
The use of Technology to Ensure the Quality of Teaching and Learning: Senior High School Teachers' Perspective

M. Nur Mustafa¹, Zulhafizh¹

¹Faculty of Teachers' Training and Education, University of Riau

Email: em_nur1388@yahoo.com

Abstract – This research aims to observe and analyze the use of technology to ensure the quality of teaching and learning by teachers. Technology plays an important role in teaching and learning activities. The maximum and effective use of technology encourages the achievement of the expected goals. This research focused on 108 senior high school teachers. Data of this research are collected through questionnaires filled in by the respondents. The data were then analyzed by using the descriptive approach, SPSS version 21 and Microsoft Excel. The research findings reveal that teachers' orientation in using technology to ensure the quality of teaching and learning is making use of technology a medium to support teaching and learning activities, learning and following the current development of IT from various sources, making use of computers or projector for teaching and learning activities, and making use of programs or software to analyze learning outcomes. The average of effort made by the teachers is 4.25 (very high standard). It is an innovative strategy by senior high school teachers to maintain and even to increase teaching and learning standard so that learning goals can be achieved.

Keywords: teachers, quality, teaching and learning, technology and schools

1. Introduction

The availability of technology and information has an influence on learning. Nowadays, learning activities are almost inseparable from Information and Technology (IT). IT supports various learning activities carried out by teachers. Technology is like an arrangement for carrying out duties of teachers. The teachers can do and accomplish their duties well with the support of technology. In the era of globalization, IT has become a primary need.

A teacher needs a variety of technological devices that can provide him/her convenience. A lot of activities can be done because of the availability of technology, such as the availability of a computer today. Almost all learning activities carried out by teachers cannot be separated from computer. It helps teachers in saving various kinds of information needed in various learning activities.

IT is able to encourage and trigger teachers to improve the quality of teaching and learning. Teachers can get various kinds of information to support their knowledge and mastery of the information they want easily. Such condition enables teachers to broaden their insight so that teachers can succeed in implementing teaching and learning activities. In addition, it encourages the writer to carry out a research on the use technology to ensure the quality of teaching and

learning: Senior High School Teachers' Perspective The findings of this research can provide an overview of the teacher's efforts in using technology to support their duties.

Sumintono et al (2012) affirmed that almost all activities related to education or teaching and learning require technology. Technology, in this case computer, is a device that can assist teachers in carrying out their duties. Dealing with learning, Geladze (2015) said that the use of computer technology properly and appropriately can help teachers in increasing the attractiveness and quality of teaching and learning. Jorge et al (2003) said that information and technology assist and support teachers in achieving learning goals. The technology plays important roles to maintain and improve the quality of teaching and learning.

However, technology cannot replace the role of teachers. Technology in learning acts as an additional supplement needed for better teaching and learning activities. Integrating technology and information in education and learning is very important. Through technology assistance, learning and learning activities can be carried out in a sustainable and proactive manner (Young, 2003). Teachers will be very helpful in carrying out learning tasks in an effort to create stimuli, exercises, evaluations, concept mapping, supervising and so forth. In addition, Finger & Trinidad (2002) affirmed that information and technology can make teaching and learning more meaningful and satisfying.

In order to ensure the availability of technology, Hennessy et al. in Ghavifekr&Rosdy (2015) reminds that teachers must have the ability and skills to use technology. The teacher must be confident in using technology in teaching and learning process. In other words, the teacher needs pedagogical insight so that all of teaching and learning process carried out by teachers is more meaningful. It was stated further that teachers who are not proficient enough should avoid using technology in teaching and learning activities. These conditions consciously or unconsciously can bring an impact on the achievement of learning objectives.

Zhao & Cziko (2001) said that a teacher must have good control in using technology for teaching and learning purposes. Based on Harris's (2002) research note, technology in teaching and learning will be useful if teachers have the ability and confidence to explore and use it. Wheeler (2001) affirmed that technology enables teachers to maintain and improve the quality of learning and to prepare next generations in future. Littlejohn et al (2002) said that teachers must be responsible for improving teaching and learning through various facilities.

