

The Importance of Archery Education Management in Physical Education Classes and Curriculum Programs for Students to Gain Skills in Many Areas

La importancia de la gestión de la educación en tiro con arco en las clases de educación física y programas curriculares para que los estudiantes adquieran habilidades en muchas áreas

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Abstract. The research analyzes the urgency of implementing archery sports management as the development of 21st-century skill values in schools. This research is mixed method research. Samples were taken by purposive sampling. Quantitative data were taken from 53 PE teachers. Meanwhile, qualitative data were obtained from 30 people, comprised of 15 PE teachers, five archery athletes, five students, and five archery coaches/trainers. Quantitative data were analyzed using descriptive statistics, and qualitative analysis used data reduction, presentation, and conclusion. Quantitative research results showed that archery sports management needs to be implemented. This result was supported by qualitative data, which also showed that PE learning in schools with archery material is needed because it can develop cognitive, affective, psychomotor, and other positive values. This study concludes that it is important and necessary to implement archery sports management in PE to develop 21st-century skill values for students. The results recommend that PE teachers improve their competence in archery.

Keywords: Archery Education Management, PE Classes, Programs, Skills.

Resumen. La investigación analiza la urgencia de implementar la gestión deportiva del tiro con arco como desarrollo de valores de habilidades del siglo XXI en las escuelas. Esta investigación es de método mixto. Las muestras se tomaron mediante muestreo intencional. Muestra cuantitativa de 53 docentes de EF. Una muestra cualitativa de 30 personas estuvo compuesta por 15 profesores de educación física, 5 deportistas de tiro con arco, 5 estudiantes y 5 entrenadores/entrenadores de tiro con arco. El análisis de datos cuantitativos utiliza estadísticas descriptivas, mientras que el análisis cualitativo utiliza la reducción, presentación y conclusión de los datos. Los resultados de la investigación cuantitativa muestran que es necesario implementar la gestión deportiva del tiro con arco. Los resultados de la investigación cualitativa también muestran que el aprendizaje de EF en las escuelas con material de tiro con arco es necesario porque puede desarrollar valores cognitivos, afectivos, psicomotores y otros valores positivos. Este estudio concluye que es importante y necesario implementar la gestión deportiva del tiro con arco en la educación física para desarrollar en los estudiantes valores de habilidades del siglo XXI. Los resultados recomiendan que los profesores de Educación Física mejoren su competencia en tiro con arco.

Palabras clave: Gestión educativa de tiro con arco, clases de educación física, programas, habilidades.

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Introduction

Physical Education (PE) in schools includes learning related to physical activity and games. PE's contribution to shaping 21st-century skills is very important because only PE facilitates students with a large portion of physical activity to achieve overall educational goals. In Indonesia, the revised version of the 2013 curriculum provides guidelines that PE learning today not only encourages students to move and have fun but also requires critical, creative, and innovative thinking skills. The students are also urged to collaborate and communicate well. The PE curriculum is compiled to produce humans who have health and skills in the era of the 21st Century (Mustafa, 2020). This is to catch up with the latest global demand and facilitate the students

to develop their 21st-century learning skills. These skills include critical thinking, creativity, collaboration, and 4C communication (Tang et al., 2020). To shape these skills, games and sports can be introduced into Physical Education (PE) classes, offering a range of benefits to students' cognitive, affective, and skill development. Various scholars (Branco, 2023; Jones - Jofré et al., 2022; Lei et al., 2020; Lermenda et al., 2023) have mentioned that more content is required in physical education and preserving physical fitness is more crucial than merely offering a diversified curriculum.

One of the programs that can be used to develop these learning skills is archery. Archery needs to be integrated as a learning material in Physical Education (PE) because it has numerous benefits for physical growth and cognitive, affective,

tive, and motor skills development, especially in the developmental phase of children to adolescents. Good physical growth can be formed with the encouragement of archery movement training activities. Meanwhile, the affective domain can be developed by habituating attitudinal values through game activities and archery sports. The development of the cognitive domain can be encouraged by theoretical learning activities related to archery. In addition, it can also develop students' motor skills through regular practice of archery movement activities. Archery sports activities can also be packaged in the form of games, individual activities, groups, and other physical activities that can develop cognitive, affective, and psychomotor aspects in PE learning or extracurricular activities at school.

