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The effect of articulate storyline-based interactive learning media to facilitate student learning independence

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Abstract: The problem in this study is whether there is an influence of interactive learning media-based articulate storyline to facilitate student learning self-reliance at SMKN 3 Serang City. This study aims to determine the effect of interactive learning media based on an articulate storyline to facilitate student learning self-reliance at SMKN 3 Serang City. The study was conducted in SMKN 3 Serang City, with samples of 35 students in Multimedia class XI. In this study, writers have used correlational quantitative methods, with data collection techniques of observation, questionnaires and documentation and based on the results of correlation analysis, using the T-test. Where the t_{count} is 40,282, and the table value is 2,035. Then $t_{count} > t_{table}$ means that interactive learning media is influenced based on articulate storylines to facilitate student learning independence. The contribution of variable x to variable y is 98.01%, whereas 1.99% is affected by other factors, such as the internal being reviewed from physiological and psychological factors.

Keywords: Influence; Interactive learning media; Articulate storyline; Self-reliance learning

1. Introduction

In the era of globalisation, technological developments are increasingly rapid and cannot be separated from the world of education (Rotatori et al., 2021). The world of education constantly adapts to technological developments to improve the quality of education, especially adjusting the use of communication and information technology for the world of education, especially in the learning process (Hardhienata et al., 2021; Rahmatullah et al., 2022). With the use of technology, it is expected that changes will occur in the learning process. The rapid development of ICT (information communication technology) is an opportunity and challenge in developing learning media. The development of science and technology that is increasingly advanced requires renewal and utilisation of technological results in the learning process. A teacher must use effective and efficient tools to achieve the expected teaching objectives (Simanjuntak et al., 2022).

Media is the plural form of intermediary ("medium") and is a means of communication. Derived from the Latin medium ("between"), the term refers to anything that carries information between a source and a receiver (Aichner et al., 2021). Media is a message-carrying technology that can be utilised for learning (Fortuna et al., 2023). Media is a teaching aid that presents messages and information about facts, concepts, procedures, and principles according to the subject matter. Some media are utilised) by the teacher in learning activities, certain parties produce the media, and the teacher only has to use it directly in learning activities and natural media available in the school and community environments.

In addition, teachers can also design and make their media (by design) according to the abilities and needs of students. Interactive learning media is a teaching delivery system that presents recorded video material with computer control to students who not only hear and see video and sound but also provide an active response, and that response determines the speed and sequence of presentation (Hermansyah & Pammu, 2023; Wahrini & Peng, 2023). Articulate Storyline 3 is one of the applications used in presenting information with a specific purpose (Aulia & Masniladevi, 2021). Expertise in making presentations is related to technical and artistic skills, and the collaboration of these two skills can produce engaging presentations, attracting participants who follow the presentation.

Independence is included in the scope of a person's attitude. Nature is a person's "mental structure", which shows the existence of consistency because independence is one aspect of a person's nature, so studying the concept of independence must be seen as part of the personality of the individual concerned. Learning independence is an activity carried out by individuals with the freedom to determine and manage their teaching materials, time, and place and utilise various learning resources. More emphasis on internal student factors, according to (Bai et al., 2020), Defining learning independence is a learning activity carried out by students who depend on the help of other people, both friends and teachers, to achieve their learning goals, mastering material or knowledge well with their awareness. Students can apply their knowledge to solving problems in everyday life. The independence of learners or students is not only independent in learning from textbooks or independent in learning what has been delivered by the teacher. One of the student's activeness is shown by the attitude of independence in learning (Nurhasnah et al., 2020; Sari & Zamroni, 2019).

Based on observations with teachers majoring in Multimedia at SMK Negeri 3 Kota Serang, the teaching and learning process in the classroom is carried out using textbooks and material in front of the class with elementary facilities, namely using a blackboard in the learning process at SMK Negeri 3 Kota Serang majoring in Multimedia some students feel bored and do not pay much attention to the explanation of the teacher. This is due to the method used by the teacher in teaching still using the lecture method and not using any interactive media assistance, so there is a lack of innovation in the delivery of material and student responses to learning in class are classified as less active (Az Zafi et al., 2021). In addition, students' independence towards their learning still lacks a sense of responsibility for their tasks and lack discipline in completing the tasks given by the teacher. Students' lack of interest, confidence and responsibility for their assignments means that they still lack learning independence. Because every lesson is not all students who can immediately understand after being explained or learning, some students have to learn repeatedly 2-3 times to understand it. Researchers see that there is still a lack of learning media that can make the teaching and learning process student-centred, and the teacher's role is only as a facilitator.

