



The Effect of Integrating ICT in Learning on Students English Learning Achievement

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Abstract. This quantitative study had a purpose to prove that students' academic achievement in English subject would be increased by teacher's effort in integrating ICT effectively in learning process. Grade five students who were registered at Unklab Adventist Elementary School in Airmadidi, North Minahasa were the respondents of this study. They filled in a questionnaire about ICT integration in the form of Likert's Scale which consisted of five alternative answers, start from never to always. Moreover, the final examination results in English subject were another data needed in this study. Statistical tools such as frequency, mean, standard deviation, and simple regression were used to treat the data collected. The result showed that p value is 0.00, smaller than the significant value $p = 0.05$. It means that there is a significant effect of ICT integration in English learning to student's academic achievement. This finding indicated that the null hypothesis is rejected. Based on this finding, therefore, the researcher recommends that English teacher should integrate ICT in English learning because of its contribution in maximizing students' achievement.

Keywords: ICT integration · Elementary students · English learning achievement

1 Introduction

In some areas in Indonesia, English is still considered as a foreign language that is only used by a few parties or certain circles in a certain community as well. That is why for some students this subject is difficult to be learned. Based on data from the English First – English Proficiency Index (EF EPI), which is reported to be the English proficiency ranking globally, Indonesia is only ranked as 28th out of all 63 countries assessed, with the involvement of 750,000 respondents. Meanwhile, neighboring countries such as Singapore is ranked 13th (59.8%) and Malaysia is in 12th place (59.73%) are in high level of English proficiency [1]. The low learning achievement obtained by most students is as a warning that there are problems experienced by students in their efforts to master the English materials they are studying. If this is allowed to drag on, it will have an impact on the low quality of education in general.

Starting from the problems experienced by the world of education globally related to the outbreak of the Corona19 virus in March 2020, various parties and more specifically

observers in the field of education were aware of the importance of Information and Communication Technology (ICT) integration in learning activities for students. ICT integration in learning process means that teacher provides activities to engage students' active participation and to promote independent learning by using ICT tools or services network. The integration of ICT in learning is said to have been able to provide many advantages and conveniences for teachers and students during learning activities. This was revealed in some studies that found out the positive impacts of integrating ICT in learning in various aspects, such as increasing students' access to learning, making it easier for them to get the information they need as soon as possible, making students more independent and initiative, and even making the learning presented by teachers more interesting for them [2–4]. These situations and conditions eventually lead to an increase in the learning activity of students so that it also has an impact on improving their learning outcomes.

However, from the previous observations and studies mentioned earlier, students still have struggled in mastering the target language they learn. It is predicted that the factor causing the lack of understanding and mastery in English subjects is the use of learning methods by teachers that are considered inappropriate. Teachers often apply traditional approaches in teaching and learning activity so that the role of students during the teaching and learning process only as listeners. Moreover, students get involved in English learning activity in the classroom only in a limited-time, for four hours in one week of the effective school days. As the results, the inability of students to understand and grasp the English lessons taught by the teacher can be seen from their inactive participation and behaviors shown during the learning process, and from the low grades they obtain by the end of their learning period. If this situation is ignored by the teachers, this would hinder students from actuating their academic potential.

The use of ICT in learning would be the answer to the problems. However, the question becomes whether the teachers have been ready and skilled in the use of ICT so that they are able to engage their students to actively following the lesson. Are they able to attractively present the English learning materials which integrated with ICT, more interesting than what students get from social media? Or, are the lessons they deliver met the needs of today's learners who are dependent to the convenience and sophistication offered by the ICT devices they use daily? These questions arise alongside with the schools' efforts in providing teaching and learning activities which integrate ICT. That is why the researcher tried to prove the benefits of ICT in education. More specifically, the purpose of this study was to obtain information about the level of the usefulness of ICT integration in learning as perceived by the students and student learning achievement in English subjects. By obtaining the results of analysis and interpretation of these two things, it can be proved whether the usefulness of ICT integration in learning affects the English learning outcomes of grade five students at Adventist Elementary School in Airmadidi.

Based on those thoughts, operationally this study was limited to one dependent variable, namely the English learning achievement of grade five students of Adventist Elementary School in Airmadidi, and one independent variable, namely the usefulness of ICT integration in learning. From the description that exists in the background of the problem, several research problems that needed to be answered were formulated as

follow: 1) What is the level of the usefulness of ICT integration in learning as perceived by the students, 2) What is the level of English learning outcomes of grade V student, and 3) Is there a significant effect of the usefulness of ICT integration in learning as perceived by the students on English learning achievement of grade V students at Adventist Elementary School in Airmadidi.

