

*The Role of Technology in Improving the Teaching and Learning Process at  
Tadulako University, Indonesia*

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The Asian Conference on Education 2018  
Official Conference Proceedings

**Abstract**

The use of technology in language teaching is rapidly growing. Therefore, this study attempted to explore an in-depth analysis of the integration of technology in the classroom and its impact on student achievement. It applied the mixed-method which employed questionnaire for both teachers and students, and the interview. The questionnaire of teachers intended to find out their perception on technology involvement in the process of teaching and learning while questionnaire for students intended to analyze their opinion regarding the integration of technology in the classroom and the its impact on their learning achievement. Besides, this research employed semi-structured interview to confirm data on the questionnaire. The data have been analyzed descriptively. The results found that the effect of innovation demonstrates most intense when concentrated on particular, quantifiable instructive destinations, for example, enhanced literacy. In addition, understudies exhibit larger amounts of inspiration and commitment when utilizing innovation, which too adds to enhanced achievement. Trends in the classroom have gone from overhead projectors to creative projects, for example, PowerPoint and whiteboards. Those findings will contribute much information and references to the teachers, practitioners, and researchers themselves in involving technology in their classroom.

Keywords: Educational Technology, technology integration, ICT

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## **Introduction**

In the era of globalized technological advances that have affected all aspects of human life, such in the fields of economics, politics, culture, art and even in the field of education, so that aspects of education must carry out positive innovations for the advancement of education at the university and school level, not only the innovation in the field of curriculum, infrastructure and facilities, but also comprehensive innovation by using information technology in teaching and learning activities (Suriaman, 2015)

The use of technology in education can change conventional learning to become unconventional. In the framework of Innovative University, universities must respond to the development of an increasingly sophisticated world of technology that provides a myriad of new and old knowledge. Learning at the university needs to use a series of electronic equipment that is able to work more effectively and efficiently. Even so, the role of the lecturer is still needed in the classroom; he is a designer, motivator, mentor, who of course as an individual must be respected (Salikin & Bin-Tahir, 2017).

Information and communication technology (ICT) is a necessity towards "Innovative University" because using ICT is expected to improve the quality of teaching and learning, increase productivity, efficiency and access, increase positive learning attitudes, professional development, and increase profile. These five things are both expectations and needs that form the basis of the need for the application of ICT at the University. Thus, it is expected that the university will experience changes that are in line with global demands but remain in line with its vision and mission which are correlated with the needs of the community and graduates.

Some of the previous studies recommended the use of technology in the language teaching and learning. Ranti (2013) ICT-based learning can enhance the students' learning achievement. It is in line with the Andikaningrum et al., (2014) statement that multimedia of e-book based learning can motivate the students' activity and achievement in learning. Besides, Tahir (2015) suggested the use of social media that is Yahoo Messenger as a media of teaching and Tahir & Aminah (2014) argued that Facebook is effective to increase the students' activeness in joining the teaching and learning process and also improve the students' learning achievement.

Based on the background, the researchers conducted a research concerning how to explore the appropriate of the ICT to be used in English learning. This study hopefully contribute to the recent use of ICT in learning as the information and reference for the lecturers, further researchers, and the researchers themselves to implement the media in teaching

## **Review of Literature**

Many experts defined the technology in education. According to Simon (1983), technology is a rational discipline designed to ensure mastery and scientific application. According to Paul Saetiles in Andri,( 2017), technology in addition to leading to machinery, technology includes processes, systems, management and mechanisms for human and non-human control. Understanding Educational

Technology Twentieth century includes the first projector's slide lantern, then the radio and then the live image. Whereas the 19th century down to fifteen shows that more technologies interpreted as whiteboards and books.

According to Davies (1978) in Hartley (2016) there are three kinds of educational technology, namely:

- a. Educational technology one refers to hardware such as projectors, laboratories, computers (CD ROM, LCD, TV, video and other electronic devices). This mechanical technology can automate the teaching and learning process with tools that transmit, amplify sound, distribute, record and reproduce material stimuli that reach a large number of listeners/students. So this one technology is effective and efficient.
- b. Educational technology two refers to "software" which emphasizes the importance of assistance to teaching. Especially in the curriculum, in instructional development, teaching methodology, and evaluation. So technology two provides the need to design a new or update the present, useful in learning experience Machines and mechanisms are seen as presentation or transmission instruments.
- c. Educational technology three, namely a combination of two technology approaches, namely "hardware and software". Technology education three, its main orientation is towards the system approach, and as a tool to increase the benefits of what is around. Educational technology three can be said to be a problem-solving approach, the emphasis is on an attractive diagnostic orientation. Of the three types of technology above, it can be said that educational technology in the real context is not only referring to hardware as it is commonly used as a true perception, but also includes software and a combination of both hardware and software.

Educational Technology as a tool to support the construction of knowledge: a) to represent students' ideas of understanding and trust, b) To organize production, multi-media as the basis of students' knowledge. Educational technology as a means of information to investigate knowledge that supports students: a) To access the information needed. b) For a comparison of perspectives, beliefs and world views. Educational technology is social media to support learning by speaking. a) To collaborate with others. b) To discuss, argue and build consensus between social members. Educational technology is an intellectual partner to support students. To help students articulate and present what they know. Educational technology can improve the quality of education. Educational technology can improve the effectiveness and efficiency of the teaching and learning process. Educational technology can facilitate achieving educational goals.

