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Jurnal Keolahragaan, 11 (1), 2023, 131-139

Teachers' lesson plan in the implementation of HOTS oriented physical education learning

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Received: 28 March 2023 ; Revised: 19 April 2023; Accepted: 19 April 2023

Abstract: Lesson plan is the main key in learning. This study aims to analyze the lesson plans of High Order Thinking Skills (HOTS) oriented big ball games subject in physical education learning. This is descriptive quantitative research, with document analysis method. 16 lesson plans arranged by 16 teachers from 16 schools in Bantul Regency, Yogyakarta involved in this study. This study analyzes big ball game lesson plans including eight indicators: formulation of indicators, learning objectives, learning methods, learning media, learning materials, learning resources, learning activities, and learning assessments using document analysis guidelines with descriptors ranging from 1-5 scales (very good, good, acceptable, poor, very poor). The data analysis technique uses quantitative descriptive analysis and is presented in percentage. The results showed that the analysis of HOTS-oriented big ball game lesson plans as a whole was included in the sufficient category with a range of eight indicators 29-84. The learning resource component is the component of the lesson plan that has the lowest average of 1.94. The learning activity component is the lesson plan component that has the highest mean of 19.12. It can be concluded that learning resources need the main attention to be improved in order to realize HOTS learning. Therefore, future research should consider the type of game, level of education, region or area, and health conditions due to post pandemic situations.

Kata Kunci: analysis, big ball game material, HOTS

How to Cite: Suhadi, S., Mawarti, S., Santoso, N., Antoni, M.S., Andriyani, F.D. (2023). Teachers' lesson plan in the implementation of HOTS oriented physical education learning. *Jurnal Keolahragaan*, 11(1), 131-139. doi:https://doi.org/ 10.21831/jk.v11i1.59655

INTRODUCTION

Technological developments, fast societal change, international rivalry, and advanced understanding have changed the 21st century. People must choose and use pertinent information in practice, as well as develop abilities like problem-solving and creative thinking, to deal with increasingly complicated tasks in their professional lives. Education is also impacted by these changes. To stay up with the trends in both the educational and social spheres, education is presently focused on developing higher-order thinking skills (HOTS) (Retnawati et al., 2018; Tyas & Naibaho, 2021). A variety of new issues can be discovered via higher-order thinking. Higher-order thinking calls for the use of recently acquired knowledge or information, as well as its manipulation, to arrive at potential solutions to issues in novel settings. The twenty-first century requires skilled laborers who can compete internationally. As a result, people need to be capable of higher-level thinking. Higher-order thinking abilities are those at the top of Bloom's cognitive taxonomy that are used in learning tasks.

Teaching with an eye toward analysis, evaluation, or creation can enhance students' skills. Students are taught to apply the knowledge and abilities they have learned in different circumstances through the development of their thinking skills. Education is a deliberate and planned effort to create a learning environment and learning process so that students actively develop their potential to have religious spiritual strength, personality self-control, intelligence, noble character, and skills needed by themselves, society, nation, and state, according to Indonesia National Education System Regulation Chapter I Article 1 (paragraph 1). Education is a deliberate and planned effort to establish a learning

environment and learning process so that students actively develop their potential to have religious spiritual strength, personality self-control, intelligence, noble character, and skills needed by themselves, society, the nation, and state. In addition, Article 3 states that National Education aims to develop students' potential to become human beings who are faithful and devoted to God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens. This function of National Education is to develop and shape the character and civilization of a dignified nation to educate the nation's life (RI, 2003). Education is a teaching and learning activity, where learning is mostly about learning, and thinking is primarily about learning. Education is an effort to teach learners to think. Learners must be emphasized on thinking skills. Learners must be directed to be able to think critically, think at a high level and independently in learning activities. The students may see the fresh environment as a condition they hadn't previously thought about. And not everyone must find it novel. Higher-order thinkers could link seemingly unconnected ideas to what they are learning. The goal of education is to teach students associative learning (Arumugam M. Pillay et al., 2018).

The Assessment and Training of 21st-Century Skills Project also outlines the abilities required in the twenty-first century (ATC21S, 2010). They are (1) ways of thinking, including innovation, problem-solving, critical thinking, , and making decisions; (2) ways of working, including collaboration and communication; (3) working tools, including information and ICT literacy; and (4) relating to life in the world, which includes life and career skills (managing goals and time, adapting to change, managing activities/projects, being an independent learner, working effectively in teams, etc.); and (5) relating to the world. The 21st century skills category also includes higher order thinking abilities.

