The Effect of Blended Learning Models based on Google Classroom to Learning Independence and Students Learning Outcome of Class XI Accounting at SMK Negeri 1 Binjai

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Abstract: The development of ICT has various effects on aspects of human life, especially in education. One of the lessons that can take advantage of the development of ICT is a blended learning model. In blended learning, online learning is not only learning to gather teaching materials, assignments, exercises, and student work. This learning also becomes attractive learning and attracts students to have a better understanding and improve student learning independence. The application to develop attractiveness in online learning is google classroom application. The purpose of this study was to see the effect of blended learning models based on google classroom application on students' learning independence and student learning outcomes of class XI accounting at SMK Negeri 1 Binjai. The sample of this study was accounting class grade XI students with total 60 students. This research was an experimental research which using pre-test post-test control design. The result of this study was learning independece and student learning outcomes was higher by using blended learning models based on google classroom applications than using conventional models.

SCIENCE AND TECHNOLOGY PUBLICATIONS

1 INTRODUCTION

The development of technology, especially information technology (internet), gradually realized that it had an influence on education both directly and indirectly (Yendra, et al: 2017). The learning process is initially one-way and teacher centered learning, such as behavioristic learning concepts which assumes that teachers are the only source of learning so they have to send as much information as possible (Marini, et al: 2017).

The learning process like this cannot develop the mindset, creativity and independence of students so that learning patterns must be changed to constructivism and cognitive approaches. With these approaches, the teacher is only a motivator, moderator and facilitator. Whereas students are actively seeking new information independently from various sources such as interaction with the environment, school and outside the school and reconstructing it in themselves (Kurniawati: 2014).

The development of ICT has a positive impact on learning innovation, as an example of the emergence of new alternative learning models and media (Sari: 2013). Learning that used to be only in the classroom can be done by online now (sari: 2013). With this progress, it should be used properly by educators to produce a meaningful learning for students which mean that they can link new information to their cognitive structure (Najib and Elhefni: 2016).

But in fact, the learning process in schools still applies classical learning, namely lectures, question and answer only which cause boredom (Nadziroh: 2017). Based on the results of observations conducted at SMK 1 Binjai, the same thing was also done by teachers still using conventional learning models and also the use of communication devices (cellphones) by students who were not wise (Marini, et al: 2017). Consequently, the absorption of the subject matter was not maximum and ultimately learning result was low.

Self-learning is a human process to achieve various competencies, attitudes and skills (Sujatmika: 2016). The low value of these students could be seen from the fact that there were still many students who did not complete the passing grade. In fact, class XI AK- 1 with amount 27% of

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students did not complete, while in class XI Ak 2, the failure reached 40%.

The success of the teaching and learning process is influenced by various factors such as teachers, methods, models, facilities, motivation, and student learning independence (Marini, et al: 2017). Learning independence as one of the processes of learning that influences learning outcomes has several characteristics, namely: being confident, being able not to always depend on others, being brave to make decisions, being able to solve or overcome problems by yourself, acting creatively, daring to try new things, able and brave in expressing opinions (Haryati: 2015). Further independece does not mean learning alone without the help of others, but on its own initiative either with or without the help of others (Yamin, in Ismaniati: 2015)

The good combination from various ICT advances and the advantages of face-to-face learning will provide new synergies for the learning process. One learning model that can combine strategies to deliver learning using face-to-face (offline) and computer-based learning (online), through the internet and mobile learning is blended learning model (Kuntarto, Eko, et al: 2016).

Blended learning can be defined as a teaching and learning approach that integrates Web-based teaching, learning modes and face-to-face interaction (Ma'arop and Embi: 2016) (Simarmata *et al.*, 2018). In addition to the understanding of blended learning is a learning model that integrates innovation and technological progress through online learning systems with the interaction and participation of traditional learning models (Kholifah and Buditjahjanto: 2016).

So, based on these various opinions, it can be concluded that the blended learning model is a learning that combines wisely, relevant and precisely between the potential of face to face with information and communication technology that is growing rapidly today.

Blended learning provides opportunities for students to develop their learning independence through the use of various sources of information available to be accessed online, in addition to make it easier for teachers to communicate with students and monitor student learning outside of learning hours.