In implementing PE learning, learning management is also required to select the materials and forms of physical activity or sports games given to the students. Classroom management is part of a more specific series of learning management activities. Class management is one way to manage how the class goes according to expectations. Without this, the smooth running of learning in class can be disrupted. The teacher acts as a leader in learning who is in control and makes decisions during the learning process in class. At the same time, a teacher is a manager who decides how classroom facilities and technologies can be used to explore student potential, create meaningful learning, and achieve goals (Wahid et al., 2018). This is similar to what Rukajat (2018) has stated that learning management is an activity that starts from planning, organizing, directing, and evaluating to achieve effective learning outcomes. It plays a vital role as scholars argue that creating a good learning process is inseparable from the teacher's ability to design and mix subject matter (Suryapermana, 2017). Empirically, research also shows a relationship between classroom management procedures and the smooth running of the teaching and learning process (Rohiyatun & Mulyani, 2017). When PE learning management can be implemented in archery sports materials, it is expected to complement the variety of material in PE lessons and develop 21st-Century skill values for high school students.

Myriads of studies have examined learning models and management (Khoeriyah, 2020; Kulsum, 2019; Maria & Sediyo, 2017; Mumpuni & Ismanto, 2019; Musadad, 2015; Nashihah, 2020; Saputro, 2020; Suhairi & Santi, 2021; Suprpto, 2019; Syafaruddin et al., 2020). Meanwhile, studies on the importance of physical activity and the benefits of physical education have also been mushrooming (Cadavid-Ruiz et al., 2023; Cañon Salinas & Villarreal Angeles, 2022; Martins et al., 2019; Muñoz-Arroyave et al., 2020; Sanabria Navarro et al., 2021). More specifically, some studies have investigated how archery sports have been managed in PE classes (Setyawan et al., 2023a; Setyawan et al., 2023b). However, there seems to be no research that examines the urgency of implementing archery sports management to develop 21st-century skills. Therefore, the present research tries to fill this gap. It aims to explore the urgency of implementing archery sports

management in PE to develop 21st-century skill values for high school students. The research focuses on eight aspects, namely: 1) basic competency analysis planning, syllabus, and lesson plans for learning archery; 2) organizing material, learning resources, space/field, facilities, media, and students in learning archery; 3) implementing preliminary activities, core activities, and closing activities in learning archery; 4) evaluating/assessing learning archery; 5) developing the values of critical thinking and problem solving for students; 6) developing communication values for students; and 7) developing collaborative values. This research topic is novel and expected to help internalize the development of 21st-century skill values, including critical thinking, collaboration, communication, and creativity.

Methods

In order to comprehensively understand to what extent archery sports management in schools develops 21st-century skill values, this research employed a mixed-method approach. The mixed method in this research was adapted from the research design developed by Creswell (2012), called a parallel or simultaneous mixed method. This method collects quantitative and qualitative data simultaneously, combines the data, and then uses the results to understand the research problem.

The sample in this study was taken by a purposive sampling system. Purposive sampling is a technique with certain considerations (Sugiyono, 2019). Quantitative data were taken from 53 Junior High School (JHC), Senior High School (SHC) and Vocational High School (VHC) PE teachers. Meanwhile, qualitative data were obtained from 30 people consisting of 15 high school PE teachers, five high school student archery athletes, five non-athlete high school students, and five coaches or school coaches/archery clubs.

Quantitative instruments were developed in this research to address the research purpose mentioned above. It used a questionnaire with a five-level Likert Scale. The responses ranged from (VLN) Very Less Needed = 1, (LN) Less Needed = 2, (M) Moderate = 3, (N) Needed = 4, and (VN) Very Needed = 5. The instrument was tested to measure its validity (Pearson Product Moment Correlation) and reliability (Cronbach's Alpha). The validity test results indicated that the R-count value was greater than the R-table value (> 0.266) at a significance level of 5%. It means that all question items were declared valid. Furthermore, the results of the Cronbach's alpha reliability test have shown Cronbach's alpha to be 0.885 (> 0.60), indicating that all question items are declared reliable or consistent. After that, the questionnaires were distributed to PE JHC, SHC, and VHC teachers. The data were then analyzed using descriptive statistical tests. Descriptive statistics analyze data by describing the collected data without making general conclusions (Sugiyono, 2019).

While collecting the quantitative data, this research also obtained data qualitatively. These data were collected through semi-structured interviews. Qualitative data were

then advanced to four steps of data analysis. This analysis followed the guidelines from Miles and Huberman (1994), namely a) data collection, b) reduction, c) presentation, and d) conclusion. In line with this theory, researchers carefully compiled qualitative data in descriptions to bring out the right interpretation. The validity of qualitative data was measured by extending observations, increasing persistence, and doing triangulation techniques of sources from PE teachers, archery athletes, high school students, and coaches of archery sports schools/clubs.