Physical education as an integral part of the curriculum is also required to be able to develop students' thinking skills. Physical education can contribute to the development of high order thinking skills by providing opportunities for students to engage in problem-solving, decision-making, critical thinking, and creative thinking activities. For example, physical education activities such as team sports, fitness challenges, and outdoor adventure activities require students to think critically about strategy, tactics, and how to work collaboratively with others to achieve a common goal. In addition, physical education activities can provide opportunities for students to use creative thinking skills to develop new and innovative ways to approach a task or problem. Physical education can also support the development of decision-making skills by providing students with opportunities to make choices about how to approach a task or activity, based on their understanding of their own abilities and limitations (Marwan & Rohayati, 2020; Nopembri et al., 2022).

Physical Education (PE) is one of the subjects taught in senior high school. The scope of physical education subject matter for senior high school consists of large ball and small ball game, martial art, athletic, physical fitness development, gymnastic, rhythmic movement, water activities and personal safety, and health. PE in high school should have reached the cognitive level. At high school age (15-18 years old), children tend to have better cognitive abilities compared to children at a lower age. Children can already think hypothetically well, think logically with imagery, good verbal ability in logical thinking. One method that is suitable for learning at high school age is higher order thingking skills. Thomas & Thorne (2009) state that higher order thinking is thinking at a higher level than just remembering facts or retelling something heard to others. Higher order thinking occurs when a person acquires new information and is stored in memory and associates or reorganizes and expands the information to achieve goals or find answers in confusing conditions. HOTS is not only an activity that only memorizes and then retells it, but high-level thinking skills are the ability to construct, understand and transform knowledge and experiences that are already owned to be reused in solving a problem in decision making. Currently theories developed about higher-order thinking skills are focused on how skills are learned and developed and the relationship between intelligence and children's thinking skills (Brown, 2018).

A PE teacher who oversees developing students' character and abilities must be able to oversee the teaching process and impart 21st-century skills to the pupils. PE teachers must teach students 21st-century skills across the whole learning process, from the planning phase through evaluation, because these abilities are crucial for students to acquire. According to some research, gaining information is the major goal of the learning processes. The nature of 21st-century talents is not well understood by many pupils. PE Teachers must integrate 21st-century skills into the learning process. To promote 21st-century abilities, PE teachers can create a positive learning atmosphere. PE teachers must possess strong

pedagogical abilities to teach the skills, from planning learning activities to carrying them out to assessing them (Edginton et al., 2011; Mustafa & Dwiyogo, 2020; Van et al., 2020). Lesson plans created by the instructor serve as a marker for the first level of pedagogical competency development. One of the most important components in enhancing the learning process is the lesson plan. The use of lesson plans by students to achieve learning objectives may be highly successful. Hence, the lesson design must take the process of gaining higher order thinking abilities into account (Capel et al., 2019). Researchers can get knowledge via learning tool analysis regarding longer teaching periods than they would from a single day of observation, giving them a comprehensive picture of PE teachers' practices. It's important to assess if lesson plans that teach higher-order thinking abilities are appropriate. The purpose of the study is to describe how PE teachers plan for higher-order thinking abilities.

METHOD

Study Design

This study employs descriptive framework and intended research examine the extent to which the lesson plans prepared by teachers in implementing High Order Thinking Skills (HOTS) in big ball game lessons. This study analyzes big ball game lesson plans including eight indicators: formulation of indicators, learning objectives, learning methods, learning media, learning materials, learning resources, learning activities, and learning assessments using document analysis guidelines with descriptors ranging from 1 (not appropriate) to 4 (very appropriate). The data analysis technique uses quantitative descriptive analysis and is presented in percentage.

Study Participants

The population in the study were all public high schools in Bantul Regency (N=16). 16 lesson plans in big ball game subject arranged by 16 teachers from 16 schools involved in this study. The instrument in this study was a document analysis sheet. The instrument used in this study is an assessment rubric. The rating scale in the rubric uses a modified Likert scale (1-5 scales: very good, good, acceptable, poor, very poor).

Research Instruments

The main instrument in this research is the researcher theirself (human instrument) which determine the focus of research such as selecting informants as sources of data, collecting data, assessing data quality, analyzing data, interpreting data, and making conclusions on the data obtained. Documentation sheets also employed to reveal the problems to be studied.

