THE EFFECTIVENESS OF USING TECHNOLOGY-BASED LEARNING MEDIA IN RELATION WITH LEARNING ACHIEVEMENT IN ENGLISH
(Study in SMK Nurul Muhtadin Kibin Serang)

Riandi[1]

[1] *English Education Study Program of Teacher Training and Education Faculty, Universitas Mathla'ul Anwar Banten*

ARTICLE INFO

Keywords:
Technology-Based
Learning Media
Learning Achievement
in English

ABSTRACT

Learning media is a tool to convey messages or information aimed at instructional or contain learning purposes that can be manipulated, seen, heard, and read. Learning achievement is the result achieved after conducting learning activities. Both learning are done formally and non-formally which includes three aspects of student change cognitive, affective and psychomotor. The use of technology contributes greatly to the improvement of student achievement in English subjects, therefore students who use technology-based learning media in the teaching and learning process in the classroom will get good learning achievements. This research was conducted at SMK Nurul Muhtadin Kibin Serang, with a sample size of 32 students, from a population of 160 students, the researcher took 20% of the sample students from the total population of research. The method used in this research is quantitative descriptive method with research instruments: tests, questionnaires and literature studies. The conclusion obtained from this study is the effectiveness of the use of technology-based learning media in Nurul Muhtadin Vocational High School obtained mean value = 54 Median = 53.68 and Mode = 53.04 and SD = 5.16 While English Learning Achievement obtained mean = 79.53 Median = 77.5 Mode = 70 and Sd = 13.01 whereas from the results of the normality test L = 0.886 is thus Lo (0.2047)> of L (0.886). So that the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted, meaning that the sample is normally distributed. While the effect of the effectiveness of the use of technology-based learning media in SMK Nurul Muhtadin Kibin Serang, quantitatively it has a relationship that is sufficient or moderate, this is evidenced by the correlation coefficient ("r") of 0.60, the value is at intertval 0.60-0.80. The contribution of variable X to variable Y by using coefficient of determination (Cd) is = 36% while the remaining 64% is influenced by other factors both internal and external.

[1] Corresponding author's address: English Education Study Program of Teacher Training and Education Faculty, Universitas Mathla'ul Anwar, Banten, Indonesia
e-mail: rianriandi87@yahoo.com

INTRODUCTION

English is one of global languange which is used by many people in the world in economical business, culture, social, science and technology, currently English has penetrated education field by which students learn English as one of compulsary subjects taught in public school especially in Indonesia. Actually English has been taught in public shool for many years, but many students have problems in their learning English. Many factors of these problems arose like, the English teacher tend to apply irrelevant learning media, lack variety of the metods learning, students motivation and etc.

Rusman (2012: 83) states that Entering the current era of information and communication technology, the need and importance of the use of computer technology in learning activities to improve the quality of learning is expected. Through computer technology we can improve the quality of education, namely by opening wide to access to science and information technology in the context of implementing quality and enjoyable education.

Education has goals to be achieved, to achieve these goals not only from internal factors but also external factors such as educators, methods, materials, learning media, and an adequate environment. Based on the factors mentioned, one of them to achieve education goal is learning media. Learning media as a means of delivering or delivering messages or information aimed at instructional or containing learning purposes that can be manipulated, seen, heard and read.

Azhar Arsyad (2003:4) explains Implicitly the learning media includes tools that are physically used to convey the contents of learning materials which consist of: books, tape recorders, tapes, video cameras, video recorders, films, slides (picture frames), photo images, graphics, TV, computers and others -other (Gagne and Briggs). In other words learning media is a component of learning resources or physical vehicles that contain instructional material in a school environment that can stimulate students to learn.

Sudirman (1991-46) Learning media is provided to stimulate the activity and efficiency of learning that affect student behavior so that educational goals can be achieved properly. Diversity of learning that is used in a planned and orderly manner that will lead to the emergence of learning activities carried out by students, in this case will affect the learning process more effectively.

Safrudin Nurdin, and M. Basirudin Usman (2002:5) said The Learning Process is basically based on the possibility of students getting effective learning experiences to achieve the desired results. The teacher as an educator in the teaching and learning process has duties and responsibilities in the effort to form potential resources. Therefore, one of the components of education has an active role as a professional who is in accordance with the demands of a growing community. A school that lacks learning media will find a problem in teaching and learning activities, so that in order to attract attention and the students' interest in learning in teaching and learning activities, the school unit must try to provide the needs of students such as with adequate media.

