

## The Implementation of ARCS Learning Model to Improve Students Learning Activities and Outcomes in Vocational High School

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**Abstract.** *Current learning is needed to emphasize student activities to be more constructive. However, learning emphasizes more on the target material and focuses on the final result. This study aims to improve student learning activities and outcomes in Automotive Engineering Basic Work subjects by implementing the ARCS learning model. This type of research is classroom action research, each cycle consisting of stages of planning, action, observation, and reflection. The research subjects were 40 students of tenth grade State Vocational High School in Purworejo, Indonesia. Data were collected through observation to determine the description of student activities during the learning process. Then the evaluation test was used to determine the final results of student learning after being given the ARCS learning model in the classroom. The study results indicate that the implementation of ARCS learning in the process provides progress on student learning activities and outcomes during the learning process. The results showed that the implementation of the ARCS model increased student learning activities by 74% and increased learning outcomes by 82%. Thus, it can be concluded that the ARCS learning model, in general, can have a potential effect because students are more constructive in learning so that it can be used as a learning reference in vocational high school.*

**Keywords:** *ARCS Learning Model, Learning Activities, Learning Outcomes, Vocational High School*

### INTRODUCTION

Education is a manifestation of civilization; superior education can print quality human resources. Human resources have a vital role in the progress of a nation because an advanced, superior, and development-oriented nation in all aspects, of course, cannot be separated from education (*Indonesia's Investment Program for Human Resource Improvement*, n.d.). Education is a forum for activities seen as high-quality human resources (HR) printers. In addition, education functions to develop the potential and actual abilities possessed by students. Ability development can be done formally and informally through learning (Suyitno et al., 2020). This learning process requires the activeness of both educators and students. Success in the learning process is influenced by several things, including supporting tools in learning facilities, learning materials, learning media, learning methods or strategies, and others (Purwoko, 2017).

Vocational High School is education with competency expertise from vocational fields. Vocational high school prepares students to work in certain areas of expertise, namely to create a workforce with the knowledge, skills, and work attitudes that the industry needs. Graduates of this vocational school are prepared as human resources ready to work; besides, they can also apply the knowledge they have acquired while at school to overcome problems in the community (Sisdiknas, 2003).

The level of education in vocational high school in students' learning process is guided by teachers who act as facilitators to help achieve learning goals. Teachers can use various ways to support the learning process by using effective learning strategies, learning support media such as textbooks, electronic school books, pictures, audio, animated films, and others (Suyitno et al., 2020). These learning tools will be effective if they are adapted to methods by students' character in the school, the types of subjects delivered, environmental conditions, and supporting facilities (Purwoko et al., 2019).

Success in implementing this learning process is the task of an educator or teacher because the teacher is the initial designer of learning strategies in the classroom so that learning objectives can be achieved. One of the teacher's roles is as a demonstrator; namely, the teacher must show how to make each learning material better understood and internalized by every student (Sofyan et al., 2019). Learning is essentially a process of interaction with all situations around the individual. Learning can be seen as a process directed to achieve learning objectives. Democratic education must create interaction between teachers and students in the learning process. The goal is to explore students' abilities to play an active role, improve their intellectual abilities, attitudes, and interests (Sofyan et al., 2019).

One of the visions of vocational high schools in Indonesia is to organize education and training oriented to the needs of the world of work. In realizing a quality school, of course, it is strongly supported by the process of daily learning activities, which include applying learning strategies and learning models used so that students can easily understand what is conveyed by teachers in classroom learning activities constructively.

The vocational high school realizes industry-based school branding through "Link and Match" educational services in collaboration with the industrial sector. Cooperation with industry provides strong relevance to vocational specifications. The learning process is adapted to the needs of the relevant industry. For example, the subject of Basic Automotive Engineering is a lesson that must be taken in tenth grade; this subject is mandatory to pass and is taken by students with the subject of learning in this even semester, including the functions of mechanical measuring tools.

The results of observations and interviews at school show that teachers, when learning takes place, are still using conventional learning models, namely, where the teacher explains a concept. Students observe examples of questions and continue with exercises, and then students answer questions according to the order of completion explained by the teacher. Students follow the standards of queries and continue with activities, and then students answer questions according to the order of completion explained by the teacher. In addition, although learning media have supported it, the learning that students feel is still very lacking in learning activities. One of the possible impacts is the low learning outcomes achieved by tenth-grade students. Students become less than optimal because the activities in class are significantly less and not constructive. The assessment results in the 2019/2020 academic year in tenth grade showed that out of 39 students, 38 students had not achieved the minimum completeness criteria score.

