) The application of inquiry learning model shows the difference of influence with the more effective effect of direct learning model in physical education on students' imaginative ability.

REFERENCES

- Barnett, L. M., Van Beurden, E., Morgan, P. J., Beard, J. R., 2008. Perceived sports competence mediates the relationship between childhood motor proficiency and adolescent physical activity and fitness. *A longitudinal assessment. International Journal of Behavioral Nutrition and Physical Activity*.
- Friedman, H. S., Martin, L. R., Tucker, J. S., Criqui, M. H., Kern, M.L., 2008. Stability of physical activity across the lifespan. *Journal of Health Psychology*.
- Gallahue, D. L., Cleland-Donnelly, F., 2007. Developmental physical education for all children. Champaign: Human Kinetics.
- Jaakkola, T., Washington, T., 2012. The relationship between fundamental movement skills and self-reported physical activity during Finnish junior high school. *Journal Physical Education and Sport Pedagogy*.
- McKenzie, T. L., Marshall, S. J., Sallis, J. F., Conway, T. L., 2000. Student activity levels, lesson context, an teacher behavior during middle school physical education. *Research Quarterly for Exercise and Sport*.
- McKenzie, T. L., Catellier, D. J., Conway T., 2006. Girls' activity levels and lesson contexts in middle school PE: TAAG baseline. *Medicine and Science in Sports and Exercises*.
- McKenzie, T. L., 2007. The preparation of physical educators: A public health perspective. *National Association for Kinesiology and Physical Education in Higher Education*.
- Nurlaelah, E., 2009. Pengembangan Bahan Ajar Struktur Aljabar Yang Berbasis Program Komputer dan Tugas Resitasi untuk Meningkatkan Kreativitas dan Daya Matematik Mahasiswa. *Jurnal Pengajaran MIPA*. 14(2), 1-22.
- Rourke, A. J., Coleman, K. S., 2010. A Learner Support System: Scaffolding to Enhance Digital Learning. *International Journal of Technology, Knowledge & Society*. 6(1).
- Stodden, D. F., Goodway, J. D., Langendofer, S. J., Robertson, M. A., Rudisill, M. E., Garcia, C., Garcia, L. E., 2008. A developmental perspective on the role of motor skill competence in physical activity: An emergent relationship. *National Association for Kinesiology and Physical Education in Higher Education*.