2. Methodology

This research was carried out with descriptive actions. The instrument used for data collection is questionnaire. In the questionnaire, four statements are used as the basis for data analysis. This questionnaire is given to senior high school teachers in the city of Pekanbaru.

The sample of this research is 108 senior high school teachers in the city of Pekanbaru. Then, the data were analyzed by observing and analyzing the questionnaire items that have been filled in by the teachers. This strategy is to find out the responses of teachers related to the use of technology to ensure the quality of teaching and learning at schools where the teachers work. The analysis process is carried out by using SPSS version 21 and Microsoft Excel programs.

3. Result and Discussions

3.1. Making Use of Technology a Medium to Support Teaching and Learning Activities

Teacher's strategy to ensure the quality of teaching and learning are carried out by making use of technology; computer and projector a medium to support teaching and learning activities. The teachers believe that these tools can help them carry out teaching and learning tasks. The distribution of analytical data can be observed in the following table.

Table 1. Distribution Data of Making Use of Computers or Projector in Teaching and Learning Activities

No.	Description	Findings	Remarks
1	Average	4.19	Very high
2	Value of r	0.544**	Significant
3	Never	2.8	3 teachers
4	Rarely	3.7	4 teachers
5	Sometimes	14.8	16 teachers
6	Often	29.6	32 teachers
7	Always	49.1	53 teachers

Source: Mustafa's research data (2018)

It can be seen from Table1 that the average of teachers' activities to ensure the quality of teaching and learning by making use of computers or projector in teaching and learning activities is 4.19 (very high category) and the value of r is 0.544** (significant). The data also show that 2.8% or 3 teachers never, 3.7% or 4 teachers rarely; 14.8% or 16 teachers sometimes; 29.6% or 32 teachers often; and 49.1% or 53 teachers always make use of computer or projector in teaching and learning Activities.

Bakar (2007) explained that the use of computer and projector is very important in learning. Nowadays, the device is a primary need in teaching and learning activities. The argument is in line with Herzig's (2004) point of view that this type of technology can help teachers in building various activities carried out in the classroom. In addition, Means (1994) affirmed that even though computers and / or projector are used by teachers, the devices are not the main determinant. However, the use of computer and projector is very helpful for teachers to present teaching materials, explain information and so forth. In addition, Herzig (2004) said that these devices can have an effect on realizing and ensure the quality of teaching and learning.

3.2. Learning and Following the Current Development of IT from Various Sources

Teachers have to learn and follow the current development of IT from various sources such as *youtube*, *Google* and so on. This way can help teachers to manage and make use of available devices, including computer, projector and other supporting devices. This strategy is to ensure the quality of teaching and learning they carry out. The distribution of analytical data can be observed in the following table.

It can be seen from Table2 that the average of teachers' activities to ensure the quality of teaching and learning by learning and following the current development of it from various sources is 4.20 (very high category) and the value of r is 0.402** (significant). The data also show that 0% or no teacher never, 2.8% or 3 teachers rarely; 15.7% or 17 teachers sometimes;

39.8% or 43 teachers often; and 41.7% or 45 teachers always learn and follow the current development of it from various sources.

Table 2. Learning and Following the Current Development of IT from Various Sources

No.	Description	Findings	Remarks
1	Average	4.20	Very high
2	Value of r	0.402**	Significant
3	Never	0	
4	Rarely	2.8	3 teachers
5	Sometimes	15.7	17 teachers
6	Often	39.8	43 teachers
7	Always	41.7	45 teachers

Source: Mustafa's research data (2018)

The effort made by teachers is to make them prepared to ensure the quality of teaching and learning. Teachers need to prepare themselves in order not to miss information. Valasidou, Hatzis, & Makridou (2005) assured that this method will broaden teachers' insight and access, and even build and improve the quality of learning. Valasidou & Bousou explained that teachers who keep learning and access information and current technology development can share a lot of experience and knowledge. Sharing for educational purposes is very useful to ensure the quality of teaching and learning. In addition, Shade O. Awodele O & Samuel O (2012) said that information and technology are able to open various opportunities that can be used for various interests - one of them is for teaching and learning.

