



## Improving Students' Learning Achievement Using the Collaborative Learning Model in the Batk Subject with Basic Competence Analyzing Flight Control in Class X D of SMKN 12 Bandung Academic Year 2019/2020

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### Abstrak

Tujuan penelitian ini untuk meningkatkan kemampuan siswa yang belum menguasai suatu mata pelajaran, khususnya mata pelajaran BATK, khususnya pada kompetensi dasar menganalisis Pengendalian Penerbangan. Pendekatan penelitian yang digunakan yaitu Observasi dan kajian jurnal. Data ini terdiri dari data kuantitatif yang diperoleh dari tes kuis harian yang diberikan pada setiap akhir siklus, baik pada Siklus I maupun Siklus II. Hasil penelitian konsep BATK khususnya mengenai konsep Flight Control System dan Flight Control System yang dibagi menjadi 2 bagian yaitu Primary Control Surface dan Secondary Control Surface diperlukan kegiatan yang memungkinkan siswa untuk mengamati dan menemukan sendiri pengetahuan atau materi yang mereka miliki. akan belajar. Dalam penyajian materi BATK akan lebih mudah dipahami siswa jika disertai dengan gambar-gambar yang dianimasikan dan disajikan secara sistematis melalui multimedia. Dalam pembelajaran BATK, pemahaman konsep Flight Control System dan Flight Control System dibagi menjadi 2 bagian, yaitu Primary Control Surface dan Secondary Control Surface yang dapat dilakukan melalui kegiatan diskusi berbagi informasi dengan sesama teman dalam kegiatan kelompok. Model pembelajaran kolaboratif model pembelajaran dapat dilakukan melalui pembelajaran tatap muka. Pendekatan pembelajaran kolaboratif merupakan pendekatan pembelajaran yang dapat digunakan untuk meningkatkan efektivitas pembelajaran di sekolah.

**Kata Kunci:** Pembelajaran, BATK, Siswa

### Abstract

The purpose of this research is to improve the ability of students who have not mastered a subject, especially BATK subjects, especially in the basic competency of analyzing Flight Control. The research approach used is observation and journal review. This data consists of quantitative data obtained from daily quiz tests given at the end of each cycle, both in Cycle I and Cycle II. The results of the BATK concept research, especially regarding the concept of Flight Control System and Flight Control System which are divided into 2 parts, namely Primary Control Surface and Secondary Control Surface, require activities that allow students to observe and discover for themselves the knowledge or material they have. will study. In presenting BATK material, it will be easier for students to understand if it is accompanied by pictures that are animated and presented systematically through multimedia. In BATK learning, the understanding of the concept of Flight Control System and Flight Control System is divided into 2 parts, namely Primary Control Surface and Secondary Control Surface which can be done through discussion activities sharing information with fellow friends in group activities. Collaborative learning models learning models can be done through face-to-face learning. Collaborative learning approach is a learning approach that can be used to increase the effectiveness of learning in schools.

**Keywords:** Learning, BAK, Students

### Introduction

BATK learning in SMK Negeri 12 Bandung refers to the current curriculum of the school. Unfortunately, understanding concepts that can prove the form of an airfoil's impact

on aircraft performance is still challenging. For example, in various airfoil shapes, difficulties are still encountered in determining the maximum performance capabilities of aircraft. This is evident from the low evaluation results

of students' learning. The minimum passing criteria set is 7.50. From the evaluation results through daily tests and real-life conditions, 75% of the students in class X-D did not reach the minimum passing grade. This is a concerning situation for BATK teachers, as the concept of proving the airfoil's impact on aircraft performance is prevalent in everyday life. Therefore, this concept should be easily understood by students.

There are several reasons why students in class X-D of SMK Negeri 12 Bandung have not achieved the required passing grade. Therefore, on March 10, 2020, the author conducted an interview with BATK subject teachers to identify these reasons. From the interview with BATK subject teachers, the author learned that there are several issues with the teaching-learning process, such as: 1) Low student learning activities; 2) Lack of initiative in learning efforts; 3) Insufficient self-reliance in completing tasks; and 4) The current learning conditions still use conventional and generic teaching methods, without adjusting to the nature and characteristics of the learning material. Conventional teaching models also tend to focus on the educator, leading to students isolating themselves and lacking mastery of information, thinking, and self-conviction. This raises the important question of how to achieve an appropriate teaching-learning process that ensures students master the material in the Lesson Plan (RPP) and exceed the minimum passing grade in the future.

Strategies can be developed to address the issue of low student learning outcomes, including utilizing various learning models to teach students. This way, both teachers and students can benefit greatly from the applied teaching strategies. Appropriate teaching strategies can serve as guidelines for teachers to conduct systematic learning activities, as they are designed to assist students in their

learning process. Moreover, the use of suitable teaching strategies can make the learning process easier for students.