In addition, the habituation of using blended learning is also needed, due to reduce or prevent students from using computers and cell phones for negative things, such as playing games, social media, and watching videos excessively (Wicaksono and Rachmadyanti 2017).

Learning application that can be used as one of the online learning media is the google classroom application. The advantage of this application is that it can be accessed free of charge and can be used on any device such as on a computer, smartphone and can also be used collaboratively in groups while it is easy to use by both teachers and students (Alim: 2015).

The purpose of this study were: 1) to determine the effect of Blended Learning Model based on Google Classroom Application on accounting learning independence for XI grade accounting students, 2) to determine the effect of blended learning model on accounting learning outcomes of XI grade accounting students, 3) to determine the effect of learning independence to accounting learning outcomes for XI grade accounting students

2 THEORICAL FRAMEWORK

2.1 Blended Learning Models

Blended learning is a term derived from the English language that consists of two syllables, namely blended and learning (Husamah : 2014). Blended means a mixture or a good combination. So Blended learning could be defined as a teaching and learning approach that integrates Web-based teaching and learning mode and face-to-face interaction (Ma'arop and Embi : 2016) juga Blended learning is the most logical and natural evolution of our learning evolution of our learning agenda. It suggest an elegant solution to the challenges of tailoring learning and development to the needs of individuals (Throne dalam Rizkiyah : 2015).

In addition, blended learning is a model that offers flexibility in terms of time, place and variations in learning methods that are more than online or face to face methods (Sari : 2013). It is also a mixture of multimedia technology, CD ROM, video streaming, virtual classes, e-mail, online text animation combined with traditional forms of training in the classroom (Rizkiyah : 2015).

So based on these various opinions it can be concluded that the blended learning model is learning that combines wisely, relevantly and precisely between potential face to face with information and communication technology such as mobile learning and e learning to create innovation, flexibility and also efficiency in learning.

The blended learning model itself has the goal of helping students to develop better in the learning process, providing practical and realistic opportunities for instructors and students for independent learning, increasing flexible scheduling for students by combining the best aspects of face-to-face and learning online (Husamah: 2014).

2.2 Google Classroom Apllication

One application that can be used as a learning media to support the blended learning model is the google classroom application (Wicaksono dan Rachmadyanti 2017). Google classroom is an internet-based service provided by Google as an e-learning system (Hakim : 2016). besides that google classroom is also a mixed learning platform that is intended for every educational scope that is intended to find a way out of the difficulties in making, sharing and classifying each assignment without a paper (Wikipedia December 2017).

The advantages of this application are the fast and convenient setting process, centralized data storage, fast sharing of resources, saving time, increasing communication and collaboration (Alim: 2015). Here is a preview of Google classroom's start:

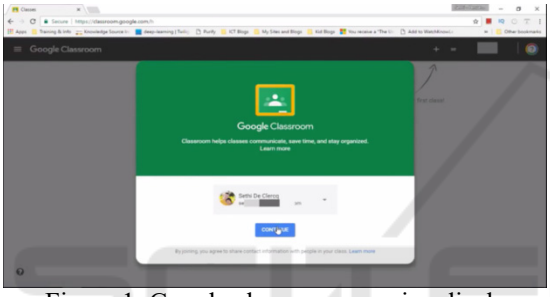

Figure 1: Google classroom opening display

2.3 Learning Independence and Learning Outcomes

Learning outcomes are not a stand-alone thing, meaning an accumulation of various factors that affect students. One of them is learning independence (Egok: 2016). The independence of learning is the ability of a person to maximize their abilities and provisions and knowledge to actively learn in completing academic tasks (Fitria and Sari).

Furthermore, the independence of learning is also an effort made to carry out learning activities in an independent manner on the basis of his own motivation to master certain material so that it can be used to solve the problems being faced (Egok: 2016)

Based on various expert opinions, learning independence can be interpreted as learning on its own initiative, utilizing all available resources also maximizing its capabilities and seeing difficulties as challenges.

