

# A Study of the Needs of Brain-Based Learning in Physical Education in the Senior High School

Aang Ghunaifi Dardiri  
Faculty of Sports Science  
Universitas Negeri Malang  
Malang, Indonesia  
aangghunaifi@gmail.com

Eko Hariyanto  
Faculty of Sports Science  
Universitas Negeri Malang  
Malang, Indonesia  
eko.hariyanto.fik@um.ac.id

**Abstract**—This study aimed to obtain data and informasi on the needs of brain-based learning in physical education in senior high school. Research method used was a questionnaire filled by class XI high school students. Data analysis was a quantitative descriptive in the form of percentages. The results of the needs assesment showed that 70.6% of students needed a brain-based learning approach in the physical education. The conclusion was that a brain-based learning approach was needed to maximize the students' brain function so as to support the students' academic activities and accomodate the physical activities needed by the students.

**Keywords**—*brain-based learning, physical education, academic achievement.*

## I. INTRODUCTION

The lack of physical acitivity for students in a modern era is no longer indisputable. Some data showed that the length of time students studied in the classroom affected the students' time to do physical activities [20]. Moreover, physical education has less educational value than the general subjects [21] a constant reduction in instructional time [6] increased volume of teacher turnover [12], teachers' difficulties to communicate with students (Kena et al., 2016), as well as the decreasing students' self-efficacy [10] affect the lack of student involvement in physical education at school.

The brain-based learning (BBL) in physical education could provide a new alternative for students [11]. The brain-based learning enables the students to represent a visual and kinesthetic thinking [13] The strategy to implement the BBL in physical education is to create a learning environment which challenges the students' thinking skills, creates a pleasant learning environment, and creates an active and meaningful learning situation (Caine and Caine, 2003).

The brain-based learning refers to teaching methods, lesson designs, and school programs based on the latest scientific research about how the brain learns, cognitive development factors, how the students learn differently as they age, grow, and mature socially, emotionally, cognitively [14] The brain-based learning in physical education is very important to study

due to its development has encouraged the students to improve their academic achievement [8] to create a conducive learning atmosphere [2] to foster a self-confidence [16] and it correlates with the fitness [18].

The growing development of science must be followed by the development of education science. The brain-based learning has a role to develop a physical education which is more effective by optimizing the function of brain's work. It's important for the brain-based learning approach to be used in the physical education. Therefore, this study aimed to analyze the needs to used the brain-based learning for the physical education subjects in high school.

## II. METHODS

The type of research used was a descriptive research. The subjects in this study were 90 students of the class XI high school students. The data collection technique used was questionnaire with the assesment indicators of the need for learning approach consisted of interest aspects of physical education materials, learning activities, initial knowledge of the brain-based learning, and the need for the development of research-based learning models with a brain-based learning approach. The results of this study were analyzed quantitatively by a descriptive percentage.

## III. RESULTS AND DISSCUSSION

The results of the questionnaire distribution were (1) 54% of students stated that the physical education subject was very important (2) 92.4% of students stated that learning activities were practices in the field (3) 83.5% of students wanted a brain-based learning and (4) 70.6% of students wanted a brain-based learning approach in the physical education learning.

Based on the research results, 54% of students stated that the physical education subject was very important. The students' reason was that even though the learning burden on formal subjects was quite high, they still considered the physical education was a subject which made their body fit and made their mind better in the middle of their busy schedule to study. The physical education contributed to maintain the body endurance because there was fun movement

and physical activity elements in the physical education so that the students became fit [19] and affected the psychological condition of the students [7].

A learning activity is also inseparable from the method applied. The physical education activities carried out by the students based on the results of the study were 92.4% carried out in the field by practice. The rest of the lesson was conducted in the classroom by learning the physical education theoretically through textbooks and materials given by the teacher through a lecture method. The physical education activities in the classroom should use an effective alternative instructional strategy in accordance with the student characteristics [9]

83.5% of students did not know about the brain-based learning. They also did not know that the brain-based learning could improve the academic achievement [4]. Therefore, the students stated that there was a need to collaborate on a brain-based learning approach in the physical education. All this time, the students had never carried out the physical education activities using a brain-based learning.

According to the 70.6% of students, it was important to develop a brain-based learning approach in the physical education learning. The physical education learning would be more effective if it used an approach which was able to stimulate the brain function, to maximize the small learning time of the physical education. The physical education needs to be developed using a brain-based learning approach because the brain-based learning could be a foundation in maximizing the brain function through physical activities [1], improving the academic achievement [17], and providing the motivation for students to participate in the physical education activities [5]

#### IV. CONCLUSION

According to the research results and discussion, it could be concluded that the students' needs for the brain-based learning approach in the physical education was high, 70.6%. However, these needs could not be fulfilled because the brain-based learning approach in the physical education activities had not been used by the students. Further studies and research related to the brain-based learning approach in the physical education are needed. So that the obstacles experienced by the students in the physical education could be minimized and could have a positive effect to the student activities at school and within the family and community.

#### VI. ACKNOWLEDGMENT

We would like to thank all of those who helped this study so that the preparation of this article could be done well. Hopefully this article could be published with an indexing publishers

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