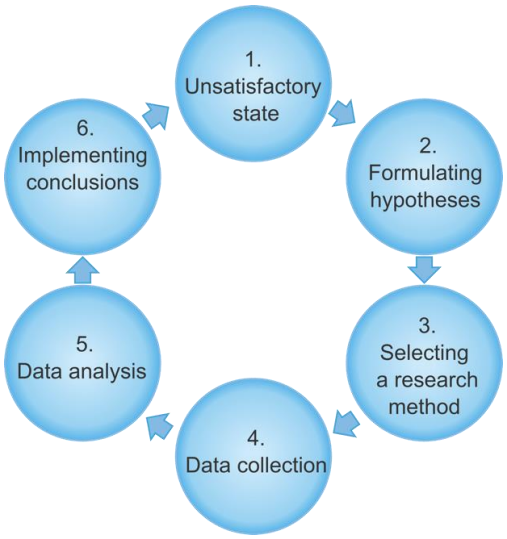
Based on the background of the problem above, several problems can be formulated as follows: Is there an effect of interactive learning media based on an articulate storyline to facilitate student learning independence at SMK Negeri 3 Kota Serang? This study aims to determine the effect of interactive learning media based on an articulate storyline to facilitate student learning independence at SMKN 3 Kota Serang.

2. Methods

The research uses a quantitative approach (Surucu & Maslakci, 2020). Quantitative research can be interpreted as a research method based on the philosophy of positivism, used to research certain populations or samples, data collection using research instruments, and quantitative/statistical data analysis, with the aim of testing predetermined hypotheses (Keysers et al., 2020). The research method that the author will use for this research is a correlational quantitative research method. Correlational

research is research intended to determine whether or not there is a relationship between two or more variables (Wu et al., 2021).

Figure 1. Quantitative research stages



In research, the correlation coefficient explains the extent to which two or more variables are correlated. In contrast, in hypothesis generalisation research, the correlation coefficient shows the level of significance of whether the hypothesis is proven (Shabbir & Wisdom, 2020). The research method guides how the research is carried out sequentially, using what tools, materials and procedures are used (Xu et al., 2021). The research model is a quantitative research method, which is based on the philosophy of positivism, used to research specific populations or samples; sampling techniques are generally carried out randomly, data collection using research instruments, and data analysis is quantitative/statistical with the aim of testing predetermined hypotheses (Zuana et al., 2023).

This study used a questionnaire to obtain data about interactive learning media like articulate storylines and student learning independence. The data was analysed using the T-test to determine whether there is an influence between interactive learning media based on articulate storyline three as an independent variable and student learning independence as the dependent variable at SMK Negeri 3 Serang City.

3. Results and discussion

3.1 Data on interactive learning media results based on the articulate storyline (variable X)

Based on the results of the analysis of the respondent's answers to the variable 'Articulate storyline-based interactive learning media' (X), the minimum, maximum, range, average (mean), median, mode, standard deviation and sum scores were obtained.

Table 1. Data description of articulate storyline-based interactive learning media

Statistical data	Value
Minimum Score	51
Maximum Score	89
Range	38
Mean	73,21
Median	77,92
Modus	75,76
Standard Deviation	11,51
Sum	2554

Table 1 displayed above shows the number of respondents (N); there are 35; of these 35 respondents, the smallest (minimum) articulate storyline-based interactive learning media is 51, and the largest (maximum) is 89. The Range value is the difference between the minimum and maximum values, which is 38, and the Sum value is the sum of the questionnaires of interactive learning media based on an articulate storyline to 35 students (respondents), which is 2554. The average value of 35 respondents or the mean is 73.21, the median is 77.92, and the mode is 75.76 with a Standard Deviation of 11.51.

3.2 Results of data on student's learning independence (variable Y)

Based on the results of the analysis of the respondents' answers, for the student learning independence variable (Y), the minimum, maximum, range, average (mean), median, mode, standard deviation, and sum scores were obtained. This can be seen in Table 2.