Tabel 1. Lesson Plan Indicator

No.	Lesson Plan Indicator
1.	Formulation of indicators
2.	Learning objective
3.	Learning methods
4.	Learning media
5.	Learning material
6.	Learning Recources
7.	Learning activities
8.	Learning assessments

Statistical Analysis

The data analysis used in this research is study analysis of research data. Data analysis was carried out by analyzing quantitative data displayed in the form of percentages according to the formula:

$$P = \frac{f}{N} x100\%$$

Keterangan: P = percentage
f = frecuency
N = respondents

RESULT AND DISCUSSION

The results of the analysis of learning materials for big ball games in high schools in Bantul Regency as a whole and analysis based on the components or indicators of the lesson plan can be seen in Table 2.

Tabel 2. Result of Learning Material Analysis

Lesson Plan Components	Mean	Std. Deviation	Minimum	Maximum
Total	58.50	19.377	29	84
Formulation of indicators	8.31	4.332	3	12
Learning objective	6.25	1.612	4	8
Learning methods	3.06	1.289	1	4
Learning media	5.00	2.633	2	8
Learning material	2.50	1.155	1	4
Learning Recources	1.94	0.854	1	4
Learning activities	19.12	5.886	6	24
Learning assessments	12.31	5.474	8	20

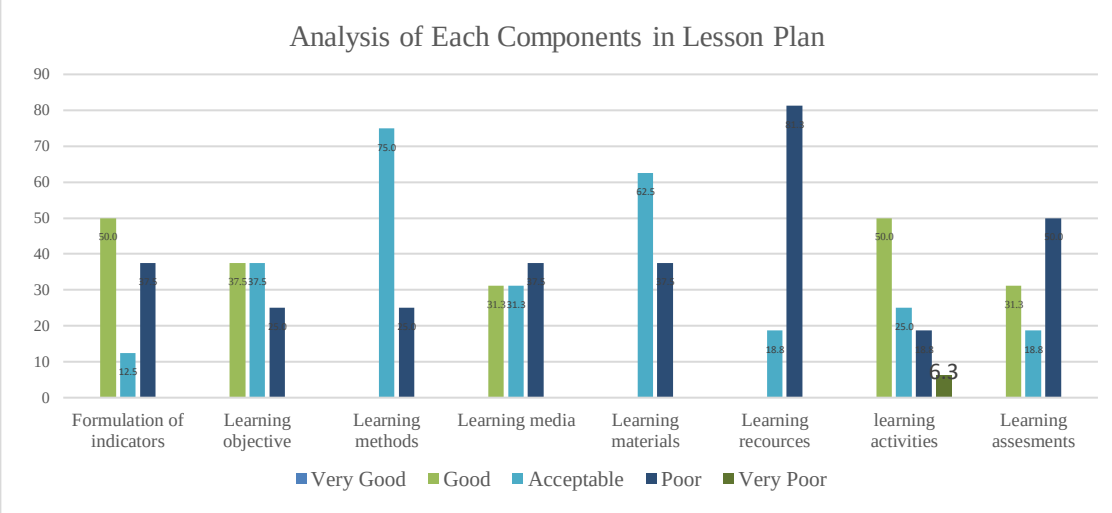

Figure 1. Result of Lesson Plan's Components Analysis

The descriptive analysis shows that the learning material for big ball games is included in the sufficient category. Descriptive statistical analysis also shows that the lowest average is in the learning resource component, the highest average is in the learning activity component. The minimum value in three components: learning methods, learning materials, and learning resources. Maximum value in the learning activities component. Each component of the lesson plan such as the fourmulation of indicators, learning objective, learning methods, learning media, learning material, learning resources, learning activities, and learning assesments are described in Figure 1.

PE teachers prepared a lesson plan according to the online learning context. The formulation of indicators, learning objectives, learning media, learning activities, and learning assessment in the lesson plan can be done well by the PE teachers to implement students' high order thinking. The formulation of indicators and learning objectives can achieve high scores because indicators and learning objectives tend to be complete in curriculum documents. All indicators and basic competencies in the PE can be accommodated quite well even though learning is carried out in an online context. The implementation of HOTS can be seen from the learning indicators written and the learning objectives that are able to

cover the basic competencies that must be met in the big ball learning material. In the lesson plan, indicators and learning objectives propose students to analyze games in big ball material, also evaluate games in big ball material, and most also invite students to create new creativity in big ball material in PE learning. On the other hand, it is important to pay attention to how the learning indicators and objectives can be achieved in the context of online learning with all its obstacles. A number of studies have shown that online PE learning has considerable challenges, especially trying to stimulate HOTS in online PE learning. This needs to be a big concern so that the indicators and learning objectives can be met in the big ball material.

