



# Effectiveness of Assurance, Relevance, Interest, Assessment, and Satisfaction (ARIAS) Model on Students Self Efficacy Achievement

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**Abstract:** This study was motivated by the low self-efficacy of students in IPAS learning. This study aims to determine the effectiveness of the Assurance, Relevance, Interest, Assessment, and Satisfaction (ARIAS) model on the achievement of self efficacy in grade IV elementary school. The type of research used is Quasi Experimental using Nonequivalent Control Group Design. The study population was grade IV elementary school students in Gugus VI Koto Tengah District, Padang. The sampling technique used was Simple Random Sampling, obtained class IVA as the experimental class and class IVB as the control class at SD Negeri 28 Padang Sarai. This research instrument is a self efficacy questionnaire and data analysis techniques using prerequisite tests in the form of normality, homogeneity, and independent sample t test tests. Based on the results of the study obtained a significance value of Sig.  $0.00 < 0.05$ , that  $H_0$  is rejected and  $H_1$  is accepted, which means that the effectiveness of the ARIAS model has a significant effect on the achievement of self efficacy of students in elementary schools. Learning with the ARIAS model makes students active in learning activities.

**Keywords:** ARIAS; Elementary School; Self Efficacy

## Introduction

Education is the main foundation in the development of a nation and the key to creating a smart, creative and quality generation. The purpose of education is to change the behavior of learners which is reflected in knowledge, attitudes, and behavior in the context of home, school, and society (Hendayani, 2019). The purpose of national education according to Article 3 of the National Education System Law Number 20 of 2003 is for students to develop into humans who are faithful and devoted to God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens (Noor, 2018; Pristiawati, 2022).

The curriculum in Indonesia has undergone several changes in line with the rapid changes and

developments of the times, as well as the characteristics of students who are growing from time to time. These changes aim to improve the existing education system and find the most effective system to achieve national education goals (Sholehah, 2020). Currently, the Merdeka Curriculum is a new curriculum using a diverse learning system. (Arisanti, 2022; Indriyani et al., 2023; Azzahra et al., 2023). One of the distinctive features of the Merdeka Curriculum is the merging of science and social studies subjects into Natural and Social Sciences (IPAS) at the elementary school level (Marwa et al., 2023). The rationale behind this merger is that at primary school age, learners tend to see the world as a whole and integrated. They are still in the concrete, holistic, and comprehensive, but not yet detailed, stage of thinking (Widiyastuti et al., 2023). Therefore, through the combination of science and social studies subjects, it is

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expected that students can learn to manage the natural and social environment in one unit (Sari & Faizin, 2023). One of the success factors for students in learning IPAS is internal factors and one of them is self efficacy.

Self efficacy is a psychological aspect that has a significant influence on the success of learners in completing tasks and problem-solving questions well (Larasati et al., 2019; Rapsanjani & Sritresna, 2021). Self efficacy is influenced by daily learning activities, as well as influencing subsequent learning activities (Polizzi et al., 2021). Self efficacy refers to an individual's beliefs regarding the ability to mobilize the motivation, cognitive resources, and actions necessary to achieve success in carrying out a given task (Yetri et al., 2019; Indianasari & Prasetyo, 2022). The importance of learners' self-efficacy in learning is shown by the results of Indrawati and Wardono's research which shows that learners with high levels of self-efficacy tend to actively seek and accept challenges in completing tasks. On the other hand, learners who have low self efficacy tend to avoid challenges and have a more negative attitude towards failure (Indrawati & Wardono, 2019).

Self-efficacy is also very important for students to have in carrying out their learning assignments, especially when facing learning situations and carrying out academic self-assignments as a strong belief that students have in achieving learning outcomes (Syarifah et al., 2019; Andriani, 2023; Wicaksono et al., 2023). Therefore, if academic self-efficacy is accompanied by specific goals and understanding each material, it will determine success in academic behavior in the future (Iftitah et al., 2023). The reality in the field is that students' self-efficacy is low because students give up easily and feel unsure of their ability to understand lessons and complete tasks. This is indicated by the behavior of giving up when encountering difficulties in learning or solving problems. This behavior also arises when students get information about a material that the material is difficult, so students tend not to have confidence in learning it or even solving problems related to the problem. In addition, students experience limitations in expressing their opinions, hesitate in answering questions and have excessive anxiety caused by uncertainty. Similar problems were found by the author in research conducted by Pangestu through observations and interviews of teachers and students obtained information about the problems that arise, namely the lack of self-confidence of students, lack of awareness of their abilities, the tendency to hesitate or be shy, and the lack of courage of students (Pangestu et al., 2020).