Table 2. Description of Student's Learning Independence Data

Statistical Data	Value
Minimum Score	50
Maximum Score	92
Range	42
Mean	72,75
Median	78,85
Modus	78,5
Standard Deviation	10,65
Sum	2533

Table 2 shows the number of respondents (N); there are 35. of these 35 respondents, the minor student learning independence value (minimum) is 50, and the largest (maximum) is 92. The Range value is the difference between the minimum and maximum values, which is 42, and the Sum value is the sum of the 35 student learning independence questionnaires (respondents), which is 2533. The average value of 35 respondents or the mean is 72.75, the median is 78.85, and the mode is 78.5 with a Standard Deviation of 10.65. Before data analysis is carried out, the analysis requirements test (assumption test) is first carried out, namely the normality test and linearity test.

3.3 Analysis requirement test (assumption test)

3.3.1 Normality test

The data collected is about the effect of interactive learning media based on an articulate storyline to facilitate the learning independence of SMK Negeri 3 Kota Serang students. The data that has been collected is analysed to analyse whether the data is normally distributed or not; in this context, the Kolmogorov-Smirnov normality test will be carried out using the Excel application. Based on the calculation results, it can be said that the data for the articulate storyline-based interactive learning media variables and student learning independence obtained are normally distributed. This can be seen in the Tabel 3.

Table 3. Normality test of variable X

Total	2554	
Mean	73,21	Conclusion X^2_{count} (0,075) < X^2_{table} (0,886)
STDEV	11,51	This means the sample is normally distributed
X^2_{count}	0,075	
X^2_{table}	0,886	

Based on the results of the normality test in Table 3, it can be seen that X^2_{count} = 0.075 and X^2_{table} = 0.886, so X^2_{count} (0.075) < X^2_{table} (0.886), so it can be known that the data of interactive learning media based on the articulate storyline (variable X) is in a sample that comes from a normally distributed population.

Table 4. Normality test of Y variables

Total	2533	
Mean	72,75	Conclusion X^2_{count} (0,028) < X^2_{table} (0,886)
STDEV	10,65	This means the sample is normally distributed
Y^2_{count}	0,028	
Y^2_{table}	0,886	

Based on the results of the normality test in Table 4, it can be seen X^2_{count} = 0, 028 dan X^2_{table} = 0,886, so X^2_{count} (0, 028) < X^2_{table} (0, 886); thus, it can be known that the data on student learning independence (variable Y) is in a sample that comes from a normally distributed population.

3.3.2 Linearity test

This Linearity test is intended to determine whether any or more variables tested have a linear relationship or not significantly. The data is used on variables X and Y with many samples or N = 35.

Table 5. X variable and Y variable data

No	X	Y	X2	Y2	XY
1	51	50	2601	2500	2550
2	55	53	3025	2809	2915
3	55	55	3025	3025	3025
4	55	58	3025	3364	3190
5	60	60	3600	3600	3600
6	60	60	3600	3600	3600
7	62	62	3844	3844	3844
8	63	64	3969	4096	4032
9	64	65	4096	4225	4160
10	65	65	4225	4225	4225
11	66	65	4356	4225	4290
12	66	66	4356	4356	4356
13	70	68	4900	4624	4760
14	71	69	5041	4761	4899
15	71	70	5041	4900	4970
16	71	71	5041	5041	5041
17	72	71	5184	5041	5112
18	74	72	5476	5184	5328
19	74	74	5476	5476	5476
20	75	74	5625	5476	5550
21	75	75	5625	5625	5625
22	80	77	6400	5929	6160
23	81	79	6561	6241	6399
24	81	80	6561	6400	6480
25	82	81	6724	6561	6642
26	83	81	6889	6561	6723
27	83	81	6889	6561	6723
28	84	82	7056	6724	6888

29	84	82	7056	6724	6888
30	85	83	7225	6889	7055
31	85	83	7225	6889	7055
32	87	87	7569	7569	7569
33	87	87	7569	7569	7569
34	88	91	7744	8281	8008
35	89	92	7921	8464	8188
∑	2554	2533	190520	187359	188895

Based on the Table 5, it can be seen:

$\sum X = 2554$ $\sum X^2 = 190520$ $\sum XY = 188895$
$\sum Y = 2533$ $\sum Y^2 = 187359$

3.3.3 Hypothesis test

The effect of Articulate Storyline Based Interactive Media to Facilitate Student Learning Independence can be known by conducting a simple linear regression test.