Independent learning has some characteristics which are: be confident, able to not always rely on others, be bold in making decisions, able to solve or resolve problems on their own, be creative, dare to try something new, capable and courageous in expressing opinions (Haryati: 2015). Further independent does not mean learning alone without the help of others, but on its own initiative either with or without the help of others (Yamin, in Ismaniati: 2015.

Students who have high independence tend to have initiative, responsibility, and earnest in learning (Sujatmika: 2016), so that their learning outcomes can be more maximal.

3 RESEARCH METHOD

This study used a quasi experiment method with pretest postest controlled design (Sugiono: 2017). The experimental class was 30 students class XI AK 2 who would be treated with a blended learning model based Google Classroom Application while the control class was 30 students class XI AK 1 who would be be given treatment with conventional learning.

The instrument used in this study were questionnaire to measure learning independence and multiple choice questions to measure student learning outcomes. The instruments used had been tested for their validity and reliability, so that the number of questionnaires or valid questions used as research instruments.

The research design used was descriptive analysis, one way ANOVA and simple linear regression. In addition, prerequisite tests included normality, homogeneity and linearity tests. The normality test was done using the Kolmogorov-Smirno test but with liliefors significance correction. Homogeneity test was done with levene test, while the linearity test used was the F test. Descriptive analysis woud be used to describe the average value and the results of learning independence, learning outcomes and also the results of tests of normality, homogeneity and linearity. While one way ANOVA would be used to test the effect of blended learning model on learning independence and the effect of blended learning model on learning outcomes. And a simple linear regression test would be used to examine the effect of learning independence on accounting learning outcomes.

4 ANALYSIS

4.1 Validity and Realibility Test

Validity test results for students' accounting learning outcomes with product moment correlation test were distributed to 32 students with 30 questions. From the results of the validity of the 30 questions, there

were 20 valid questions and from 20 valid questions taken 15 items that would be used as an instrument of accounting learning outcomes. While the reliability test conducted by the Kuder-Richardson method (KR20-21) based on the test results obtained r count> r table was 0.53> 0.349. Thus the problem was declared reliable or stable and consistent, based on the 0.53 reliability interpretation table in the medium category.

Furthermore, based on the results of the level of dif/ficulty test, it could be seen that out of 30 questions that were calculated the level of difficulty, there are 6 questions (20%) at the difficult level, 16 questions (53.3%) at the medium level and 8 questions (26.7%) at an easy level. The last was a different power test from the calculation results obtained from 30 questions which were tested in 3 questions in the very bad category (discarded), 8 questions were in the sufficient category, 17 questions were in the good category, and 2 questions were in the very good category.

Furthermore, the results of the validity test for learning independence questionnaires with Likert scale were carried out by cooperative moment test product. Based on the results of the tests conducted on 32 students, out of 30 questionnaires distributed, there were 16 valid questionnaires and 15 valid questionnaires would be taken 15 questionnaires as instruments for student learning independence. For reliability testing used the alpha formula from the calculation results obtained r count> r table is 0.80> 0.349. Thus the questionnaire was declared reliable or stable and consistent, based on the 0.80 reliability interpretation table was in the high category.

4.2 Analysis of Questionnaire for Learning Independence

The following was the result of the learning independence questionnaire analysis for the experimental class:

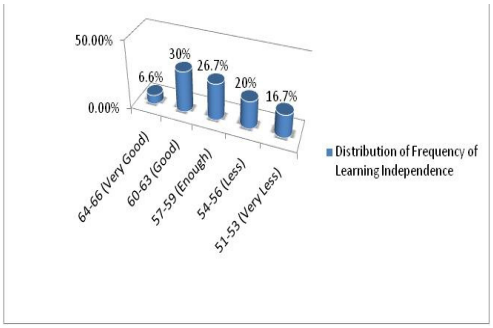

Figure 2: Result of the questionnaire analysis for the experimental class

Based on the diagram above, it could be seen that the learning independence for the experimental class after the treatment was in the good category, namely in the range 60-63. This meant that blended learning model based on the google classroom application had a positive impact in increasing student independence compared to previous treatment, namely students' independence was only in the less category.