Childhood age in grade IV elementary school students is a crisis period in the drive for achievement (Nabila et al., 2023). Learner achievement tends to have

a helpless perspective, and if learners perceive their actions as failures, learners will often experience anxiety, which will ultimately lead to the creation of low self-esteem (Siregar et al., 2019). However, children will focus more on their learning strategies if they have adequate ability orientation.

Cognitive psychology theory explains the characteristics of learners in learning and learning IPAS according to experts as follows: elementary school learners must have the opportunity to manipulate items during the learning process because they are in the concrete operation stage. Given the characteristics of these learners, teachers must be able to package well the design and learning experience for students, convey things that are in the environment around the daily lives of students, and make the subject matter learned more relatable and less abstract for students. The right learning media supports learning (concrete objects). Learners must also be given the opportunity to take the initiative and gain practical experience both individually and in groups (Suparwi, 2020).

Learners who dislike IPAS will experience learning difficulties, which will have an impact on their learning outcomes. Therefore, a teacher needs to know and understand the difficulties that children experience when learning IPAS. Teachers can use cutting-edge teaching strategies to arouse learners' interest in learning. This kind of learning uses an active learning model that emphasizes learner engagement. According to the findings of initial observations conducted through interviews with learners, it was found that: learners are less interested in learning IPAS because the learning materials are not presented in an interesting way and are not related to learners' real experiences, some concepts in the lessons are complex and difficult for learners to understand, making learners dislike IPAS lessons, learning often involves higher-order thinking skills, which makes learners feel difficult in doing the tasks and causes a lack of interest in learning, learners lack confidence in facing challenging tasks, teachers do not adopt innovative and effective learning models.

To overcome this problem, a learning model is needed that can increase confidence in the ability of students and the role of students in the learning process, where teachers can apply the Assurance, Relevance, Interest, Assessment, and Satisfaction (ARIAS) learning model. The ARIAS model is considered very relevant to stimulate learner interaction and motivate learners to learn (Sutri et al., 2023). The ARIAS model was developed to foster motivation, one of which is in terms of self-efficacy of students accompanied by teaching and learning activities that have relevance or contextual elements in the learning process (Naris, 2022). According to research conducted by Hamidah and

Kusuma, it has been proven that high self efficacy has better skills than students with low self efficacy (Hamidah & Kusuma, 2021).

Facts gathered in the field through teacher interviews are that in general elementary school teachers have never used the ARIAS model in IPAS learning even though many research results have proven that they have obtained positive values from using the ARIAS model. This is because teachers are less innovative and selective in using learning models that are appropriate and needed by students when learning. This causes students to get bored when studying and it is less challenging because most of the material is just memorized. The purpose of this study is to determine the effectiveness of the Assurance, Relevance, Interest, Assessment, and Satisfaction (ARIAS) model on the achievement of self efficacy of learners in grade IV SD. With this research, it is expected to be able to create a learning environment that can increase students' learning motivation, and as a result, increase students' self-efficacy.

**Method**

This research is included in the type of quasi-experimental quantitative research, where it is difficult for the researcher to fully control the research variables and uses a pre-existing sample group. This research was conducted at SDN 28 Padang Sarai involving two groups, namely the experimental group (class IVA consisting of 27 students) and the control group (class IVB consisting of 25 students). The sampling method used by researchers is probability sampling, which refers to a sampling technique that provides an equal opportunity for each member of the population to be selected as part of the sample (Sugiyono, 2017). Simple random sampling is the sampling method used. It is said to be simple because the sampling of sample members from the population is carried out randomly without paying attention to the strata in the population. This method is taken if members of the population are considered homogeneous (Roflin & Liberty, 2021).

The data collection instrument is in the form of a closed questionnaire, namely a questionnaire that provides several statements where each statement has various alternative answers available. This questionnaire contains 30 statements that correspond to self-efficacy indicators, consisting of 19 positive statements and 11 negative statements. The questionnaire used in this research uses a Likert scale, where positive statements are scored from the largest number to the smallest number and negative statements are scored from the smallest number to the largest number. Before conducting research, validation was

carried out first by 3 validators (language, structure and material) and then revisions were made according to the suggestions and input of each validator. After validation, the questionnaire was tested in schools that were not the research location. The questionnaire was checked and data analysis was carried out so that a valid questionnaire was obtained, which was the questionnaire that would be used in the research.