Results

This study constructed eight indicators/items to measure the urgency of implementing archery sports management to develop 21st-century skill values. The eight indicators/items include 1) basic competence of analysis planning, syllabus, and lesson plans for learning archery; 2) organization of materials, learning resources, space/field, facilities, media, and students in learning archery; 3) implementation of preliminary activities, core activities, and closing activities in learning archery; 4) evaluation/assessment on learning archery; 5) development critical thinking and problem-solving values for students; 6) development of

communication values for students; 7) developing collaborative values for students.

As seen in Table 1 and Figure 1, the quantitative results show that implementing archery sport management to develop 21st-century skill values in secondary schools is necessary. The results of the percentage of respondents' answers (N = 53) indicated that item no 4 had the highest urgency (87.33%) among the participants. This item asked about the evaluation of the archery sport, including the provision of additional materials. This item was followed by items no 2 and 3, both obtained 86.04%. These items were associated with the course organization and classroom activities. Slightly below them was item no 5 (85.66%), which emphasized the need for archery sports materials as additional material to develop critical thinking and problem-solving skills. After that, items 8 and 6 followed it by having 83.02% and 81.13%. Like item no 5, these items focus on how the archery subject can be used as an enrichment to support students' creativity (no.8) and communication skills (no.6). It is important to note that these seven items were categorized as "very needed". Item 7 was the only one classified as "needed" after "only" collecting 80.73%. This item asked about the need for the archery subjects to develop collaborative skills.

Table 1.
Implementation of Archery Sports Management in Schools as a Means of Developing 21st-Century Skill Values

Item No	Indicators/Question Items	Average	%	Category
1	Basic competency analysis planning, syllabus, and lesson plans are needed in archery sports learning with 21st-century skills in PE enrichment/additional material	4.26	85.28	Very Needed
2	It takes organizing materials, learning resources, space/fields, facilities, media, and students in learning archery sports with 21st-Century skills in PE enrichment/additional material	4.30	86.04	Very Needed
3	It is necessary to carry out preliminary activities, core activities, and closing activities in learning archery sports with 21st-century skills in PE enrichment/additional material	4.30	86.04	Very Needed
4	An evaluation is needed on learning archery sports with 21st-century skills in PE enrichment/additional material	4.38	87.55	Very Needed
5	Archery is needed as enrichment/additional PE learning material with 21st-century skills as a vehicle for developing the values of critical thinking and problem solving for students	4.28	85.66	Very Needed
6	Archery is needed as enrichment/additional PE learning material with 21st-century skills as a vehicle for developing communication values for students	4.06	81.13	Very Needed
7	Archery is needed as enrichment/additional PE learning material with 21st-century skills as a vehicle for developing collaborative values for students	4.04	80.75	Needed
8	Archery is needed as enrichment/additional PE learning material with 21st-century skills as a vehicle for developing creative values for students	4.15	83.02	Very Needed

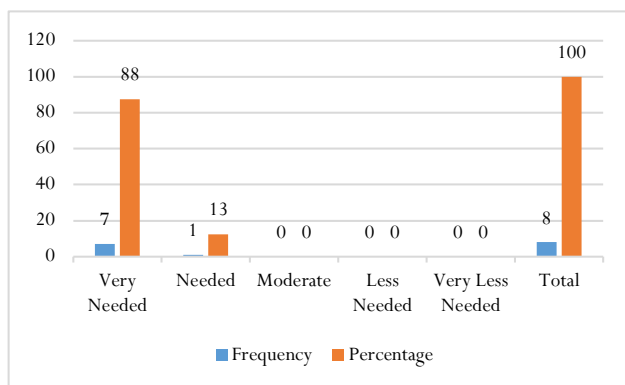


Figure 1. Implementation of Archery Sports Management in Schools as a Means of Developing 21st-Century Skill Values.

The research also gathered information from interviews with SHC/VHC PE teachers, JHC PE teachers, SHC/VHC

students, archery athletes with SHC/VHC student status, and coaches of archery schools/sports clubs. Their responses are presented verbatim, quoting directly word for word. The first results represent the voices of teachers from secondary schools. These Junior High School PE teachers emphasized that:

"In PE learning, all types of contested sports should be introduced, including archery. They can develop students' cognitive values. Through sports, the attitude values of students will also be achieved, including archery, which can develop social, emotional, as well as positive values, such as discipline, cooperation, sportsmanship, respect for rules, courage to make decisions, and many attitudes that can be developed through sports activities" (Files\\Interview\\Key informant 1, Coding Reference 1). Meanwhile, another participant argued that "it is needed to increase

knowledge and creativity and look for talent” (Files\\Interview\\Key informant 4, Coding Reference 1). Similarly, other participants believed that it can foster cognitive and affective skills. “Variations in archery sports material in PE learning or enrichment programs are very necessary because routine concentration exercises will train the accuracy of arrows, and students' emotions are more controlled to help students when they are faced with problems at school. It is hoped that they can make informed decisions, appropriate” (Files\\Interview\\Key informant 13, Coding Reference 1).