In the learning media component, teachers have an advantage with the variety of learning media used. Online learning provides an opportunity for teachers to come up with new learning media that are more creative and varied to implement HOTS in learning. Various learning media, both visual and audio visual, can be optimized in the material of big ball games in online learning. This can be seen from the learning media that appear in the lesson plans prepared by the teachers which are very varied and have the opportunity to develop HOTS in students. Learning media can certainly help improve HOTS by providing engaging and interactive materials that encourage students to think critically and apply what they have learned in real-world situations (Samosir et al., 2022). A few ways in which learning media can be used to enhance HOTS are: interactive simulations and games; videos and animation (Pratiwi & Rahayu, 2020; Sutarjo & Hadiwinarto, 2021). Interactive simulations and games can help learners develop problem-solving and critical thinking skills by presenting them with challenging scenarios that require them to apply their knowledge to solve problems. Videos and animations can be used to illustrate complex concepts and processes, making it easier for learners to understand and analyze them. Overall, using learning media can be an effective way to improve HOTS by engaging students in activities that promote critical thinking, problem-solving, analysis, synthesis, and evaluation (Friskawati & Supriadi, 2022). In other hand, there can be several obstacles to using learning media in online learning for Physical Education (PE). Some of the most common obstacles are: 1) Limited access to technology: Not all students may have access to a reliable internet connection or devices such as laptops, tablets, or smartphones, which can make it difficult for them to participate in online PE classes and access learning media. 2) Limited access to learning media: Even if students have access to technology, they may not have access to the specific learning media needed for online PE classes. This can include things like exercise videos, online games, and other interactive resources. 3) Lack of physical space: Online PE classes may require students to have a certain amount of physical space to participate in activities. 4) Limited interaction with peers: Online PE classes may not offer the same level of social interaction with peers as traditional in-person classes, which can make it difficult for students to stay motivated and engaged. 5) Limited feedback from instructors: Online PE classes may not provide the same level of personalized feedback from instructors as traditional in-person classes, which can make it difficult for students to improve their skills and track their progress over time. 6) Limited motivation: students might face limited motivation in online learning as they miss face-to-face interactions and the sense of community. This can hinder their participation in online PE classes and their willingness to engage with learning media (Prawira Ketaren, 2021).

The learning activites component scored well. PE learning that is implemented online opens up opportunities for teachers to elaborate learning activities by implementing project-based activities and problem solving. Some teachers propose students to analyze big ball games from the media, then develop independent projects, make observations in the surrounding area, and see problems from the observations made. This can provide a great opportunity for the application of HOTS in PE learning of big ball materials. Online physical education (PE) can be challenging, but there are many learning activities that can be done to keep students engaged and active (Laar et al., 2021). They are live virtual classes, pre-ecorded videos, exercise challenges, virtual field trip, online discussion, and virtual games (D'Agostino et al., 2021; Nurafiati et al., 2022). Teachers can hold live virtual classes through video conferencing platforms, where they can guide students through different exercises and activities. Teachers also can record themselves doing different exercises and activities and share them with students. These videos can be accessed at any time and can be a useful resource for students who cannot attend live classes. Students also can be taken on virtual field trips to different sports field and other places related to physical education. Teachers can facilitate online discussions where students can share their thoughts and experiences related to physical education. This can be a great way to build community and keep students engaged. Virtual games can be used to incorporate physical activity. For example,

they can create a virtual scavenger hunt where students have to find and take pictures of different objects related to physical education (Roliak, 2020).

Learning assessment component get good grades. Some of the learning assessments written in the lesson plan have used assessment methods that can stimulate HOTS: question and answer discussions, solving narrative cases of big ball games, and inviting students to solve problems through problems and projects. To stimulate HOTS in learning assessments, it can incorporate to use open-ended questions, provide real-life scenarios, use problem-based learning, and encourage collaboration. Instead of asking simple recall questions, use questions that require students to analyze, evaluate, or create. Provide students with real-life scenarios that require them to think critically and apply what they have learned. Then, provide students with complex problems that require them to analyze and synthesize information from multiple sources to solve. Group work and collaborative learning activities can stimulate HOTS by requiring students to work together to solve problems and share ideas (Gündüz & Yanar, 2021).

