THE EFFECT OF USING LKS INTEGRATED OF CONTEXT-BASED LEARNING VIDEOS ON SCIENCE COLLABORATION AND COMMUNICATION SKILLS ON HEAT AND GLOBAL WARMING MATERIALS

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Passed after being defended in front of the Thesis Examiner Team

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I declare that:

1. This paper/thesis is the result and has never been submitted for an academic degree (bachelor's degree) either at Universitas Negeri Padang or any other tertiary institution.
2. This paper/thesis is purely my ideas, formulations, and research without any help from other parties except for the direction of my supervisor
3. In this paper/thesis, there are no works or opinions of other people that have been written or published by others, unless they are clearly stated in the bibliography.
4. This paper/thesis is valid if the original supervisor and examiner team have signed it.

I make this statement in truth and if in the future there are irregularities and untruths in this statement, I am willing to accept academic sanctions in the form of revocation of the degree that I have obtained because of this paper/thesis, as well as other sanctions by applicable legal norms and provisions.

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DEDICATION

I dedicate this thesis to my beloved parents:

Mr. Sukriadi *and* ***Mrs. Yenti Triani,***

who always prays for me, gives love and affection, educates and raises and takes care of me with great care.

In this life, I only ask for happiness and safety for

Mom and Dad

in this world and the hereafter.

And I dedicate this thesis to my two brothers:

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who has always been the pride of me, and the hope of the family, so that both of you become the good boy and successful people

ABSTRACT

Kurnia Febrianti. 2022: "The Effect of Using LKS Integrated of Context-Based Learning Videos on Science Collaboration and Communication Skills on Heat and Global Warming Materials"

21st-century science learning fosters various student skills, including collaboration and science communication skills. Collaborating and communicating good science will bring up creative ideas and trigger critical thinking patterns from students. Based on the results of interviews, collaboration and science communication skills of students of class XI MIPA at SMAN 3 Payakumbuh are still low. The solution to these problems can use the integrated LKS of context-based learning videos. This research aims to see the effect of using integrated worksheets with context-based learning videos on students' science collaboration and communication skills at SMA Negeri 3 Payakumbuh.

This type of research is a quasi-experimental research design with a one-group pretest and posttest design. This research was conducted in class XI MIPA 3 with a purposive sampling technique. The instruments used are collaboration skills instruments and science communication skills instruments, in the form of observation sheets and work document assessment sheets. The data analysis technique used is the normalization test, homogeneity test, and hypothesis testing using the t-test (t-test).

The results obtained: (1) an increase in the value of students' collaboration skills after using the integrated LKS with context-based learning videos, (2) an increase in the value of students' science communication skills after using the integrated LKS with context-based learning videos. Based on the results of this study, it can be concluded that there is a positive influence on the use of integrated LKS with context-based learning videos on the collaboration and science communication skills of students in class XI MIPA 3 at SMA Negeri 3 Payakumbuh.

Kata Kunci: Collaboration, science communication, LKS, learning of video, context

ABSTRAK

Kurnia Febrianti. 2022. "Pengaruh Penggunaan LKS Terintegrasi Video Pembelajaran Berbasis Konteks Terhadap Keterampilan Kolaborasi dan Komunikasi Sains Pada Materi Kalor dan Pemanasan Global"

Pembelajaran sains abad 21 memupuk berbagai keterampilan siswa, diantaranya keterampilan kolaborasi dan komunikasi sains. Berkolaborasi dan berkomunikasi sains yang baik akan memunculkan ide-ide kreatif serta memicu pola pikir kritis dari siswa. Berdasarkan hasil wawancara, keterampilan kolaborasi dan komunikasi sains siswa kelas XI MIPA di SMAN Negeri 3 Payakumbuh masih rendah. Solusi dari permasalahan tersebut dapat menggunakan LKS terintegrasi video pembelajaran berbasis konteks. Adapun tujuan dari penelitian ini yaitu untuk melihat pengaruh penggunaan LKS terintegrasi video pembelajaran berbasis konteks terhadap keterampilan kolaborasi dan komunikasi sains siswa di SMA Negeri 3 Payakumbuh.

Jenis penelitian ini adalah *quasi* eksperimen dengan desain penelitian ialah *one-group pretest and posttest design.* Penelitian ini dilakukan di kelas XI MIPA 3 dengan teknik pengambilan sampel adalah *purposive sampling technique*. Instrument yang digunakan adalah instrument keterampilan kolaborasi dan instrument keterampilan komunikasi sains, berupa lembar observasi dan lembar penilaian dokumen hasil kerja. Teknik analisis data yang digunakan yaitu uji normalitasi, uji homogenitas dan uji hipotesis menggunakan uji t (*t-test)*.

Hasil penelitian yang diperoleh: (1) terjadinya peningkatan nilai keterampilan kolaborasi siswa setelah menggunakan LKS terintegrasi video pembelajaran berbasis konteks, (2) terjadinya peningkatan nilai keterampilan komunikasi sains siswa setelah menggunakan LKS terintegrasi video pembelajaran berbasis konteks. Berdasarkan hasil penelitian tersebut, dapat disimpulkan bahwa adanya pengaruh positif penggunaan LKS terintegrasi video pembelajaran berbasis konteks terhadap keterampilan kolaborasi dan komunikasi sains siswa kelas XI MIPA 3 di SMA Negeri 3 Payakumbuh.