Of course, from these problems, more attention must be paid to improving learning so that students have more motivation to learn to carry out activities in class productively. Therefore, the reference learning model that is relevant to these problems is a model that gradually provides opportunities for students to be active, interactive, and participatory, namely the ARCS (Attention, Relevance Confidence, and Satisfaction) learning model (Alfiyana et al., 2018).

The ARCS learning model is a form of a problem-solving approach to design aspects of motivation and learning environment in encouraging and maintaining student motivation to learn

(Keller, 1987). This learning model prioritizes student attention, adapts learning materials to student learning experiences, creates self-confidence in students, and creates a sense of satisfaction. The ARCS learning model was developed based on the expectancy-value theory, which contains two components: the value of the goal to be achieved and the expectation of successfully achieving that goal. Of the two components by Keller developed into four components. The four components of the learning model are attention, relevance, confidence, and satisfaction (Keller, 1987).

Several relevant studies related to learning with the ARCS model positively affect. The research shows that the ARCS model based on the effectiveness test can significantly increase students' learning motivation in learning mathematics (Pratama et al., 2019). Other research showed that based on the comparative test, the ARCS model strongly influenced students' learning motivation; high motivation can be seen from productive activities in the classroom (Afjar et al., 2020). In addition, other research showed that training using the ARCS model helped strengthen the effectiveness of mentoring. Higher education levels and internal and external education training can increase learning motivation, significantly positively correlated with reverse mentoring (Chen, 2016).

This study provides strong optimism that the ARCS model is very relevant to learning at the Vocational High School level. The novelty of this research strongly refers to the stages of learning activities according to the ARCS model, but modifications are made to the integration of vocational content in the material being taught; this can positively impact vocational students. From this explanation, the primary purpose of this research is to improve the learning process. Vocational school students' learning activities will be able to develop by applying the ARCS model because the model has a strong relevance, namely strengthening motivation as a learning base so that learning activities in class increase and have a potential effect on Vocational High School students.

## **METHOD**

This research is a Classroom Action Research, which combines knowledge, research, and action (Goundar, 2019). This research design uses the Kemmis and McTaggart model, which includes four stages in the research process: planning, action, observation, and reflection (Fletcher & Beringer, 2009). This research was conducted in tenth grade at the State Vocational High School in Purworejo, Indonesia. The subject was chosen because it has strong characteristics to serve as a pilot project to develop innovative and superior learning. This research was conducted in the even semester of the 2019/2020 academic year in the tenth grade.

Data were collected through observation and tests. Observations were made to describe the implementation of the ARCS learning model and student learning activities during the learning process. Student learning activities refer to the indicators: (1) students' courage in asking questions, (2) students' courage in answering questions and expressing opinions, (3) student interaction with teachers, (4) student attention during group learning processes. Then the learning evaluation test is used to measure the final learning outcomes.

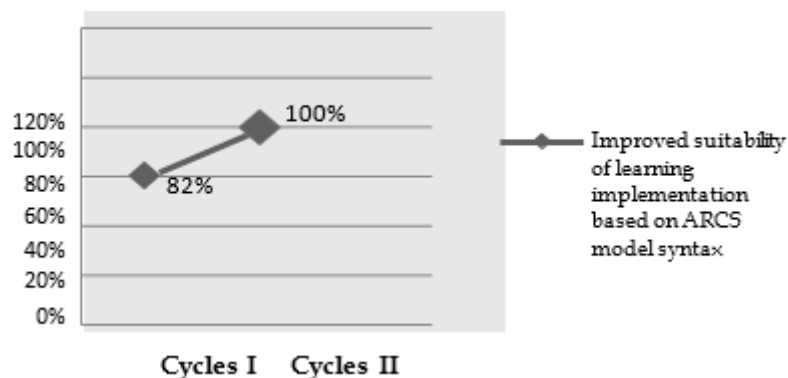
Data analysis techniques in this study include (1) data analysis of student learning activities with a numerical rating scale, namely, giving the lowest score of 1 and the highest score of 5 for each aspect of the assessment. (2) Data analysis of student learning test results was carried out at the end of the cycle. Indicators of success are seen by looking at the minimum completeness criteria in the Basic Automotive Engineering subject. If students have achieved a score of more than 75, the student is declared to have completed, while students who have not achieved a score of 75 mean the student has not achieved the minimum completeness score.