Based on the thoughts above, the success of learning is achieved if teachers and students can use learning media as a means of channeling the message of learning in each learning activity. Therefore, teachers in facilitating students in learning activities so that learning objectives are achieved as expected, thus the effectiveness in using learning media for learning information received by students can be optimal so as to cause changes in student behavior. While the efficiency of learning media is to achieve the objectives as effectively as possible so that the goals set can be achieved properly. Learning is a process that is a process and is a very fundamental element and every type and level of education. This means that the success or failure of achieving educational goals is very dependent on the learning process experienced by students.

RESEARCH METHODOLOGY

The research method used in this research is descriptive quantitative According to Sugiyono (2013: 13) quantitative research methods can be interpreted as research methods based on the philosophy

of positivism, used to examine certain populations or samples, sampling techniques are generally carried out randomly, collecting data using research instruments, data analysis is quantitative / statistical in order to test the hypotheses that have been set. According to Arikunto (2010) descriptive research does not have the power to control things that are happening temporarily, and can only measure what exists (exists). Descriptive research is research that is intended to collect information about the status of a symptom that exists, namely the state of symptoms according to what they were at the time the research was conducted.research instrument: questionnaire and literature study The approach used is a quantitative correlational approach, in this study examined two variables namely the effectiveness of the use of technology-based learning media (Variable X) and learning achievement in English (Y variable). Population is the overall object of research. In this study the population is the students of SMK Nurul Muhtadin Kibin Serang, amounting to 160 people. With details of the number of students from each class as follows:

Table 1.The Data of SMK Nurul Muhtadin Kibin Serang

No	Class	Men Students	Women Students	Total
1.	I	34	38	72
2.	II	22	31	53
3.	III	15	20	35
	Total			**160**

The research sample is a part / representative of the population studied. In determining the sample the author is guided by the opinion of Suharsimi Arikunto, who states "If the subject is less than 100, then it is better to take all so that the research is a population research. Furthermore, if the number of subjects more than 100 can be taken between 10% - 15% or 20% - 25% or more ".

In this study the researcher took a sample of 20% of the population of 160 students of SMK Nurul Muhtadin (160 x 20% = 32 students) and in determining the sample the authors used random sampling techniques, because the subjects were more than 100 and each subject had the same opportunity to used as research samples.

RESULT AND DİSCUSSİON
Data on the Effectiveness of Using Technology-Based Learning Media

To add to the picture of the effectiveness of using technology-based learning media in SMK Nurul Muhtadin, the researcher submitted 15 questionnaire items to 32 students who were designated as research respondents. Furthermore, the researcher answer scores using a likert scale. for positive answers, always = 5, often = 4, sometimes = 3, ever = 2, and never = 1. For negative answers the opposite applies, the order of values is given 5 to 1, based on the weight of alternative answers arranged to the lowest. thus the maximum score obtained by students is 5x15 (item) = 75, while the lowest score or score is 1x15 (item) = 15. Then it will be seen the total value of each respondent as follows:

4	6	7	8	9	9	0	0	1	1	2	2	2
2	3	4	4	5	5	5	5	6	6	6	6	7
9	1	2	4	4	7							

Based on the data above, it can be seen that the lowest value is 44 and the highest value is 67

Tabel 2. Frequency Distribution Effectiveness for Using Technology-Based Learning Media (Variable X)

Score	f	f_{kb}	Xi	fXi	Fr%
44 – 47	3	3	45.5	136.5	9.375
48 – 51	7	10	49.5	346.5	21.875
52 – 55	11	21	53.5	588.5	34.375
56 – 59	7	28	57.5	402.5	21.875
60 – 63	2	30	61.5	123	6.25
64 – 67	2	32	65.5	131	6.25
Σ	**32**	-	333	1728	**100**

Determine the size of central symptoms / analysis of central tendencies by:

Calculating the mean with the formula:

$$\overline{X} = \frac{\sum fXi}{N}$$

$$= \frac{1728}{32}$$

$$= 54$$

Calculating Median by formula:

$$Md = Bp + i\left\{\frac{\frac{1}{2}n - fkb}{f}\right\}$$

$$= 51.5 + 4\left\{\frac{\frac{1}{2}32 - 10}{11}\right\}$$

$$= 51.5 + 4\left\{\frac{16 - 10}{11}\right\}$$

$$= 51.5 + 4\left\{\frac{6}{11}\right\}$$

$$= 51,5 + 4(0,54)$$

$$= 51,5 + 2.18$$

$$= 53.68$$

Calculate Mode with the formula:

$$Mo = 3Md - 2\overline{X}$$

$$= 3(53.68) - 2(54)$$

$$= 161.04 - 108$$

$$= 53.04$$

Normality Test X Variabel

Table 3. Normality Test Effectiveness of Using Technology-Based Learning Media

Skor	F	Xi	$(Xi - \overline{X})$	$(Xi - \overline{X})^2$	$F(Xi - \overline{X})^2$
44 – 47	3	45.5	-8.5	72.25	216.75
48 – 51	7	49.5	-4.5	20.25	141.75
52 – 55	11	53.5	-0.5	0.25	2.75
56 – 59	7	57.5	3.5	12.25	85.75
60 – 63	2	61.5	7.5	56.25	112.5
64 – 67	2	65.5	11.5	132.25	264.5
∑	**32**	**333**	**-**	**293.5**	**824**

Determining the Standard Deviation

$$SD = \sqrt{\frac{\sum F(X - \overline{X})^2}{N-1}} \quad = \sqrt{\frac{824}{32-1}} \quad = \sqrt{\frac{824}{31}} \quad = \sqrt{26.58} \quad = 5.16$$

Test Z

$$Z = \frac{X - \overline{X}}{SD}$$

Tabel 4. Observation Distribution and Variable Expectations X

Interval class	class limit	Z_{count}	Z_{tabel}	LZ_{tabel}	Ei	Oi
1	*2*	*3*	*4*	*5*	*6*	*7*
	43.5	-2.03	0.4788			
44 – 47				0.0826	2.643	3
	47.5	-1.26	0.3962			
48 – 51				0.2118	6.777	7
	51.5	-0.48	0.1844			
52 – 55				0.2985	9.552	11
	55.5	0.29	0.1141			
56 – 59				-0.2413	-7.721	7
	59.5	1.06	0.3554			
60 – 63				-0.1117	-3.574	2
	63.5	1.84	0.4671			
64 – 67				-0.0285	-0.912	2
	67.5	2.62	0.4956			

Test Chi Kuadrat

$$x^2_{count} = \frac{\sum (Oi - Ei)^2}{Ei}$$

$$= \frac{(3 - 2.643)^2}{2.643} + \frac{(7 - 6.777)^2}{6.777} + \frac{(11 - 9.552)^2}{9.552} + \frac{(7 - 7.721)^2}{7.721} +$$

$$\frac{(2 - 3.574)^2}{3.574} + \frac{(2 - 0.912)^2}{0.912}$$

$$= 0,05 + 0,00 + 0.21 + 0,06 + 0.69 + 0,06$$

$$= 1.07$$

Looking for Degrees of Freedom

$$dk = K - 3$$

$$= 6 - 3$$

$$= 3$$

Determine the Chi Square table with a significant level of 5% and dk 3

$$x^2_{tabel} = (1 - a)(dk)$$

$$= (1 - 0,05)(3)$$

$$= (0,95)(3)$$

$$= 9.35$$

Based on the calculation above, it is known that x2 count = 1.07 and x2 table = 9.35 So, x2 counts <x2 table, thus the population taken is normally distributed. So it can be concluded that the use of technology-based learning media at SMK Nurul Muhtadin has been going well, this is marked by many students who already know and enjoy the ease of learning with the technology-based learning media applied by English teachers in every classroom learning.

English Learning Achievement Data (Y Variable)

To find out the learning achievement of English is to make a test with a total of 20 questions. As for the highest score of 100 with details of 5 x 20 = 100 and taking the results of the test scores, the data obtained from the distribution of practice questions about learning English with a total of 32 students were arranged based on the lowest value and the highest value as follows:

60	60	65	65	65	65	65	70	70	70
70	70	70	70	75	75	80	80	85	85
85	90	90	90	90	95	95	95	100	100
100	100								

Based on the data above, it can be seen that the lowest value is 60 and the highest value is 100.