The implementation of a quality education that can meet everyone's expectations is the main purpose of establishing an educational institution. The quality of education will be improved if every human resource in the institution continues to strive improving the quality of their work in serving the needs of students, to prepare them are able to compete and excel in their respective fields. One of the issues that is often debated by educators ahead of determining whether the students may proceed to the next level of their education is related to their learning achievement, more specifically in English subjects. This is because there are still some students who are struggle in reaching the mastery level for this subject. The extent of the level of knowledge that a student has to the material received is an indicator of the learning outcomes he has obtained [5]. If there is an improvement and development in his learning process then it can be said that he has succeeded.

In general, the low unsatisfactory learning outcomes are predicted to be caused by the difficulties experienced by students to understand the teacher's explanation of the material they are teaching. Difficulties in understanding the material are predicted caused by the learners in terms of the lack of readiness in following the lesson, self-maturity, and willingness to learn or caused by a model of presentation of subject matter by teachers who are considered less attractive during the learning process [6, 7]. The presentation of the subject matter by those teachers is still fixated on the old ways of teaching, without considering the needs of students who are born and growth in the era of globalization.

In the current era, the goal of education has been one step ahead compared to two decades ago, where the goals are not only to enhance students' creativity, but also to equip them with the current knowledge and skills in technology so that they become independent learners. This goal should be started by providing teachers who know well how to use technology in classroom. Mastery of ICT requires the knowledge and skill in using it, to create innovations and even disseminate the knowledge for the benefit of society in general [8]. Educators who have the competency in the use of ICT will be able to meet the demands in the Minister of National Education Number 16 of 2007 concerning Teacher Competence. In the Ministerial Regulation, it is clearly stated that personal competence, pedagogical competence, social competence and professional competence possessed by teachers will be maximized if it is supported by the ability of teachers to integrate ICT in learning.

However, the different results of another studies on integrating ICT in learning were found by other researchers. It was found that the integration of ICT carried out during learning actually made the learning process not produce the lesson objectives as expected. The results of a study by Blaschke showed the causes of low learning outcomes due to the teaching atmosphere where teachers integrated ICT in learning, students' willingness to learn, the personal and attitudes shown by the teacher, as well as the readiness and maturity of the students [9]. Moreover, the most dominant influencing the English learning outcomes of students in the school is the teaching atmosphere which ICT was

integrated uncontrollably during learning activities. This result was in line with another studies that found the implementation of ICT during learning was misused by students not for learning activities purposes but was used for activities on social networks and playing games. They only spent less time in doing their school tasks or homework. As the consequences, they showed low performance in English learning [10, 11].

In addition, there are still other obstacles that arise related to efforts to integrate ICT during learning, where the triggering factor comes precisely from the subject teachers themselves. From the results of some studies that have been carried out, it is found that the mastery of ICT by teachers is indicated to tend to be low. It turned out that of the 28,000 teachers who took the competency test for the use of ICT, only 46% of this number were able to reach Level 1, while the other 14% were able to reach Level 2. It can be said that only 50% have knowledge about the use of ICT and are able to apply it. Unfortunately, no one has been able to reach Level 3 or Level 4 [12]. Another study found that there are still teachers in urban areas who do not have teaching facilities in the form of technology, such as laptops, LCDs, and so on, which commonly used to support the teaching and learning activities [13]. Even if they already have these technological and communication devices, unfortunately the quality of these supporting facilities is not sufficient to be used as a tool in learning activities. The existing conditions have also been stated before by another researcher that in urban areas, only 70% who have laptop or personal computer, however, only 53% are able to master and utilize them in delivering subject matter [14]. In fact, even though it has passed a period of almost a decade, this condition still has not made any significant progress because data from national news showed that 60% of teachers have not mastered in technology [15].

2 Research Method

In this study, the approach used was a quantitative research approach. The research design was a descriptive-causal research, where the data collected in the form of numerical data. The population of this study were all students at Adventist Elementary School in Airmadidi, North Minahasa Regency, and the population unit of this study were all grade V students, who enrolled in the 2021–2022 school year, in the second semester, with the total number of 93 students. However, after the research instruments were distributed, there were three respondents who did not fully answer the question items in the questionnaire. Therefore, their responses were eliminated.