3.3. Making Use of Computers or Projector for Teaching and Learning Activities

Teaching experience at schools enables teachers to use various kinds of experience to support teaching and learning, such as creating teaching and learning media. The media they design and create aims to make teachers succeed in achieving learning goals. Related to this, the distribution data can be seen in the following table.

Table 3. Making Use of Computers or Projector for Teaching and Learning Activities

No.	Description	Findings	Remarks
1	Average	4.59	Very high
2	Value of r	0.457**	Significant
3	Never	0	
4	Rarely	1.9	2 teachers
5	Sometimes	5.6	6 teachers
6	Often	24.1	26 teachers
7	Always	68.5	74 teachers

Source: Mustafa's research data (2018)

It can be seen from Table 3 that the average of teachers' activities to ensure the quality of teaching and learning by making use of computers or projector for teaching and learning Activities is 4.59 (very high category) and the value of r is 0.457** (significant). The data also show that 0% or no teacher never, 1.9% or 2 teachers rarely; 5.6% or 6 teachers sometimes; 24.1% or 26 teachers often; and 68.5% or 76 teachers always make use of computers or projector for teaching and learning.

Making use of technology as a media is a good way to build and support teaching and learning (Futurelab. 2009). It can be clearly understood that the teacher's strategy in using various technology devices can help him in teaching and learning. This effort certainly can improve the quality of teaching and learning. Mohan et al (2001) affirmed that making use of technology may increase student's interest in learning and memory regarding with various information. In addition, Mohan et al assured that if media is properly designed, it can bring a positive impact on teaching and learning and make teaching and learning atmosphere more interesting and effective (Locatis& Atkinson. 1990).

3.4. Making Use of Programs or Software to Analyze Learning Outcomes

Senior high school teachers in City of Pekanbaru have used programs or software to analyze learning outcomes. The programs and software help them to obtain accurate data quickly. The sooner the learning outcomes are known by the teachers, the better the teaching and learning design the teachers can make. Making use of programs or software to analyze learning outcomes allows teachers to think about the quality of teaching learning that will be implemented in the future. As a result, the quality of teaching and learning can be maintained. The distribution of analysis data can be seen in the following table.

Table 4. Making Use of Programs or Software to Analyze Learning Outcomes

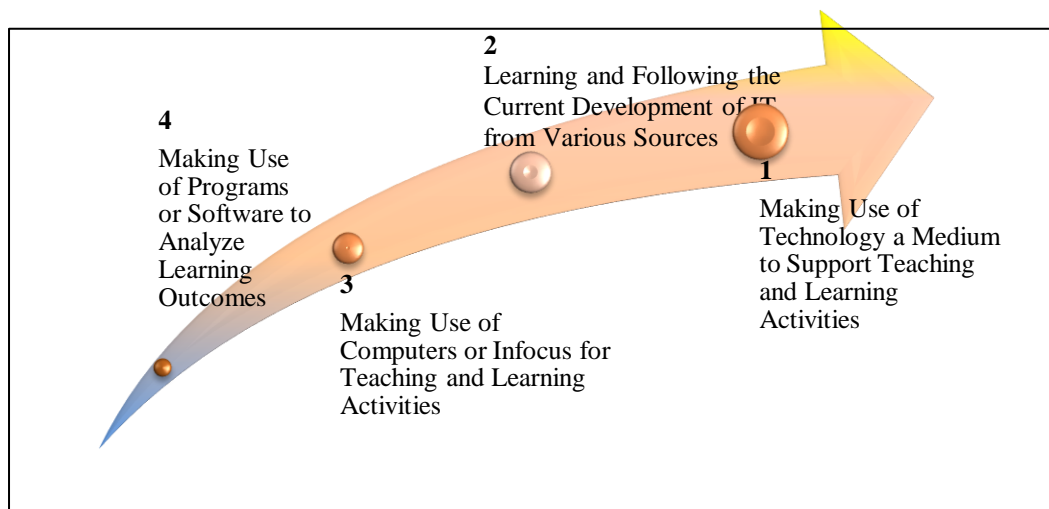
No.	Description	Findings	Remarks
1	Average	4.02	Very high
2	Value of r	0.328 **	Significant
3	Never	0.9	1 teacher
4	Rarely	2.8	3 teachers
5	Sometimes	17.6	19 teachers
6	Often	50.9	55 teachers
7	Always	27.8	30 teachers