Further, Senior/Vocational High School students who were also archery athletes emphasized that:

“There must be archery material in High School PE lessons because archery is fun” (Files\\Interview\\Key informant 1, Coding Reference 2). “There needs to be archery sports material in PE because currently, high school is only given play-related materials such as soccer, volleyball, and *silat*. With archery sports material, there will be new insights” (Files\\Interview\\Key informant 2, Coding Reference 2). “There is a need for archery sports material at High School Physical Education to introduce archery to students” (Files\\Interview\\Key informant 3, Coding Reference 2). Another participant said that this subject needs to be introduced to find more emerging athletes. “There needs to be archery material in High School PE lessons to add more archery athletes and so that the sport is also known” (Files\\Interview\\Key informant 4, Coding Reference 2). “There needs to be archery material in High School PE lessons because archery is unfamiliar to most high school students” (Files\\Interview\\Key informant 5, Coding Reference 2).

Meanwhile, if we looked at the perspectives of Senior/Vocational High School students who were not archery athletes, they emphasized that:

“There needs to be material for archery in PE because archery has many positive sides. In addition, archery is a popular sport today, so students can learn the theory first and then practice it” (Files\\Interview\\Key informant 1, Coding Reference 3). “There needs to be archery material in PE SMA lessons so that students with good talents can be developed in the sport of archery” (Files\\Interview\\Key informant 2, Coding Reference 3). “There needs to be material for archery at PE because archery is a sport that attracts much interest. The opportunity to become an archery athlete is also great” (Files\\Interview\\Key informant 3, Coding Reference 3). “There needs to be archery sports material in high school PE lessons, the reason for the new talent of the students” (Files\\Interview\\Key informant 4, Coding Reference 3). “There is a need for archery sports material in PE because it can be useful, especially for students/youth in high school” (Files\\Interview\\Key informant 5, Coding Reference 3).

Finally, this research reported the coaches' perceptions of the archery sports school/club. They confirmed that:

“Archery needs to be taught in schools at the elementary

to high school level because this sport is highly recommended in Islam. It can be used as knowledge for students about new types of sports” (Files\\Interview\\Key informant 2, Coding Reference 4). “Archery must be included in PE learning because archery is currently only being carried out in extracurricular activities. The benefits for athletes or students are to make them more focused because archery requires focus between the eyes, hands, and the releasing time. Another benefit is training the intelligence of athletes or students because, as is known in archery, athletes aim, and that can increase intelligence” (Files\\Interview\\Key informant 1, Coding Reference 4).

Discussion

Archery is starting to receive a positive response and is favored by children and adolescents. It is a good choice for children and adolescents at their psychological and physical development and growth stages. With all these benefits, this study explores the urgency of implementing archery sports management to develop 21st-century skill values in sports, health, and physical education materials in secondary schools. The study reported quantitative findings on the need to implement archery sports management in schools to develop 21st-century skill values in secondary schools. The findings indicated a high percentage of urgency, with item 4 obtaining the highest percentage. This item investigated the need for evaluation of the archery materials. Interestingly, seven questionnaire items were categorized as “very needed”. Only one item was ranked “needed,” but it still has a high percentage of 80.75%. The quantitative results on all indicators/items from middle school PE teachers mean that implementing archery sports management in schools to develop 21st-century skill values is necessary or important to implement in schools.

Further, these results are strengthened by qualitative data from interviews with PE teachers, archery athlete students, non-athlete students, and school/club coaches archery. The results found the following answers. First, participants believed that archery needed to be taught in schools because it can develop cognitive values, social emotions, discipline, cooperation, sportsmanship, respect for rules, and courage to make decisions. Second, they argued that archery should be taught to increase knowledge and creativity and look for talent. While participants agreed that archery helped with regular concentration exercises that trained students to control emotions, adding new insights, introducing students, and having opportunities to add athletes were also considered useful. Following that, interviewees believed that archery sports needed to be taught because it had many positive sides. They also expressed that this subject should be taught at schools at the theoretical stage first and then in practice. Others emphasized the need for archery in PE material so that students have talents that can be developed. Interestingly, some participants perceived it important for the elementary to high school level

because, in Islam, it is recommended to be carried out (spiritual intelligence). Finally, archery needs to be taught in PE material because it makes students more focused because the movement requires focus between the eyes and hands when releasing a shot.