Next was the result of the questionnaire analysis of the self-study in the control class:

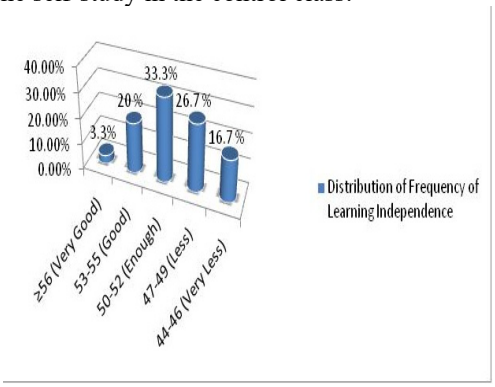

Figure 3: Result of the questionnaire analysis for the control class

From the diagram above, we could know that the learning independence of control class students after the treatment was in the sufficient category namely in the range of 50-52. These results were more increased than the results of student independence questionnaires before treatment, namely in the less category.

4.3 Analysis of Student Pre Test and Post Test Results

The following was the result analysis of the students' accounting learning outcomes for the experimental class and control class. First was the analysis of the pre-test value of the two classes, the following was a diagram of the results of the analysis for the pre-test results:

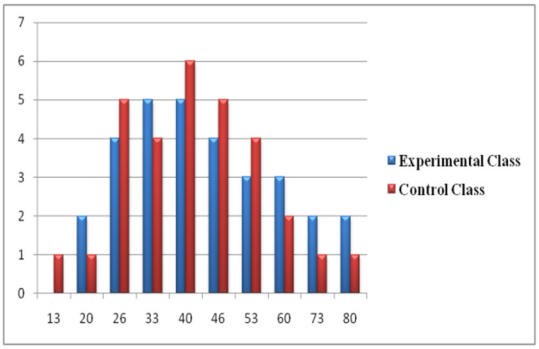

Figure 4: Diagram of the results of the analysis for the pre-test results

From the table above, it could be known that the pre-test value that was most commonly obtained by

students in the experimental class before the blended learning model applied based on the Google classroom application, namely the value of 33 and 40 and the highest value that could be achieved was the value of 80 with only 2 students. Whereas in the value control class, the most obtained students was the value of 40 and the highest score that could be achieved by this control class was 80 and only 1 student got it.

From the overall results of the pre-test, it could be seen that the initial ability of students in both experimental and control classes was still low and with a KKM of 70, there were still many students who got grades under the KKM.

Second was the students' accounting learning outcomes after the treatment was given. Following was the result of the analysis of the post-test results of students from the experimental class and the control class.

From the histogram above, it could be seen clearly both the experimental class and the control class had increased value compared to the pre-test value. In the experimental class, the students' post-test scores experienced a rapid increase when the most pre-test scores that were obtained by students were 33 and 40 with an average of 44.6, students who received grades above KKM were only 4 people, after the implementation of the blended learning model based on the google classroom application to the experimental class, the post-test value increased the average value that could be obtained by students to be 80.1 and students who geot grades under the KKM were only 6 students.

Whereas in the control class treated with conventional models experienced a fairly good increase in value, namely the average post test value obtained by students to be 73.4 compared to the pre-test value of 41.6. And students who got grades under the KKM become 12 people..

Looking at the improvement in both classes, it could be concluded that the blended learning model based on the Google classroom application had a good impact on increasing student outcomes compared to conventional models.

5 RESULTS

5.1 First Hypothesis Test

To test the first hypothesis used one way ANOVA test. In this test, there was a classic assumption test that should be carried out, namely the normality test and homogeneity test.

For the results of the normality test can be seen in the table below:

Table 1: Results of Questionnaire Normality Test

Tests of Normality

	Class	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
Student independence learning	Blended Learning Models	.116	30	.200*	.975	30	.693
	Conventinal models	.086	30	.200*	.975	30	.691

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

As table 1, the significance value in the Kolmogrov-sminov (liliefors significance correction) test for the experimental class questionnaire was 0.200> 0.05, meaning that the data was normally distributed. Likewise with the significance control class of 0.200> 0.05, it meant that the data was also normally distributed.

Table 2: Homogeneity Test Results Test of Homogeneity of Variances

Students Learning Independence			
Levene Statistic	df1	df2	Sig.
1.425	1	58	.237

Test criteria for homogeneity testing were: H0: The data group came from a population that had homogeneous variance. Ha: The data group came from a population that had an inhomogeneous variance. H0 was rejected if the significance value was less than 0.05.