One effective teaching methodology to be implemented is a learning model that aligns with the taught subject matter. A learning model is a structured approach designed to engage students in the learning process and enhance their enthusiasm. This ensures that the information taught to students by teachers has a positive impact on their learning activities. The selection of a learning model may be influenced by the subject matter, and if the chosen model is appropriate, the desired objectives can be ideally achieved.

Once again, teachers can employ various learning models to support the teaching-learning process based on the subject matter they teach. The learning models should be chosen based on the nature of the material. One learning model worth considering is the Collaborative Learning model. This model emphasizes group learning, known as collaborative learning, where each participant contributes their own information, experiences, ideas, attitudes, opinions, abilities, and skills for the overall group understanding. Unlike regular study groups that only result in certain students understanding specific topics, collaborative learning allows each student to grasp all components of the discussion. This strategy ensures that all students have an equal understanding of the conversation.

The Collaborative Learning model is expected to enhance the abilities of students who have not yet grasped a subject, particularly in BATK subjects, specifically in the basic competence of analyzing Flight Control. By implementing this learning model, students can exchange ideas and interact with their peers, resulting in a greater wealth of information during the learning process. Furthermore, the material becomes clearer and more easily comprehended, and students can

easily complete the assignments given by the teacher. This model can provide a positive work

### **Method**

The research was conducted at SMK Negeri 12 Bandung during the 2019-2020 academic year. This location allows for a direct understanding of the students' abilities and conditions and the utilization of available facilities both in the classroom and workshop. The research subjects are the sources that provide information on the issues investigated by the author. In this study, the subjects are the students of class X-D at SMK Negeri 12 Bandung, selected randomly from the X-D class of the 2019-2020 academic year. The research aims to analyze the Collaborative Learning model in the BATK subject with the basic competence of analyzing Flight Control.

Data was collected through observation, daily records, and daily quizzes.

### **Observation**

Observation was conducted to observe students' activities during the learning process. The observation includes monitoring the improvement in the learning process, such as students' activities, attention, interest, motivation, and outcomes. In addition to the improvement in the learning process, the observation also focuses on the enhancement of learning outcomes, including increased satisfaction and high interest, motivated by the statements made by the teacher before and after the learning process.

### **Daily Journal**

The daily journal serves as a simple recording tool to document all activities during the learning process that are not captured in the observation sheets. It includes specific student behaviors and issues that can be taken into consideration for future implementation. The journal effectively records observations related

to the implementation of the learning process, which begins with initial motivation. It also includes notes about the teacher's activities in the classroom.

### **Test Data for Cycle I and II**

This data consists of quantitative data obtained from daily quiz tests given at the end of each cycle, both in Cycle I and Cycle II. The purpose is to assess students' progress after each cycle through learning that starts with the teacher's efforts to cultivate interest in BATK through the Collaborative Learning approach. This data serves as a reference for reflection and planning for the next cycle.

### **Results and Discussion**

#### **Cycle I**

From the available data, when calculating the percentages, it was found that in the first cycle, 100% of students participated in learning activities. Out of the total number of students, 11.88% provided feedback during the teacher's presentation or group presentations. During group discussions, 19.38% of the students actively participated in the discussions. At the end of the lesson, 40.00% of the students summarized the lesson content after each meeting. However, during practice exercises, all students completed the given tasks. When assigned to search for additional knowledge about the concept of vibrations, 6.25% of the students gathered data from the internet or other sources. Finally, at the end of the lesson, 20% of the students were able to answer the teacher's questions. After conducting the learning evaluation, it was found that 46.88% of the students achieved learning mastery. Additionally, based on the responses to the student questionnaire, the following calculations were obtained: for positive statements, an average of 61.25% answered "Yes," while for negative statements, 32% of the students answered "No." From

these calculations, it can be inferred that for class X-D, the Collaborative Learning model can be used as a method in teaching and learning. The Collaborative Learning model has proven to help students improve their understanding of concepts and consequently enhance their learning outcomes.

### **Reflection**

In the six meetings of the first cycle, which began with planning, followed by action and observation, the researcher observed some outcomes of the implemented actions. The noticeable result is an improvement in students' learning activities. Although it may not have met the initial expectations entirely, it has already motivated students to develop self-awareness that learning is a necessity rather than merely an obligation. The learning process can be considered successful when 85% of the students have achieved mastery. In the first cycle, there was an increase of 21.88% in the success rate. In the initial conventional teaching method using lecturing, only 15% of the students achieved mastery, but after implementing the intervention, it increased to 46.88%. Action research needs to continue to the second cycle since the learning has not yet reached the target of 85% of students achieving mastery. Therefore, the researcher will conduct the same research with further improvements in the action plan, particularly in discussing the concept of a simple pendulum.