Tabel 5. Normality Test English Learning Achievement (Variable Y)

No	Score	F	Fy	Y²	fY²
1.	60	2	120	3600	7200
2.	65	5	325	4225	21125
3.	70	7	490	4900	34300
4.	75	2	150	5625	11250
5.	80	2	160	6400	12800
6.	85	3	255	7225	21675
7.	90	4	360	8100	32400
8.	95	3	285	9025	27075
9.	100	4	400	10000	40000
$\sum$	**720**	**32**	2545	59100	207825

To conduct data analysis, the following steps are taken:

Calculate the mean with the formula:

$$Y = \frac{\sum FY}{n}$$

$$= \frac{2545}{32}$$

$$= 79.53$$

Calculates the median by the formula:

$$Mdn = \frac{1}{2}(n+1)$$

$$= \frac{1}{2}(32+1)$$

$$= 16.5$$

The median position in data 16.5 is = 75 and 80, then after adding up and dividing by two the median value is 77.5

Calculate the mode with the formula:

Calculate the researcher mode by determining the most frequency (the value that often appears) between the available data leaflets, and from the data above it is known that the mode is = 70

Determining the Standard Deviation

$$SD = \sqrt{\frac{\sum fy^2}{N} - \left(\frac{\sum fy}{N^2}\right)^2}$$

$$= \sqrt{\frac{207825}{32} - \left(\frac{2545}{32^2}\right)^2}$$

$$= \sqrt{6494.53 - 6325.21}$$

$$= \sqrt{169,32}$$

$$= 13.01$$

Make observation distribution tables and expectations

Tabel 6. Distribution of observations and expectations Variable Y uses the liliefors test

No	Nilai	F	Z	F (Z)	S(Z)	S (Z)-f(Z)
1.	60	2	-1.50	0.0668	0.0625	-0.0043
2.	65	5	-1.11	0.1335	0.2187	0.0852
3.	70	7	-0.73	0.2327	0.4374	**0.2047**
4.	75	2	-0.34	0.3669	0.4999	0.133
5.	80	2	0.05	0.4800	0.5624	0.0824
6.	85	3	0.42	0.3372	0.6561	0.3189
7.	90	4	0.80	0.2119	0.7811	0.5692
8.	95	3	1.19	0.1170	0.8748	0.7578
9.	100	4	1.57	0.0582	1	0.9418
$\sum$	*720*	*32*	*0.35*	*2.0042*	*5.0929*	*3.0887*

From the table above, it is obtained Lo = 0.2047 with n = 32 and a significant level of 0.05, known as L = 0.886, thus Lo (0.2047) <of L (0.886). So that the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted, meaning that the sample is normally distributed. So it can be concluded that high English learning achievement is influenced by the use of technology-based learning media in SMK Nurul Muhtadin.

Data correlation Effectiveness of Using Technology-Based Learning Media on learning achievement in English

Test this correlation using product moment correlation analysis. The correlation test is the effectiveness of using technology-based learning media on learning achievement in English with the following steps:

Table 7. Arrange data for variables X and Y variables

Nomor Responden	X	Y	X²	Y²	XY
1.	48	65	2304	4225	3120
2.	54	75	2916	5625	4050
3.	64	95	4096	9025	6080
4.	49	65	2401	4225	3185
5.	55	70	3025	4900	3850
6.	64	90	4096	8100	5760
7.	49	65	2401	4225	3185
8.	55	70	3025	4900	3850

9.	67	90	4489	8100	6030
10.	50	60	2500	3600	3000
11.	55	70	3025	4900	3850
12.	50	85	2500	7225	4250
13.	55	100	3025	10000	5500
14.	51	60	2601	3600	3060
15.	56	70	3136	4900	3920
16.	52	90	2704	8100	4680
17.	56	100	3136	10000	5600
18.	52	65	2704	4225	3380
19.	56	75	3136	5625	4200
20.	52	90	2704	8100	4680
21.	57	65	3249	4225	3705
22.	51	80	2601	6400	4080
23.	56	95	3136	9025	5320
24.	44	70	1936	4900	3080
25.	52	80	2704	6400	4160
26.	59	95	3481	9025	5605
27.	46	70	2116	4900	3220
28.	53	85	2809	7225	4505
29.	61	100	3721	10000	6100
30.	47	70	2209	4900	3290
31.	54	85	2916	7225	4590
32.	62	100	3844	10000	6200
Σ	**2545**	**1732**	**207825**	**94646**	**139085**

From the above data obtained:

$\sum Y$ = 1732 $\sum X^2$ = 94646 $\sum XY$ = 139085

$\sum Y^2$ =207825 $\sum X$ = 2545

Determining the Number of Correlation Coefficients
After it is known that the two distribution variables are normal, then to calculate the correlation, the Product Moment Correlation formula is needed, the calculation process is as follows:

$$ry = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{\{N\sum x^2 - (\sum x)^2\}\{N\sum y^2 - (\sum y)^2\}}}$$

$$= \frac{32(139085)-(1732)(2545)}{\sqrt{\{32(\,94646)-(1732)^2\,\}\{32(207825)-(2545)^2\,\}}}$$

$$= \frac{4450720-4407940}{\sqrt{\{(3028672)-(2999824)\}\{(6650400)-(6477025)\}}}$$

$$= \frac{42780}{\sqrt{(28848)(173375)}}$$

$$= \frac{42780}{\sqrt{5001522000}}$$

$$= \frac{42780}{70721.43}$$

$$= 0,60$$

From the calculation above, it turns out that the correlation number between variables X and Y is positively correlated with a value of r = 0.60 which means a strong or high correlation

Koefiesien Correlation Significance Test

Determine the value (t) with the formula:

$$t = \frac{r\sqrt{N-2}}{\sqrt{1-r^2}}$$

$$= \frac{0,60\sqrt{32-2}}{\sqrt{1-(0,60)^2}}$$

$$= \frac{0,60\sqrt{30}}{\sqrt{1-(0,36)}}$$

$$= \frac{(0,60)(5.48)}{0.61}$$

$$= \frac{3.29}{0,61}$$

$$= 5.39$$

Determining the Degree of Freedom

$$db = N-2$$

$$= 32-2$$

$$= 30$$

Determining t-table with a significance level of 5%

$$t_{tabel} = (1-\alpha)(db)$$

$$= (1-0,05)(30)$$

$$= (0,95)(30)$$

$$= 1.70$$

Determining the coefficient of determination

$$CD = r^2(100\%)$$
$$= (0,60)^2(100\%)$$
$$= (0,36)(100\%)$$
$$= 36\%$$

From the calculation above, it can be seen that the correlation between the effectiveness of the use of technology-based learning media (variable X) on learning achievement in English (Y variable) has a contribution of 36% and the rest (64%) relates to other external and internal factors which can be investigated further.

CONCLUSION

From the results of the research conducted on "The Effectiveness of Using Technology-Based Learning Media in Relation to Achievement in Learning English" at SMK Nurul Muhtadin, the following conclusions can be drawn:

1. Based on the data that the research obtained from the results of questionnaires about the effectiveness of using technology-based learning media in SMK Nurul Muhtadin, the mean value = 54 Median = 53.68 and Mode = 53.04 and SD = 5.16 while the results of the normality test obtained x2 count (1.07) <x2 table (9.35), so variables are normally distributed. From the data above, this shows that the effectiveness of the use of technology-based learning media is in the good category.

2. Based on the data the research obtained from the Learning Achievement of English at Nurul Muhtadin Vocational School, the mean value = 79.53 Median = 77.5 Mode = 70 and Sd = 13.01 while the results of the normality test obtained L = 0.886 thus Lo (0.2047)> from L (0.886). So that the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted, meaning that the sample is normally distributed.

3. It can be concluded that the effectiveness of the use of technology-based learning media has to do with learning achievement in English at SMK Nurul Muhtadin, quantitatively it has a high relationship, this is evidenced by the correlation coefficient value ("r") of 0.60 the value is at interval (0.60 -0.80). Furthermore, the test results of the significance of correlation show that tcount = 5.39 and t table at the significance level of 5% = 1.70. Thus thitung> t table, the interpretation is that there is a significant positive correlation between the effectiveness of the use of technology-based learning media in relation to learning achievement in English. The contribution of variable X to variable Y by using coefficient of determination (CD) is = 36% while the remaining 64% is influenced by other factors both internal and external.

REFERENCES

Azhar Arsyad, (2003) *Media Pembelajaran*, Jakarta: PT. Raja Grafindo Persada.

Arikunto, S. (2010). *Manajemen penelitian*. Jakarta: Rineka Cipta.

Sugiyono. (2013). *Metode penelitian kuantitatif, kualitatif dan R&D.* Bandung: Alfabeta.CV

Sudjiona, Anas. (2008) *Pengantar Statistik Pendidikan*, Jakarta: Raja Grafindo Persada

Sudirman dkk, (1991) *Ilmu Pendidikan*, Bandung : PT. Remaja Rosdakarya.

Rusman, (2012) *Belajar dan Pembelajaran Berbasis Komputer Mengembangkan Profesionalisme Guru Abad 21*, Bandung: Alfabeta.

Safrudin NurdiN, M. Basirudin Usman. (2002) *Guru Profesional dan Implementasi Kurikulum*, Jakarta : Ciputat Pers.