Based on the table of test results conducted in SPSS version 20 above, it obtained a significance value of 0.237> 0.05 then H0 was accepted, meaning that the data from the student learning independence questionnaire had homogeneous variance. Next in the table below, it could be seen a description of the learning independence questionnaire

Table 3: Description of the Blended Learning Model on Learning Independence

Descriptives

Students independence learning

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
Model Blended Learning	30	57.83	3.983	.727	56.35	59.32	51	66
Model Konvensional	30	50.00	3.291	.601	48.77	51.23	44	56
Total	60	53.92	5.359	.692	52.53	55.30	44	66

Based on the descriptive table results, it could be seen that the average of the questionnaire on the learning independence of the experimental class was 57.83 with a standard deviation of 3.983, while the average questionnaire for the learning independence of the control class is 50.00 with a standard deviation of 3.291. the difference in the average value of the learning independence questionnaire is 7.83, which is the average value of the experimental class is higher than the control class.

Because the classical assumption test had been fulfilled, a hypothesis test with one way ANOVA could be done. The results are as follows:

Table 4: One Way ANOVA Test Results

ANOVA

Students independence learning

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	920.417	1	920.417	68.957	.000
Within Groups	774.167	58	13.348		
Total	1694.583	59			

This table showed that the calculated F value was 68.957 while the F table was using 95% confidence level, α = 5%, df 1 (number of variables 1) = 1, and df 2 (n-2) or 60 - 2 = 58, the results obtained for F table were 4.01. Based on these results, it could be seen that the calculated F value> F table (68.957> 4.01) with a significance of 0.000 <0.05 then H0 was rejected and Ha was accepted, or there was a positive and significant influence of the blended learning model on learning independence questionnaire.

5.2 Second Hypothesis Test

To test the second hypothesis, one way ANOVA test would also be used. Then the classical assumption test that was the normality test and homogeneity test would be carried out.

First was the normality test of pre-test and post-test for experimental class and control class. The results for testing the normality of the two classes could be seen in the table below

Table 5: Pre Test Normality Results and Post Test Class Experiments and Control Classes

Tests of Normality

	Kelas	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
student learning outcomes	Pre Test Class Experiments	.140	30	.140	.935	30	.065
	Post Test Class Experiments	.134	30	.178	.951	30	.175
	Pre Test class control	.120	30	.200*	.963	30	.367
	Post Test class control	.133	30	.186	.956	30	.248

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

From the calculation of normality test in Kolmogrov-sminov coloumn (liliefors significance correction), it could be concluded that all sample in experiment and control class for pretest and post test outcomes came from the population which distributes normal due to the significant value > 0.05.

Tabel 6: Test of Homogenity

Test of Homogeneity of Variances

Learning outcome	Levene Statistic	df1	df2	Sig.
Pre test	.700	1	58	.406
Post test	.345	1	58	.559

Test criteria for homogeneity testing were: H0: The data group came from a population that has homogeneous variance. Ha: The data group came from a population that has an inhomogeneous variance. H0 wass rejected if the significance value is less than 0.05.

Based on the test results table conducted in SPSS version 20 above, it obtained significance value for the pre-test value of 0.406 > 0.05 while for the post-test value obtained significance value of 0.559> 0.05 seen from the testing criteria the pre-test and post-test values of both classes were homogeneous meaning that the student's value data came from homogeneous variance.

Because the classical assumption test had been fulfilled, a hypothesis test with one way ANOVA could be done. The result was as follows:

Table 7: One Way ANOVA Test for Experimental and Control Class Pre Test results

ANOVA

Pre Test result

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	129.067	1	129.067	.499	.483
Within Groups	14989.867	58	258.446		
Total	15118.933	59			

Based on the results of the table, it could be seen that the F-calculated value was 0.499 while the F-table was using 95% confidence level, α = 5%, df 1 (number of variables 1) = 1, and df 2 (n-2) or 60 - 2 = 58, the results obtained for F table were 4.01.