Kata Kunci: Kolaborasi, komunikasi sains, LKS, video pembelajaran, konteks

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May Allah SWT give reward and glory for all the help that has been given to the researcher so that this thesis can be completed. The researcher realizes

that this thesis still has shortcomings, and the authors hope for suggestions and constructive criticism. Hopefully, the results of this research can provide benefits and contribute to the development of science in the future. Amen Ya Rabbal 'alamin.

Padang, 26 August 2022

Author

Kurnia Febrianti

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CHAPTER I

INTRODUCTION

A. Background of the Problem

The 21st-century is marked by the era of globalization, where advances in technology and information are growing very rapidly. The influence of this progress has an impact on various aspects of life. The 21st century demands the readiness of human resources (HR) to be able to compete and survive in the global era. One indicator of the quality of human resources is the level of education.

Education is one of the important fields in development in every country. Through education, students are provided with provisions that can provide experience to advance their lives so that they can develop according to the times, compete globally, and have special 21st-century skills. 21st-century skills are known as 4C (Critical Thinking and Problem Solving, Collaboration, Communication, and Creativity).

Critical Thinking and Problem Solving (critical thinking and problem solving) is the ability to think in an organized way. Critical thinking is a directed and clear process that is used in mental activities such as making decisions, persuading, analyzing assumptions, solving problems, and conducting scientific research (Septikasari, 2018: 107). Critical thinking means being able to weigh all information in a logical and accountable manner (Widodo, 2020: 190).

Collaboration is the skill of working together, synergizing with each other, adapting to various roles and responsibilities, and respecting differences (Arnyana, 2019: 7). Educators must teach academic skills and cooperative abilities to students. This action will be useful for improving group work, and determining success in social relations in the community (Fitriyani, 2019: 78).

Communication skills is the abilities students have in presenting what they have learned, both orally and in writing (Hastuti, 2018: 26). Communication can develop the potential of students so that they can think reflectively about solving social problems in society (Fadly, 2017: 84). Communication aims to convey information and exchange ideas, but in the process of delivering learning communication also aims to build relationships between teachers, students, as well as media and teaching materials.

Science communication skills is skills to be able to communicate scientific knowledge or experimental results (Fadly, 2017: 84). Science communication skills are defined as the process of conveying information or the results of observations/experiments so that they can be known and understood by others and not just verbal communication or interactions between teachers and students. These communication skills can be trained through compiling activity reports, group/class discussions, project assignment presentations, and online learning.

Creativity or creative thinking is a thinking process that can provide different ideas or ideas which can then become new knowledge and needed answers. A student can be said to be creative if he can solve problems with his

ideas or ideas and produce new ideas or ideas (Abdurrozak, 2016: 874). Creativity means that it requires courage because new things usually cause problems due to unpreparedness for these new things (Widodo, 2020: 190).

The fundamental skills that must be possessed by students are scientific collaboration and communication skills. Collaborating and communicating good science will bring up creative ideas and trigger critical thinking patterns from students so that students can solve problems that occur in their lives wisely. This is due to the interaction between students and other students, students and teachers, and their interactions with media and learning resources.

The collaboration and communication skills possessed by an individual will be useful for his life, both in everyday life, organization, and the world of work. As explained by Setiawan in the results of his research entitled "The Effect of Collaboration, Cultural Intelligence, and Entrepreneurship Orientation on the Performance of SMEs in Sibolga City" in 2021, states that collaboration and cultural intelligence have a positive and significant influence on the performance of SMEs, meaning that the better the collaboration, the better. also the resulting performance.

In addition to teamwork, good communication is very necessary at work. This is supported by the results of a study conducted by Lawasi in 2017 entitled "The Effect of Communication, Motivation, and Teamwork on Increasing Employee Performance" that communication has a positive and significant effect on improving employee performance. The communication

process implemented has had a positive impact on employees, namely changes in better attitudes between employees and other employees as well as employees and company leaders.

Science collaboration and communication skills can be trained in learning, including in learning physics. Both of these skills can be trained through group work using certain media or teaching materials. The media or teaching materials include interactive simulation programs, learning videos, and worksheets that can guide students to work together in solving problems and presenting the results of group work.

The 2013 curriculum learning is by the Regulation of the Minister of Education and Culture number 103 of 2014 at the primary and secondary education levels, using scientifically oriented models and approaches or scientific process-based approaches. The learning models in question include Problem-Based Learning (PBL), Project-Based Learning (Pj. BL), Discovery Learning, Cooperative Learning, and Inquiry Learning. A scientific-oriented learning approach can be used such as contextual learning.

All learning models and approaches are scientifically oriented, and require cooperation and practice in the ability to express opinions through presentations. The recommendation for the use of certain models and approaches in the implementation of science learning shows that the government has facilitated through a strong legal basis. This is intended so that collaboration and science communication skills can be trained through the learning process.