While the drawbacks of technology in education are; Teachers who cannot operate/control electronics will be left behind by students. Educational technology requires quality human resources to accelerate school innovation, while reality is lacking. Educational technology, both hardware and software requires expensive costs. Limitations of school infrastructure facilities will hamper educational innovation. The use of educational technology in the form of Hardware requires high control from teachers or parents, especially the internet and software. Students who do not have high motivation tend to fail.

## Method

This study applied the mixed-method design that is combined both the quantitative and qualitative data. Mixed-method is an approach that combines or associates quantitative forms and qualitative forms. Mixed methods research is a research method that involves the use of two methods, namely quantitative research methods and qualitative methods in a single study or one study. This type of research is more complex when compared to other studies, not just collecting and analyzing two types of data, but also involves the functions of quantitative research and qualitative research so that overall is greater than the two studies. The use of these two research methods is considered to be more able to provide a more complete understanding of research issues or problems than the use of one of the research methods in between (Creswell, 2010).

The subjects of the study were ten lecturers and 159 students of Tadulako University, Indonesia which been selected randomly. The questionnaire used to collect the quantitative data while the interview employed to gain the qualitative data. The quantitative data have been analyzed using SPSS program and the qualitative data have been analyzed descriptively.

## Results and Discussion

Data from the questionnaire of the lecturers' perception toward the use of technology in learning were then presented in a percentage. The percentage of the lecturers' perception scores can be seen in table 1 below.

Table 1 The Perceptions of Lecturer on the Importance of the ICT in teaching and learning

Classification	The Percentage of			
	Teaching Media	ICT	Internet	Blended Learning
1	2	3	4	5
Unimportant	0	0	0	0
Less Important	0	0	0	0
Important	3.7	31.4	37.1	2.5
Very Important	96.3	68.6	62.9	97.5
Total	100	100	100	100

Column 2 of the table 1 indicates that the lecturers in Tadulako University perceived that the teaching media is very important. The column 2 of the table clearly shows that more than 95% of the respondents stated that teaching media was very important. While there were only 3.7% of the respondent stated that the teaching media was important. There were none of the respondent either stated the unimportant or the less important of this dimension.

Column 3 of table 1 above shows the perception of lecturers towards the important of the ICT in teaching. Based on this column, it can be seen that the use of the ICT was also perceived as being very essential. Even though the percentage the respondents who stated that the ICT was very important was not as many as in teaching media, but still 68.6% of respondents who stated was the majority (more than two-third) of the

respondents. There were 31.4% of respondents who stated that the ICT was important and no respondents stated that this technology was neither unimportant nor less important.

Column 4 of table 1 shows the perception of lecturers toward the importance of the internet in teaching. Based on the column 4, it can be said that the internet was perceived as being very decisive. As there were 62.9% of the respondents affirmed that the use of internet in teaching was very important, while 37.1% of the respondents affirmed that the dimension of internet was important, and neither of the respondent affirmed that this dimension was unimportant nor less important.

Column 5 of table 1 indicates the perception of lecturers toward the importance of the Blended learning in teaching. Based on this column, it can be stated that the blended learning was perceived as being very vital. It was almost the entire respondents (97.5%) perceived that the dimension of the blended learning was very important and there were only a few (2.5%) of respondents perceived that the blended learning was important. None of the respondent either stated that the dimension was unimportant or less important.

Data from the questionnaire were then presented in percentage. The percentage score of the students' perception towards the use of ICT in teaching and learning can be seen in table 2 below.

Table 2 The Percentage of the Students' Perception towards the use of Technology teaching and learning

Classification	The Percentage of			
	Poor	Fair	Good	Excellent
1	2	3	4	5
Teaching media	0	43.51	56.49	0
ICT	0.43	51.73	47.84	0
Internet	0.3	66.9	32.8	0
Blended Learning	0	87.42	12.58	0
Total	0.73	249.56	149.71	0
Divided by	400	400	400	0
Timed by	100	100	100	0
The Percentage of the respondents	0.19	62.39	37.42	0

Table 2 indicates the percentage of the students' perception towards the use of technology in teaching. From the table, it can be seen that the use of technology in teaching in Tadulako University was fair. There were no respondent perceived that the use of technology was Excellent. The majority of the respondents (62.39%) claimed that the technology was fair, while 37.42% of the respondents claimed that the use of technology was good and only 0.19% of the respondents perceived that the use of technology were poor. It indicates that the use of technology such the teaching media, ICT, internet, and blended learning were important to use in teaching and learning. It is suggested by the interview to both lecturers and students who confirmed that the use of technology is urgent to apply in teaching and learning.

The results show that the use of technology in education can change conventional learning to become unconventional. In the framework of Innovative University, universities must respond to the development of an increasingly sophisticated world of technology that provides a myriad of new and old knowledge. Learning at the university needs to use a series of electronic equipment that is able to work more effectively and efficiently. Even so, the role of the lecturer is still needed in the classroom; he or she is a designer, motivator, mentor, who of course as an individual must be respected (Salikin & Bin-Tahir, 2017).

## **Conclusion**

The lecturers and students of Tadulako University have positive perception towards the important of the technology such as teaching media, ICT, internet and blended learning in teaching and learning. Thus, the role of the lecturer is still needed in the classroom; he is a designer, motivator, and mentor which can improve the teaching and learning process with positive and high perception.

The results also found that the effect of innovation demonstrates most intense when concentrated on particular, quantifiable instructive destinations. In addition, understudies exhibit larger amounts of inspiration and commitment when utilizing innovation, which too adds to enhanced achievement. Trends in the classroom have gone from overhead projectors to creative projects, for example, Power Point, video, internet, and blended learning. Those findings will contribute much information and references to the teachers, practitioners, and researchers themselves in involving technology in their classroom.

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