The final achievement of students' activities and learning outcomes from each cycle was analyzed using the percentage technique. Changes in the improvement of the learning process can be described by looking at the comparison among cycles. So that in this study, two cycles were carried out to see the pattern of change towards improving learning. The implementation of the ARCS learning model is considered successful if able to increase student activity and learning outcomes. Student learning activities are said to have positive potential if they reach a score of 65%, and student learning outcomes have reached the minimum completeness criteria of 75%.

## **FINDINGS**

This research was conducted in two cycles. The subjects used during the research were Automotive Engineering Basic Work at basic competence: Apply mechanical measuring tools and their functions. Each cycle of this research uses classroom action research steps in its implementation, starting from planning, implementation, observation, and reflection. The implementation of the ARCS Learning Model used in this study has 17 learning steps. The implementation of the ARCS learning model is said to be appropriate or successful if it matches the syntax of the ARCS learning model. The implementation of the ARCS learning model from cycle I to cycle II is dominated by the steps of implementing actions in the classroom; during the learning process, data is collected with instruments that have been planned to see the effect of changes towards more constructive learning.

From the results of observations of the implementation of the ARCS learning model in cycles I and II, the ARCS learning model has improved according to syntax. In the first cycle, the percentage of conformity of the implementation of the learning model was 82%, then increased by 18% in the second cycle to 100%. If the achievement of the implementation of the ARCS model is described as shown in Figure 1.



**Figure 1. The Improvement of ARCS Implementation**

During the learning process from cycle I to cycle II, student learning activities experienced a positive increase. Data from observation and analysis showed that the level of student activity in the first cycle was 55.60%, so it was included in the category of not achieving the specified success indicators. While in the second cycle, the percentage of student activity reached 73.71%, or in the good category. So these results indicate that the indicators of success have been achieved. From the results of these observations, it can be concluded that the percentage of student activity during the learning process using the ARCS model from cycle I to cycle II increased by 18.11%. These results

indicate that the model can potentially influence learning activities to make learning progress significant. The increase in student learning activities is shown in Figure 2.

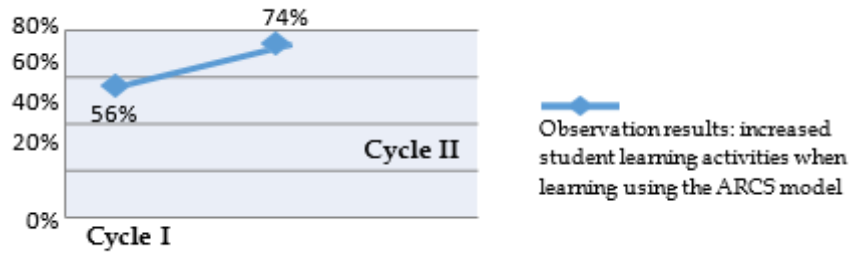


Figure 2. Percentage of Student Learning Activities

The percentage of student activity in Figure II is obtained from cycle I to cycle II changes. Exploratory data on student learning activities was obtained by analyzing indicators of learning activity consisting of 4 aspects. The following is a picture showing the increase in the number of occurrences of each activity indicator from cycle I to cycle II.