These findings are in line with previous studies regarding the needs and benefits of archery sports activities in schools. For example, in their research, Lei et al. (2020) stated that additional material is needed in physical education, and maintaining physical fitness is more important than having a diverse curriculum. The addition of archery material to PE learning is needed because this activity has many benefits for physical growth and the development of students' cognitive, affective, and motor skills. This can be done through habituation in various archery movement learning activities, both in gaming and practicing archery movement techniques. Archery activities will have a positive impact on increasing concentration and stability of visual balance (Gündüz et al., 2017; Wada & Takeda, 2020; Ustun & Tasgin, 2020). Khoeriyah (2020), in her research, stated that the core values of the archery activity program were the characteristics of discipline, hard work, independence, respect, and friendliness/communication. The benefits of physical activity or sports that are packaged in PE learning at schools are as follows. Firstly, PE has an effect on increasing academic achievement, non-cognitive skills, motor skills, and physical activity. After that, the involvement of children in PE and sports has a positive relationship with the functional form of the body. Being active or disciplined in carrying out PE activities has a protective effect on mental health (Allen et al., 2019; Knaus et al., 2020; Madeira et al., 2019). Team-based learning is also an active learning strategy that can encourage students to think critically to solve problems (Silberman et al., 2020). The game-based learning approach is indicated to be effective in facilitating the development of students' 21st-century skills (Qian & Clark, 2016). To develop emotional intelligence (EQ) and spiritual intelligence (SQ), which play a role in student success both at school and in the surrounding environment, the teacher should include SQ and EQ elements in the material and involve them in the learning process (Saputra & Barikah, 2021).

Furthermore, learning and good class management are needed to achieve the expected learning objectives for PE learning and for the archery sports material to run well. The learning process needs to be planned, implemented, assessed, and monitored for the class to run effectively and efficiently. Rukajat (2018) stated that learning management is an activity that starts from planning, organizing, directing, and evaluating to achieve effective learning outcomes. With a careful plan followed, organizing learning through a breakthrough educational management model can increase school effectiveness in input, process, output, and feedback (Riswandi et al., 2020). Creating a good learning process is inseparable from the teacher's ability to design and mix subject matter. The PE teacher is a basic component of the teaching process related to achievement motivation and its

dimensions (Smela et al., 2019). Even before the teacher conveys the materials, the teacher has planned and determined the lesson by considering the development of learning that students like (Suryapermana, 2017). A study concluded a relationship between classroom management procedures and the smooth running of the teaching and learning process (Rohiyatun & Mulyani, 2017). Classroom management activities are intended to create and maintain a classroom atmosphere and condition so that the teaching and learning process can occur effectively and efficiently (Wahid et al., 2018). With good PE learning management, developing 21st-century skill values will be achieved through archery sports activity material. Critical thinking skills to solve problems are very important to be emphasized in the development of 21st-century learning skills. These skills include critical thinking, creativity, collaboration, and 4C communication (Tang et al., 2020). Thus, it can be concluded that management is important or needed in PE activities in schools with various sports materials, especially archery sports materials. This is intended so that PE learning can be implemented with archery sports material to develop 21st-century skill values for high school students. 21st-century skills that can be developed include critical thinking, collaboration, communication, and student creativity.

Conclusion

Based on the results of quantitative data in this study, it can be concluded that implementing archery sports management to develop 21st-century skill values in junior, senior high school, and vocational high schools is necessary or important. These 21st-century skills include critical thinking, collaboration, communication, and creativity, which are needed to face the challenges of the times. Furthermore, this research also reported a high need to implement archery sports management functions, such as planning, organizing, implementing/instructing, and evaluating. These quantitative findings are conformed by qualitative data. It has been concluded that PE activities with archery sports material are needed in schools because they can develop cognitive, affective, psychomotor, and other positive values.

Recommendations/Future Directions

The results of this study provide recommendations for PE teachers in high schools to improve their competence in archery so that they can apply and manage PE learning with archery material. This study also recommends that schools provide facilities and infrastructure to support the needs of implementing archery sports management as the development of 21st-century skill values for high school students. Finally, future researchers in sports education are suggested to explore topics that discuss archery as PE material in schools because there is still very little research related to this topic.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

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