value calculated < F table (0.499 <4.01) with a significance of 0.483 > 0.05 then H0 was accepted and Ha was rejected, this meant that the initial ability of students both experimental and control classes were same. As for the post test results or after treatment, the results wer as follows:

Table 8: One Way ANOVA Post Test Results for Experimental and Control Class Classes

ANOVA

accounting learning outcomes

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	673.350	1	673.350	4.675	.035
Within Groups	8353.900	58	144.033		
Total	9027.250	59			

This table showed that the value of F calculated was 4,675 while the F table was using 95% confidence level, α = 5%, df 1 (number of variables 1) = 1, and df 2 (n-2) or 60 - 2 = 58 , the results obtained for F table were 4.01. Based on these results, it could be seen that the F calculated value> F table (4.675> 4.01) with a significance of 0.035 <0.05 then H0 was rejected and Ha was accepted, or there was a positive and significant influence of the blended learning model on accounting learning outcomes.

5.3 Third Hypothesis Test

The test used for this third hypothesis was a simple linear regression test. One of the requirements of this simple linear regression test was linearity test. The results of linearity tests that had been carried out could be seen in the following table:

Table 9: Linerity Test Results

ANOVA Table

			Sum of Squares	Df		F	Sig
accounting learning outcomes* students independence learning	Between Groups	(Combined)	5295.133	21	252.149	2.567	.006
		Linearity	3238.836	1	3238.836	32.977	.000
		Deviation from Linearity	2056.297	20	102.815	1.047	.438
	Within Groups		3732.117	38	98.214		
	Total		9027.250	59			

Based on the significance value of the outcome above, it was obtained the significance value of student learning independence 0.438> 0.05, so it could be concluded that student learning independence was linearly related to student learning outcomes.

Next was to see the R square value, here is a table of R square values:

Table 10: Value of R Square

Measures of Association

	R	R Squared	Eta	Eta Squared
accounting learning outcomes * students independence learning	.599	.359	.766	.587

The value of R square = 0.359 from the table above showed that 35.9% of the variance (changes) of learning outcomes can be explained by changes in learning independence variables. While the remaining 64.1% was explained by other factors outside the model. Whereas for the coefficients table from here we would form the simple linear regression equation as follows:

Table 11: Simple Linear Regression Results

Coefficients[a]

Models		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.211	13.148		.168	.867
	Students independence learning	1.382	.243	.599	5.697	.000

a. Dependent Variable: accounting learning outcomes

The formula of a simple linear regression equation was Y = a + bX, from the table above for a constant value (a) could be seen from the constant table that is 2.211 and the regression coefficient value is 1.382. so the regression equation was Y =

2.211 + 1.328X + e or Learning Outcomes = 2.211 + 1.328 * Learning Independence + e.

This means that every increase in learning independence is equal to one unit, then the learning outcome rises by 1,328.

Furthermore, to see whether the independent variables partially had a significant effect on the dependent variable, used the t test. t-count in the table was 5.697 while t table = 2002 (dk = 58, α = 0.05), because t-count> t-table (5.697> 2.002) and the significance value (p-value) was 0.000 <0.05 so H0 was rejected, which meant that the learning independence variable partially had a positive and significant effect on student learning outcomes. This meant that the higher the independence of learning, the higher the student learning outcomes.

6 CONCLUSIONS

The conclusion of this study was that there was a positive and significant instructor between the use of a blended learning model based on Google Classroom Application on the learning independence of class XI AK students at SMK 1 Binjai school year 2018/2019. This meant that the blended learning model based on the Google Classroom Application could improve student learning independence better than conventional learning.

Furthermore, there was a positive and significant influence between the use of a blended learning model based on the Google Classroom Application on the accounting learning outcomes of class XI AK students at SMK 1 Binjai school year 2018/2019. This meant that students' accounting learning outcomes were higher using the blended learning model based on the Google classroom application compared to conventional models.

Finally, there was a positive and significant influence between students' learning independence on accounting learning outcomes of class XI AK students at SMK 1 Binjai school year 2018/2019. This meant that if learning independence increased, learning outcomes would also increase. This hypothesis test also aimed to strengthen the first hypothesis and the second hypothesis.

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