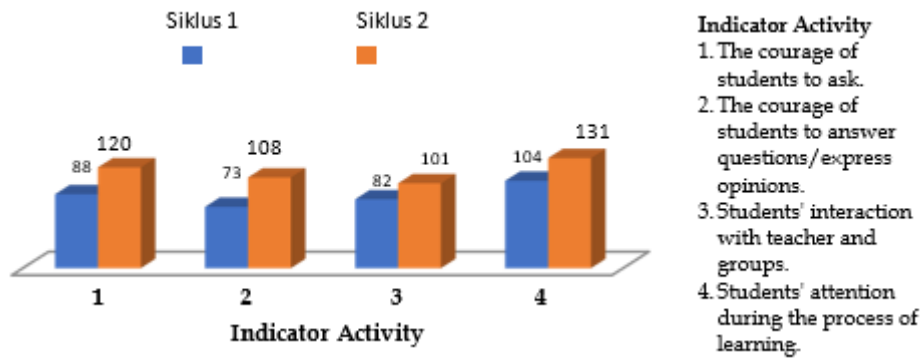


Figure 3. Frequency of Occurrence of Indicator Activity

Then at the end of each cycle, a measurement of learning outcomes is carried out. Learning outcomes from cycle I to cycle II have empirically increased. This finding can be seen from the average student learning outcomes and the number of students who complete their learning outcomes. In the first cycle, the number of students who finished reaching the completed minimum completeness was 15 students with a completeness percentage of 41.7%, with an average score of 57.5. In the second cycle, the number of students who completed the minimum completeness criteria was 32 students with a percentage of 82% with an average score of 75.

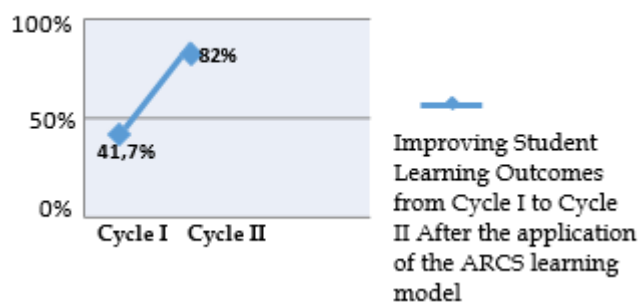


Figure 4. The Improvement of Student Learning Outcomes

Figure 4 shows a significant increase in learning outcomes from cycle I to cycle II. This fact indicates that the ARCS learning model has a potential effect on students from each stage.

## **DISCUSSION**

This study aimed to improve student activities and learning outcomes in Basic Automotive Engineering Works by implementing the ARCS learning model. The results show that the stages of each cycle consisting of planning, action, observation, and reflection that has been carried out contribute to the development of learning activities and student learning outcomes.

From the stages per cycle, namely planning, action, observation, and reflection during the research process, it was carried out well according to the learning syntax of the ARCS model. The results obtained indicate strongly that the ARCS learning model gives positive results. Each stage of student learning looks very constructive during learning; this is in accordance with research conducted by Chen (2016) which says that the ARCS learning model is significantly positively correlated with the final learning outcome (Jamil, 2019). ARCS is carried out to generate motivation so that students' activities and learning outcomes are carried out through student attention, the linkage of the material with the student's learning experience, student confidence, and student satisfaction. This statement is in accordance with what was conveyed by Pratama et al. (2019), who said that ARCS learning is a form of learning that prioritizes student attention, adapts learning materials to student learning experiences, creates self-confidence in students, and creates a sense of satisfaction in the students so that meaningful learning occurs.

Based on the results of the final action test analysis in cycle I, it appears that students are starting to be active in solving problems that the teacher has given. However, there are still students who make mistakes. This error occurs because students have not been able to understand the context and theory that has been given previously. However, in general, most students can answer questions correctly; this is in accordance with research conducted by Setiawan et al. (2020) that the ARCS model can increase student motivation in answering questions because of the stimulation provided by the teacher. Furthermore, the final test of the second cycle of action showed that students were actively able to solve the questions well. Students have been able to carry out structured solutions; this is in accordance with research conducted by Afjar et al. (2020) which states that the stages of the ARCS model impact students in solving problems in a structured manner. In general, it shows that students can solve problems related to Basic Automotive Engineering lessons in tenth grade.

## **CONCLUSION**

Implementing the ARCS (Attention, Relevance Confidence, and Satisfaction) learning model can increase student activity and learning outcomes because this model has stages relevant to vocational students' characteristics. The results showed that the implementation of the ARCS model increased student learning activities by 74% and increased learning outcomes by 82%. So that, in general, the learning process in the classroom takes place constructively, it is shown that the results of the exploration of learning activities during learning can be documented and have a very potent effect because students seem to have a positive motivation. The side effect of having a very active class is a positive increase in student achievement, so the ARCS learning model can be applied gradually in vocational high school to make courses more meaningful and constructive.

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