The research instrument was used to collect data of ICT integration in learning, while English learning achievement was based on students' final examination in English subject. The self-constructed questionnaire was based on the *Theory of Technology Acceptance Model (TAM)* by Davis that was grounded in the Theory of Reasoned Action [16]. This theory emphasizes that beliefs about the importance of something influence people attitudes to do it intentionally. The questionnaire was arranged in the form of five-Likert Scale, consisted of as many as 20 items. After the validity test, 4 items were invalid. The 16 valid items were: The ICT integration in learning makes the lesson more interesting, makes learning activities fun, reduces my anxiety, makes me being active in classroom, helps me easily memorize the new vocabularies, helps me remember the lesson, broadens my knowledge, makes me proud of myself because I know how to use

Table 1. Percentage of Respondents by Gender

	Frequency	Percentage
Boys	44	48.9
Girls	46	51.1
Total	90	100.0

Table 2. Percentage of ICT Usage

Learners ICT Usage	Frequency	Percentage
Cellular Phone Only	41	64,1
Laptop Only	5	8,8
Mobile Phones and Laptop	20	31,3

technology, improves my skill in listening English sounds, motivates me to read English reading more, triggers me to learn better, makes teacher's instruction clear to me, helps me fix my false pronunciation, helps me finish my task faster, can bring the new things in classroom that I have never seen before, and helps me finding the meaning of new vocabulary.

The reliability test using statistical application program for the 16 items of the questionnaire obtained the result that for integrating ICT in learning was 0.796. The acquisition of reliability test results was greater than the value of Cronbach Alpha = 0.6, so it can be concluded that the instrument used in this study was reliable. This study used statistical tools, such as *frequency*, *mean*, *standard deviation*, and *simple regression analysis* technique to answer the research problems. This analysis was to find out the effect of independent variable (X) to dependent variable (Y).

The demographic profiles of respondents were described based on gender, and the type of technology they used while learning English subject in classroom. First of all, in Table 1 about the percentage of respondents by gender, with a total number of respondents as many as 90 students, it is known that 44 students or 48.9% are boys, and 46 students or 51.1% are girls. It was thus concluded that the respondents of the study were more girls than boys.

Furthermore, Table 2 shows the percentage of ICT usage as means of learning by students and teachers. From the results obtained, it was found that most (64.1%) of the students used cellular phones, then 8.8% used laptop only, and those who used both cellular phones and laptop were 31.3%. The data collected showed that students were familiar with the use of technology in the classroom daily.

3 Result and Discussion

3.1 Results

3.1.1 Level of the Usefulness of ICT Integration in Learning

To analyze and then describe the data that has been collected, a descriptive statistical test was carried out, displayed in the form of tables respectively. The question items regarding the integration of ICT in learning given to the respondents were 16 valid questions. The score is measured by the value of numbers from 1 to 5. Based on the acquisition of data from 90 respondents, the presentation of data in the form of frequency distribution of ICT integration levels in learning showed as follows in Table 3.

The results of data analysis showed that out of 90 students, as many as 31 (34.4%) students admitted that the level of ICT integration by teachers in learning was very high, then as many as 24 (26.7%) students recognized a high level of ICT integration. However, as many as 7 (7.8%) students admitted that the level of ICT integration in learning was sufficient or moderate, not high and also not low, and 19 (21.1%) students admitted the low level of ICT integration in learning, even 9 (10.0%) recognized the existence of ICT integration but it was very low (Table 4).

The results showed that the students admitted the top four things of the usefulness of ICT integration in learning they experienced were: It helped them to be active in learning, fix their false pronunciation, bring new things in classroom that they've never seen before, and make them proud of themselves because they know how to use technology.

Moreover, Table 5 shows the presentation of variables of integrating ICT in learning. The results show that the minimum score = 29.0 (the ideal minimum score with 16 items is 16); maximum score = 80 (the ideal maximum score with 16 items is 80); the average score = 59.47 (average ideal score = 48); the standard deviation = 14.19; and the median = 66. The overall mean score ICT integration in learning belongs to the category of sufficient ($\bar{x} = 59.47$). These results show the degree of integration of ICT in learning was categorized as sufficient.