1) Creating a simple linear regression equation

The simple linear regression equation formula is Y = a + Bx. a = constant number of unstandardised coefficients. The value is 28.33; this number is constant, meaning if there is student learning independence (Y), then the consistent value of interactive learning media based on the articulate storyline (X) is 28.33. b = regression coefficient number. The value is 0.97, which implies that with every 1% increase in student learning independence (Y), the articulate storyline-based interactive learning media (X) will increase by 97%. Because the regression coefficient value is plus (+), it can be said that the articulate storyline-based interactive learning media (X) has a positive effect on student learning independence (Y). So the regression equation is Y = 28.33 + 0.97 X.

2) Hypothesis test comparing values t_{count} dengan t_{table}

It is known that the t_{count} value is 40.282 because the t_{count} value has been found, then next look for the t_{table} value. The value of a / 2 = 0.05 / 2 = 0.025, the degree of validity (db) = n-2 = 35 - 2 = 33, the value of 0.025; 35 is then seen in the distribution of t_{table} values (in the attachment), then the t_{table} value is 2.035. Because the value of t_{count} 40.282 > t_{table} 2.035, it can be concluded that HO is rejected and Ha is accepted, which means that there is an effect of interactive learning media based on the articulate storyline (X) to facilitate student learning independence (Y).

3) Coefficient of determination

The percentage of the influence of all independent variables on the dependent variable is indicated by the amount of the Coefficient of Determination (R2). This coefficient of determination (R2) shows how much influence the independent variable has on the dependent variable expressed in per cent (%). For more details, it is described in the following table 6.

Table 6. Coefficient of determination results

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.99	98,01	192	5.48289

Based on Table 6, R (Regression Coefficient) explains that interactive learning media is influenced based on an articulate strategy to facilitate student learning independence, which is 0.99. At the same time, R Square (R2) is 98.01. This value means that the effect of articulate storyline-based interactive media (X) to facilitate student learning independence (Y) is 98.01%, while the remaining 1.99% can be influenced by other factors and can be further researched by anyone interested.

3.4 Discussion

After calculating and processing the data, the research found the results of the research in the form of interactive learning media based on an articulate storyline obtained from a questionnaire given to students in the form of a statement with a value (minimum) of 51, and a value (maximum) of 89. The range value is 38, and the sum value is 2554. The Mean value is 73.21, the median is 77.92, and the mode is 75.76 with a Standard Deviation of 11.51. Student learning independence was obtained from a questionnaire with a (minimum) value of 50 and a (maximum) value of 92. The range value is 42, and the sum value is 2533. The Mean value is 72.75, the mode is 78.85, and the mode is 78.5, with a Standard Deviation of 10.65.

Based on data analysis of the research results on the effect of articulate storyline-based learning media to facilitate student learning independence in class XI Multimedia at SMK Negeri 3 Serang City. In this study, a correlation value of 0.99 was stated, meaning that the two variables have a strong and high relationship. Then obtained t count = 40.282 and t table = 2.035 means that the alternative hypothesis (Ha) is accepted, while the null hypothesis (Ho) is rejected. The conclusion is that there is a significant positive correlation between articulate storyline-based interactive learning media and student learning independence, meaning that the coefficient can be generalised to the population from which the sample was taken. This research also suggests that articulate storyline-based interactive learning media is one of the factors that influence student learning independence at SMK Negeri 3 Serang City. This is based on the coefficient of determination, which is 98.01% influenced by articulate storyline-based interactive learning media and 1.99% influenced by other factors.

4. Conclusion

Based on data analysis of the results of research conducted by the author, it can be concluded that the influence of articulate storyline-based learning media to facilitate student learning independence in class X1 Multimedia at SMK Negeri 3 Kota Serang has a very strong and high influence. This is evidenced by the correlation coefficient ("r") value of 0.99. So the conclusion is the hypothesis t_{count} = 40.282 and t_{table} = 2.035, where t_{count} > from t_{table}, thus, the alternative hypothesis (Ha) is accepted, while the null hypothesis (Ho) is rejected. So, there is a significant positive correlation between articulate storyline-based interactive learning media and student learning independence, meaning that the coefficient can be generalised to the population where the sample is taken.

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Declarations

Author contribution

Nita Wahyuni as research implementer, designing media and collecting data. Ranny Meilisa as research

and article concept designer. Imamudin as research and article concept designer. Roza Pebrianti as data collector. Hlaing Su Nandar as article writer and proofreader.

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Competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical Clearance

The involvement of human subjects in this research complies with the Declaration of Helsinki.

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