Based on an interview with a physics teacher in class XI at SMA Negeri 3 Payakumbuh. Information was obtained that the learning resources used were teaching materials and textbooks at school. The teaching materials used by the teacher contain a description of the material to be taught, sample questions, and exercises. The teaching materials are not always used, the teacher more often provides material according to the textbook guide at school and then assigns students to solve problems related to the material.

When learning takes place, teachers rarely use learning media. The media used by the teacher is usually in the form of pictures related to certain materials. These pictures are used to provide stimulation to students at the beginning of learning. The media and learning resources used by the teacher are not interactive and one-way in nature, so they have not been able to hone students' scientific collaboration and communication skills.

The learning carried out has not used the model and approach as recommended by the 2013 curriculum. The curriculum used at SMA Negeri 3 is currently an emergency curriculum (under special conditions). This emergency curriculum (in special conditions) was prepared by the Indonesian Ministry of Education and Culture to provide flexibility to schools in simplifying the national curriculum according to learning needs.

Teachers more often use the direct learning model with the lecture method in the classroom. Teachers do not provide opportunities for students to work together. If group discussions are held, the teacher only releases students to discuss physics questions in groups without any written guidance used by

students. This is the reason why students' collaborative experiences have not been trained optimally so students' collaboration skills can be said to be still low.

The teacher conveys that students' communication skills are also low. When presenting in front of the class, students cannot convey discussion points properly and are stuck in the language of the book. Students also have difficulty answering questions and conveying the focus of the problem, as well as explanations that are still short and shallow. This shows that students have not been trained both orally and in writing in improving science communication skills.

The research team from the physics department of the Faculty of Mathematics and Natural Sciences UNP chaired by Dr. Desnita, M.Si, and consists of Drs. Amali Putra, M.Pd and Sadra Hamida, S.Pd have developed learning videos and CTL-based worksheets in 2020. The worksheets contain activities that will be carried out by students related to learning materials that have been integrated with learning videos using the CTL approach. This video and worksheet have been tested for validation and practicality, from the two tests it is stated that these two products are suitable for use as media and physics teaching materials for class XI.

Based on research conducted by Safitri in the title "The Influence of Problem Solving-Based Worksheets to Improve Students' Communication and Collaboration Skills" in 2019 concluded, there is a large and positive influence in the use of student worksheets on students' communication and collaboration

skills. Restapaty also mentioned in his research entitled "Use of Learning Video Media to Improve Communication Skills and Drug Counseling for Pharmacy Undergraduate Students" in 2018 that the use of learning video media can be an alternative to improving communication skills.

Based on the background that has been presented, it is necessary to research to see if there is a positive effect of using LKS integrated with context-based learning videos on students' scientific collaboration and communication skills. Therefore, quasi-experimental research will be carried out entitled " **The Effect of Using LKS Integrated of Context-Based Learning Videos on Science Collaboration and Communication Skills on Heat and Global Warming Materials"**

B. Problem Identification

Based on the background of the problem above, the identification of the problem in this study is as follows:

1. Media and teaching materials used in the physics learning process have not honed students' science collaboration and communication skills
2. The process of learning physics at SMA Negeri 3 Payakumbuh has not trained students' science collaboration and communication skills
3. Students' science collaboration and communication skills are still low

C. Limitation Problem

In order for this research to be more focused and controlled, it is necessary to limit the problem. Limitations of the problem in this study are:

1. Media and teaching materials used are integrated worksheets with context-based learning videos developed by the Physics Research Team led by Dr. Desnita, M.Si in 2020.
2. The study was conducted to measure the collaboration and science communication skills of class XI students on the subject of Heat and Global Warming at SMA Negeri 3 Payakumbuh

D. Problem Formulation

Based on the background of the problem that has been presented, the formulation of the problem in this study is:

1. Is there a positive influence on the use of integrated LKS with context-based learning videos on the collaboration skills of class XI students on Heat and Global Warming at SMA Negeri 3 Payakumbuh?
2. Is there a positive influence on the use of integrated LKS with context-based learning videos on the science communication skills of class XI students on Heat and Global Warming at SMA Negeri 3 Payakumbuh?

E. Research Objectives

Based on the formulation of the research problem, the objectives to be achieved in this study are:

1. To investigate the positive effect of using context-based learning video integrated worksheets on the collaboration skills of class XI students on Heat and Global Warming at SMA Negeri 3 Payakumbuh.
2. To investigate the positive effect of using context-based learning video integrated worksheets on the science communication skills of class XI students on the subject of Heat and Global Warming at SMA Negeri 3 Payakumbuh.

F. Research Benefits

This research is expected to be useful especially for researchers and education in general. The expected benefits of this research include the following:

1. For researchers, it can be used as experience and knowledge in teaching physics in the future and one of the requirements to complete physics education studies at the Department of Physics, FMIPA, Padang State University.
2. For teachers, as a source of insight, knowledge and skills in carrying out creative, innovative and fun learning.
3. For students, as a learning resource that can be used to improve students' understanding of Heat and Global Warming material and improve students' science collaboration and communication skills.
4. For other researchers, as a reference in physics education research, add studies on the results of physics learning research and develop the next physics learning media.