Table 3. Frequency Distribution of ICT Integration Effectiveness in Learning

No.	Interval Class	Category	Frequency	Percent
1	29.0 – 39.1	Very low	9	10.0
2	39.2 – 49.3	Low	19	21.1
3	49.4 – 59.5	Sufficient	7	7.8
4	59.6 – 69.7	High	24	26.7
5	69.8 – 80.0	Very high	31	34.4
	Total		90	100.0

Table 4. The Mean Score of the Usefulness of ICT Integration in Learning

I experience the usefulness of ICT in...	M	SD
Making me being active in the classroom	2.90	.32
Helping me fix my false pronunciation	2.89	.35
Bringing new things in classroom that I've never seen before	2.86	.44
Making me proud of myself because I now know how to use technology	2.86	.46
Improving my skill in listening English sounds	2.85	.41
Broadening my knowledge	2.85	.45
Making the learning activities fun	2.85	.36
Making teacher's explanation clearer	2.82	.63
Helping me finish my tasks faster	2.81	.41
Making the lessons more interesting	2.79	.73
Helping me easily memorize new vocabularies	2.78	.52
Triggering me to learn better	2.73	.50
Motivating me to read English reading more	2.73	.46
Helping me finding the meaning of new vocabularies	2.69	.52
Helping me remember the lesson	2.65	.56
Reducing my anxiety	2.61	.42

Table 5. Descriptive Analysis of the Usefulness of ICT Integration in Learning as an Overall

	N	Min.	Max.	Mean	Std. Dev.	Median
ICT integration	90	29	80	59.47	14.188	66
Valid N (listwise)	90					

Table 6. Frequency Distribution of English Learning Achievement

No.	Interval Class	Category	Freq.	Percent
1	34.0 – 43.7	Very low	17	18.9
2	43.8 – 53.5	Low	14	15.6
3	53.6 – 63.3	Moderate	6	6.7
4	63.4 – 73.1	High	34	37.8
5	73.2 – 83.0	Very high	19	21.1
	Total		90	100.0

Table 7. The level of Students English Learning Achievement

	N	Min.	Max.	Mean	Std. Dev.	Median
Learning Outcomes	90	34	83	62.74	15.165	70
Valid N (listwise)	90					

3.1.2 English Learning Achievement

The presentation of data in the form of frequency distribution of English learning outcome is presented in the following Table 6. The data were collected from the result of students' final examination in English subject.

The results in Table 6 show that the results of English learning achievement from the total of 90 students, as many as 19 (21.1%) students had very high English learning achievement, 34 (37.8%) students with high English learning achievement, and 6 (6.7%) students were found with moderate learning achievement. There were 31 (34.4%) students who had low, even very low English learning achievement compared to other students.

Furthermore, the level of students' English learning achievement as an overall is presented in Table 7. Based on the acquisition of data from 90 respondents, the results of data processing for variables of English learning achievement revealed as follows: the minimum score = 34 (the ideal minimum score with 15 items is 15); the maximum score = 83 (the ideal maximum score with 15 items is 100); the average score = 62.74 (average ideal score = 63); the standard deviation = 15.165; and the median = 70. The overall mean score of the students' English learning achievement was in the moderate category ($\bar{x} = 62.74$).

3.1.3 The Effect of ICT Integration in Learning on Students English Learning Achievement

Table 8 displays the correlation coefficient of ICT integration in learning on students' English learning achievement. The result is to prove the presence of a direct effect of independent variable to dependent variable in this study.

The result showed that there was a direct influence of the ICT integration variable in learning (X) on students English learning achievement (Y) with a significance value of $\rho = 0.000$. This significance value is less than the established significance value which is $\alpha = 0.05$ ($\rho = 0.000 < 0.05$). A positive *unstandardized coefficient B* value indicated that the higher the level of ICT integration had led to higher students English learning achievement.

This means that the hypothesis which stated there was no significant effect was rejected because it turns out that there was a significant positive effect of integrating ICT in learning on English learning achievement of grade V students at Adventist Elementary School in Airmadidi. The existing influence is positive with *Coefficient of Determinant (R square)* = 82.5%, indicating that the variable of integrating ICT causes diversity in the English learning outcomes of the students by 82.5%.

Table 8. The Effect of ICT integration in learning on students English learning achievement

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-9017	3.543		-2.560	.011
	ICT Integration	18.762	.911	.906	20.377	.000

a. Dependent Variable: English learning achievement

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.906 ^a	.825	.823	7.70685

a. Predictors: (Constant), ICT Integration

3.2 Discussion

English subject is one subject that is considered the most difficult to understand for Indonesian students, so that sometimes there is a feeling of dislike, and unwillingness to follow the English learning activities in the classroom. Often times students prefer to skip the class. No wonder that in one English classroom, only a small amount of students can get satisfactory English learning results. These learning results are obtained after going through various types of evaluations given by the teacher, whether it is in the form of daily tests, practice assignments in class or homework assignments, or even through the final semester exams, which show whether the results are satisfactory or even disappointing. Teaching English to elementary school children is very important as an effort to prepare them early in mastering English. The earlier they get to know and like this foreign language, the greater the opportunity for them to master it more easily later when they move to a higher level of education.