### **Cycle II**

The results obtained in the second cycle showed that 100% of students participated in learning activities. Out of the total number of 32 students, 18.13% provided feedback during the teacher's presentation or group presentations. During group discussions, 23.13% of the students actively participated. At the end of the lesson, 43.75% of the students summarized the lesson content after each meeting. However, during practice exercises, only 8.5% of the students completed the given

tasks. When assigned to search for additional knowledge about the concept of vibrations, 18.13% of the students gathered data from the internet or other sources. There was an increase in the number of students actively participating in group discussions, with 75.63% involvement. During the discussion of problem-solving, 74.38% of the students made efforts to assess and improve their work. Finally, at the end of the lesson, 25% of the students were able to answer the teacher's questions. After conducting the learning evaluation, it was found that 71.88% of the students achieved learning mastery. Additionally, based on the responses to the student questionnaire, the following calculations were obtained: for positive statements, an average of 90% answered "Yes," while for negative statements, 18.18% of the students answered "No." From these calculations, it can be inferred that for class X-D, the Collaborative Learning model can be used as a method in teaching and learning. The Collaborative Learning model has proven to help students improve their understanding of concepts and consequently enhance their learning outcomes.

### **Reflection**

In the three meetings of the second cycle, which began with planning, followed by action and observation, the researcher observed some outcomes of the implemented actions. The noticeable result is an improvement in students' learning activities. Although it may not have fully met the initial expectations, it has already motivated students to develop self-awareness that learning is a necessity rather than merely an obligation. The success rate in the second cycle showed an increase of 25%. The initial condition in the first cycle was 46.88% of students achieving mastery. After implementing the same approach in the second cycle, 71.88% of students achieved mastery. Action research needs to continue in teaching

other concepts, as the learning has not yet reached the target of 75% of students achieving mastery. Nevertheless, it can be stated that the Collaborative Learning approach can be used as one of the approaches in teaching and learning activities.

### Discussion

**Success Indicators** In this study, success indicators were determined as a reference point to measure the level of success of the implemented actions. The success indicator established was an increase in the percentage of learning outcomes by 30% to 40% from the achievement of learning mastery.

**Problem Solving** The alternative actions taken to improve students' understanding of the Flight Control System and its components, namely the Primary Control Surface and Secondary Control Surface, in class X-D at SMK Negeri 12 Bandung were implemented through the collaborative learning model approach, following these steps: a. Introducing the concept of the Flight Control System and its components, the Primary Control Surface and Secondary Control Surface, through a general presentation using animated PowerPoint slides. b. Assigning students to engage in group discussions during face-to-face lessons and conducting practical activities both individually and in a structured manner, as well as encouraging them to search for materials on the internet during non-face-to-face learning. c. Assigning students individually to find previous exam questions related to the Flight Control System and its components, the Primary Control Surface and Secondary Control Surface. d. Providing students with the opportunity to present what they have learned through non-face-to-face activities. e. Conducting evaluations to assess the success of the learning process.

Based on the increase in the percentage observed in each assessment, it can be stated

that the Collaborative Learning model is an effective teaching approach to enhance students' motivation and academic performance. It is evident that learning is a process that students and teachers must go through to achieve their goals. In this study, the learning process is evident from observations 1 to 9, which are characteristic of the collaborative learning model, where students independently create summaries, individually or in groups, understand concepts through additional resources, and assess and correct their mistakes independently. This approach allows information to be better retained in students' memory, leading to the achievement of learning mastery during evaluations. Collaborative Learning should be implemented continuously in every learning activity, as it builds students' self-confidence and optimizes their abilities.

**Questionnaire Responses** Positive changes are also evident in this group, as seen in the increase in "Yes" responses for positive statements and "No" responses for negative statements. The provided table is not included in the question. Please provide the table so that I can include the relevant information in the translation.

No	Description Of Activities	Cycle I	Cycle II	Change
1	Positive statements (questionnaire no 1,5,6,7,9)	61,25%	90%	+28,75%
2	Negative statements (questionnaire no 2,3,4,8,10)	32%	18,18%	-13,82%

The questionnaire presented is a statement that can represent the personality of each individual student in participating in the learning process. From the table above it can be seen that for positive statements there was a positive increase and for negative statements there was a decrease. This shows that collaborative learning learning models can increase student motivation in learning. Apart from that, it can also build students' character as human learners, which in turn can improve

understanding of concepts that lead to increased learning achievement.

### Conclusion

In understanding the concept of BATK, especially regarding the concept of Flight Control System and Flight Control System divided into 2 parts, namely Primary Control Surface and Secondary Control Surface, activities are needed that allow students to observe and discover for themselves the knowledge or material they will learn. In presenting BATK material, it will be easier for students to understand if it is accompanied by pictures that are animated and presented systematically through multimedia.

In BATK learning, the understanding of the concept of Flight Control System and Flight Control System is divided into 2 parts, namely Primary Control Surface and Secondary Control Surface which can be done through discussion activities sharing information with fellow friends in group activities. The learning model of collaborative learning learning models can be done through face-to-face learning. The learning approach to collaborative learning is a learning approach that can be used to increase the effectiveness of learning in schools.

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