There are minimal values in the components of learning method, learning material, and learning resources in the lesson plan. In the lesson plans observed, the teachers were still unable to write learning methods that lead to HOTS such as problem-based learning or project-based learning. In fact, in the learning activities, they wrote these activities. The researcher feels that this is just a limitation of the teachers, who actually already know what to do, but they only write the methods as they usually do, classical learning and discussion. In fact, what they actually do is more than that. Problem-based learning, is a teaching method that encourages students to solve real-world problems through critical thinking, collaboration, and inquiry-based learning (Elumalai et al., 2022; Simonton et al., 2021). HOTS refer to cognitive processes that involve analyzing, synthesizing, evaluating, and creating new knowledge. To use PE to stimulate HOTS, learning method that could be applied are identify a real-world problem that requires higher-order thinking skills to solve (Ezeddine et al., 2023; Kermarrec et al., 2022). This problem should be relevant and challenging to students. Then, divide students into small groups and provide them with the necessary resources to solve the problem. This could include access to information, technology, and materials. Encourage students to work collaboratively to identify the underlying issues, gather information, analyze data, and develop potential solutions. Facilitate the learning process by asking open-ended questions, providing feedback, and encouraging critical thinking. Allow students to present their findings and solutions to the rest of the class, encouraging them to explain their thought processes and how they arrived at their conclusions. Finally, debrief the exercise by asking students to reflect on what they learned, what challenges they faced, and how they can apply their new knowledge and skills to other real-world problems (Sakti et al., 2021; Wang & Liu, 2018).

In the learning material component and learnig recources, the lesson plan does not contain any learning materials and learning resources that can directly stimulate HOTS written by the teachers. However, in the learning media and learning activities, it actually appears that the teachers have tried to use learning materials that lead to the stimulation of students' HOTS skills. If we look at the number of main learning material sources in the school environment for PE learning, it is rather difficult (Aula Fika et al., 2021; Rodríguez et al., 2022). Perhaps this is the reason why the teachers could not write appropriate learning materials in their lesson plans. PE learning materials that can use to engage students in critical thinking and problem-solving such as game design, movements analysis, team building, strategy and tactics (Wibowo et al., 2022). Assign students to design their own game that involves physical activity. This task requires students to think creatively and critically about game mechanics, rules, and how to make the game fun and engaging for players. Have students analyze and evaluate different types of movements to identify the key components and factors that contribute to successful execution. This activity requires students to think deeply about the mechanics of movement and the principles of physics. Have students work together to solve a physical challenge or problem, such as building a structure or completing an obstacle course. This activity requires students to think collaboratively, creatively, and critically about how to work together to achieve a common goal. Assign students to analyze and evaluate different strategies and tactics used in a sport or game, and to identify the strengths and weaknesses of each approach. This task requires students to think critically about game theory, decision-making, and problem-solving. Peer Teaching can encourage student to teach their peers a physical activity or skill. This requires them to understand the material deeply and to be able to explain it in a way that others can understand. Role-playing also can be done to make students can be given different roles to play during a physical activity, such as "coach" or "referee." This requires them to think critically about the rules and strategy of the game. Students can be given a project that requires

them to research a physical activity or sport. This requires them to think critically about the subject matter and to apply their knowledge in a creative way and students also can be given open-ended questions related to physical activity or health. This requires them to investigate the question, gather information, and draw conclusions based on the evidence (Wang & Liu, 2018; Wibowo et al., 2022).

CONCLUSSION

This study concludes that the lesson plans made by teachers can implement HOTS-oriented physical education learning. Some components of the lesson plan can still be improved so that the implementation of HOTS in physical education learning can be more effective. As future work, it should be concerned that the lesson plan must be implemented as much as possible so that HOTS oriented physical education can be implemented well and effectively. Learning methods, learning materials, and learning resources can be elaborated even better to be able to improve HOTS abilities in students by maximizing learning resources from various sources that can be found for PE learning. Therefore, future research should consider the type of game, level of education, region or area, and health conditions due to post pandemic situations.

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