In this research, the data analysis technique used is the independent sample t-test. It is important to assess the data analysis requirements, especially normality and homogeneity tests before the data is examined. The data distribution for the t-test must be homogeneous and normal. If the research hypothesis,  $H_0$  is accepted, this shows that the use of the ARIAS model in class IV at SDN 28 Padang Sarai has no influence on students' self-efficacy. If  $H_1$  is accepted, then this shows that the ARIAS model has an influence on the self-efficacy of class IV students at SDN 28 Padang Sarai.

**Result and Discussion**

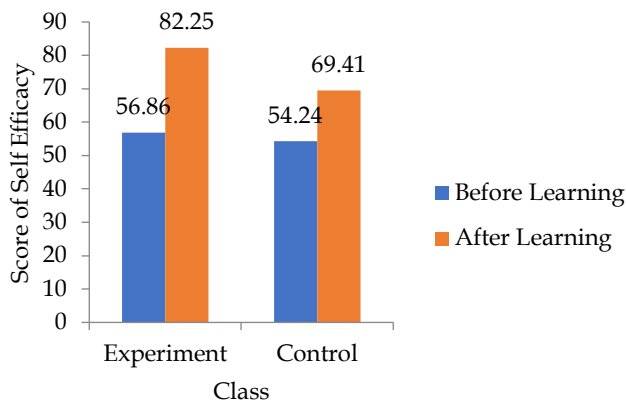
In this study, the effectiveness of the ARIAS model on the achievement of students' self efficacy was assessed through the analysis of their questionnaires. The formulation of the problem and hypothesis in this study, namely whether there is a significant effect of the application of the ARIAS model on the self efficacy of students in class IV SDN 28 Padang Sarai is answered by using a description of the students' questionnaire scores. The results of the research in the experimental class and control class on how students respond to the ARIAS model are shown in Table 1.

**Table 1.** Data on Self Efficacy Values of Experimental and Control Classes

Description	Experiment Class		Control Class	
	Before Learning	After Learning	Before Learning	After Learning
Mean	56.86	82.25	54.24	69.41
Median	56	82	53.33	69.33
Mode	53.33	87.33	52	68
Variance	23.48	15.93	32.62	14.76
Range	22.67	20	25.33	17.34
Deviation	4.85	3.99	5.71	3.84
Minimum	49.33	70.67	44.67	61.33
Maximum	72	90.67	70	78.67

The average value of students' self efficacy before learning the experimental class is 56.863 which is classified as sufficient. After the experimental class learning, the average self efficacy of students reached 82.25 which is included in the excellent range. The average self efficacy of control class students before learning is 54.24, which is included in the less category.

After participating in the control group, the average self efficacy of learners obtained a score of 69.41, placing learners in the good category. To clarify the above results, the data histogram is presented as follows:



**Figure 1.** Histogram of Self Efficacy of Experimental and Control Classes

From the figure above, it can be seen that the average value of students' self efficacy before learning experimental and control classes has a value that is not much different, namely 56.86 and 54.24. The average value of students' self efficacy after learning the experimental and control classes has a significant difference, namely the average value after learning the experimental class is higher than the control class, namely 82.25.

The normality test is used to determine whether the data from the experimental class and control class are normally distributed or not. The Shapiro-Wilk test must be carried out to evaluate whether the data is normal if the number of respondents is less than 50 people. Data is not normally distributed if the significance level is less than 0.05. Data is considered normally distributed if the significance level is greater than 0.05. The normality test for the experimental and control classes can be seen in Table 2.

**Table 2.** Normality Test of Experimental and Control

Model	Statistic	df	Sig.
Experiment	0.96	27	0.44
Control	0.98	25	0.88

Based on Table 2, shows the results of the normality test for the experimental class obtained a significance of

0.44 or greater than 0.05 ( $0.44 > 0.05$ ), while the control class normality test results obtained a significance of 0.88 or greater than 0.05 ( $0.88 > 0.05$ ), as shown in the table above. So it can be concluded that the students' self-efficacy questionnaire data values are normally distributed. The next step is to conduct a homogeneity test, assuming that the data from the experimental class and control class are normally distributed. To find out whether the data variance is uniform or homogeneous, a homogeneity test is carried out. According to the homogeneity test reference, data has a homogeneous variance if the significance value is more than 0.05. The data variance is not the same or heterogeneous if the significance value is less than 0.05. The homogeneity test for the experimental and control classes can be seen in Table 3.