The rapid development of technology today makes the position of teachers no longer as the only learning resource for students. This situation requires teachers as professional to be able to master technology and continue to develop their abilities in catching up and updating knowledge and skills related to the use of information and communication technology in teaching. It has been proven that the way the subject matter is presented, the competencies possessed by the teacher, the personality shown by the teacher through attitudes when teaching, the classroom atmosphere during teaching, as well as the active learning environment around students greatly affect the achievement of optimal English learning outcomes. The integration of ICT in learning has been able to provide many advantages and conveniences for teachers and students during learning activities. This was indicated in some responses from the students who admitted the positive impacts of integrating ICT in learning in various aspects, such as increasing students' access to learning, making it easier for them to get the information they need as soon as possible,

making students more independent, and even making the learning presented by teachers more interesting for them.

The results of this study are in line with the results of previous studies which reported the positive impact of integrating ICT in learning in various aspects, especially in improving students learning achievement [17–19]. Those various aspects are the content of learning that has relevance to the specific purpose of learning to be achieved, the teaching methods and exercises that can help the learning process so that learning can take place properly, the use of media such as pictures, videos, power points presentation, or films to present content and develop and even build new knowledge and skills in accordance with English learning. Moreover, integrating ICT in learning can improve the mastery of ICT competencies for both teachers and students, with significant differences from the group of students taught using ICT-based learning strategies compare to those who taught using conventional methods [7, 20]. It has been emphasized the importance of integrating ICT in learning because of the contribution it makes to maximize student learning achievement [21]. The contribution that can be made is expressed through improving the quality of learning, increasing access to education and teaching, and being able to prepare students with skills to use ICT for their future needs.

It has been previously explained that there are several causal factors that are suspected to affect English learning achievement of grade five students in Adventist Elementary School in Airmadidi. That is why, with the emergence of problems in the field related to the low English learning achievement of students which predicted to be influenced by the lack of optimal integration of ICT in learning, this study is needed to be conducted to prove the correctness of the assumptions previously mentioned. Based on the results obtained, it can be concluded that the level of integrating information and communication technology in learning is in the sufficient category. Likewise with the learning outcomes of students in English subjects, the average score in the sufficient category is obtained. That is why, the results of the hypothesis test prove that the unsatisfactory learning achievement of English subject have something to do with the level of integrating ICT in learning that has not been maximized by the teacher.

Therefore, the researcher suggested that teachers of English subjects should apply learning and teaching activities by utilizing the ICT from the beginning to the end of teaching activities in the classroom. This would improve the quality, accessibility and efficiency in the implementation of learning to learners, in facing the challenges of current globalization.

It is also important for the school to facilitate the teachers to attend training in an effort to increase knowledge and skills of integrating ICT in learning, which has been shown to have a significant effect in improving English learning achievement of grade five students. Moreover, school should also provide sufficient computer facilities for teachers and students, and technical maintenance as well.

For further research, it is recommended to use the information obtained from the results of this study as a reference source in conducting further research at different educational levels with a larger number of respondents, which is related to the influence of integrating ICT in learning.

4 Conclusion

Based on the results obtained, it can be concluded that the level of integrating information and communication technology in learning is in the sufficient category. Likewise with the learning achievement of students in English subjects, the average score in the sufficient category is obtained. That is why, the result of the hypothesis test proves that the unsatisfactory learning achievement of English subject has something to do with the level of integrating ICT in learning that has not been maximized by the teacher.

Therefore, the researcher suggested that teachers of English subjects should apply learning and teaching activities by utilizing the ICT from the beginning to the end of teaching activities in the classroom. This would improve the quality, accessibility and efficiency in the implementation of learning to learners, in facing the challenges of current globalization. It is also advisable to always add insight, knowledge and skills in mastering ICT, by placing students as the priority for service, so that they feel satisfied, and would become learners who actively participate in all learning activities.

The limitations in this study were the on the part of the respondents. The respondents who were the elementary students still unfamiliar with how to give responses to a questionnaire. Moreover, the researcher could not control how they perceived every item of the questionnaire. In addition, the respondents were chosen only from one private school. That is why a bigger population is needed so that the result can be generalized.

For further research, it is recommended to use the information obtained from the results of this study as a reference source in conducting further research at different educational levels with a larger number of respondents, which is related to the influence of integrating ICT in learning. In addition, learning achievement is not only limited to English subject, but can include other subjects, obtained by students, both in private schools and in public schools in North Sulawesi Province.

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