**Table 3.** Homogeneity Test of Experimental and Control

	Levene Statistic	df1	df2	Sig.
Based on mean	1.12	3	100	0.34
Based on median	0.94	3	100	0.42
Based on median and with adjusted df	0.94	3	88.08	0.42
Based on trimmed mean	1.04	3	100	0.38

Based on Table 3, shows the results of the homogeneity test of the students' self efficacy questionnaire in the experimental class and control class obtained a significance value of 0.34 or greater than 0.05 ( $0.34 > 0.05$ ), Levene statistic of 1.12, it can be concluded that the experimental class and control class data have the same variance or homogeneous. Based on the justification given above, the prerequisite test using the normality test and homogeneity test has been fulfilled. The t-test is also used to test the hypothesis (independent sample t-test). The independent sample t-test was used in the data analysis of this study to compare the experimental class data from the ARIAS model with the control class data from conventional learning. In decision making, the following guidelines should be followed: If Sig.  $> 0.05$  then  $H_0$  is accepted and  $H_1$  is rejected otherwise Sig.  $< 0.05$  then  $H_0$  is rejected and  $H_1$  is accepted. The independent sample t- test was conducted using SPSS. The results of the independent sample t-test are shown in Table 4.

**Table 4.** Independent sample t-test

Model	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	0.01	0.91	11.75	50	0.00	12.81	1.09	10.61	14.99
Equal variances not assumed			11.77	49.93	0.00	12.81	1.09	10.62	14.99

Based on Table 4, the significance value (2-tailed) of  $0.00 < 0.05$ , there is a significance value (2-tailed) of  $0.00 < 0.05$ , there is a significant effect of the application of the ARIAS model on the self-efficacy of students in class IV SDN 28 Padang Sarai. Therefore,  $H_0$  is rejected and  $H_1$  is accepted. A similar thing was also found by Naris Rahmawati, et al in their research. The results of this research found that using the Assurance, Relevance, Interest, Assessment, and Satisfaction (ARIAS) model can influence students' self-efficacy. This can be seen from the significant results of  $0.00 < 0.05$ , which indicates that  $H_0$  is rejected and  $H_1$  is accepted (Rahmawati et al., 2022).

Analysis and calculation of self efficacy of experimental class students using the ARIAS model and control class students using conventional teaching methods provide different results. The experimental class outperformed the control class by comparing the mean scores of both classes. Therefore, the ARIAS model has a greater influence on students' self efficacy. This is because the ARIAS model has many benefits in the implementation process, including learners are equally active in teaching and learning activities, learners are challenged to further improve themselves, the ARIAS model increases learners' motivation to be active in the successful learning process in the classroom, which leads to positive results in terms of learners' knowledge, helps learners in understanding the subject matter, arouses confidence in learners that they are capable of (Rahman & Amri, 2014).

Learning with the ARIAS model makes students active in learning activities. This learning model was developed in response to the need for learning designs that can affect achievement motivation and learning outcomes (Komari, 2018). This learning model was developed based on the expected value theory which contains two components, namely the value of the goal to be achieved and the hope of successfully achieving that goal (Elyani et al., 2019). Previous research states that students who use conventional models in control classes usually have poor self-efficacy (Nora et al., 2019). This is because learning is more teacher-centered. When learners have the opportunity to ask questions or voice their ideas, learners do not dare to express them. Previous research also states that learning activities also lack thorough learner interaction, so that learners easily feel bored while learning. The implications of this study provide an overview of the application of self-efficacy of elementary school students oriented to the scientific approach. This research provides benefits for educators or teachers as a reference in providing an overview of the ARIAS model. The limitation of this research lies in the scope of research such as the research

subject which is still very limited which only involves one school.

## Conclusion

There is a difference between the average self-efficacy of students before and after experimental and control class learning. Proven by obtaining Sig. (2-tailed) is  $0.00 < 0.05$ , so according to the basis for decision making, it is found that  $H_0$  is rejected and  $H_1$  is accepted, which means that students' self-efficacy in science and science learning taught using the ARIAS learning model is significantly higher than conventional learning in the classroom IV SDN 28 Padang Sarai.

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## Author Contributions

The authors of this paper consist of four people, namely N.I, Y.F, D, and M.Z. This article was done collaboratively at each stage.

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## Conflicts of Interest

The authors declare no conflict of interest.

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