Source: Mustafa's research data (2018)

The data in table 4 clearly how that the average of teachers' activities to ensure the quality of teaching and learning by Making Use of Programs or Software to Analyze Learning Outcomes is 4.02 (very high category) and the value of r is 0.328 ** (significant). The data also show that 0.9% or 1 teacher never, 2.8% or 3 teachers rarely; 17.6% or 19 teachers sometimes; 50.9% or 55 teachers often; and 27.8% or 30 teachers always make use of programs or software to analyze learning outcomes use of computers or projector for teaching and learning.

Making use of various programs and software is very helpful for teachers. It is a decision-making strategy — in learning through collecting, analyzing, and interpreting learning and teaching activities (Genesee & Upshur. 1996; O'Mally& Valdez-Pierce. 1996). Analysis data information can be linked to teaching and learning activities that have been carried out. In other words, teachers will be able to make decisions quickly in handling various learning problems, especially to ensure the quality of teaching and learning.

In pursuant to the average approach, the teachers' orientation in the use of technology to ensure the quality of teaching and learning can be drawn as follows.



Figure

1.the Use of Technology Orientation

4. Conclusions

The strategies undertaken by the senior high school teachers in the use of technology to ensure the quality of teaching and learning are in a very high category in which the average is 4.25. The main strategies they take are making use of technology a medium to support teaching and learning activities, learning and following the current development of IT from various sources, making use of computer and projector for teaching and learning activities and making use of programs or software to analyze learning outcomes.

Teachers can think of various strategies such as designing teaching and learning activities, mastering information to make teaching and learning process run well. As a result, the quality of teaching and learning is maintained. The success achieved by teachers in teaching and learning. The expected goals achieved will bring satisfaction. Therefore, teachers are required to keep improving the quality of teaching and learning.

References

- Bakar, N.A., 2007, English Language Activities In Computer-Based Learning Environment: A Case Study In ESL Malaysian Classroom. *GEMA Online Journal of Language Studies*. 7 (1), 33-39.
- Finger, G., & Trinidad, S., 2002, ICTs for Learning: An Overview of Systemic Initiatives in the Australian States and Territories. *Australian Educational Computing*. 17(2), 3-14.
- Futurelab, 2009, Using Digital Technologies to Promote Inclusive Practices in Education. [online]. Available: www.futurelab.org.uk (20/09/2018).
- Geladze, D., 2015, Using the Internet and Computer Technologies in Learning/Teaching Process. *Journal of Education and Practice*. 6 (2), 67-70.
- Genesee, F., & Upshur, J., 1996, Classroom-Based Evaluation in Second Language Education. Cambridge University Press, Australia.

-
- Ghavifekr, S., & Rosdy, W.A.W., 2015, Teaching and Learning with Technology: Effectiveness of ICT Integration in Schools. *International Journal of Research in Education and Science (IJRES)*. 1(2), 175-191.
- Harris, S., 2002, Innovative Pedagogical Practices Using ICT in Schools in England. *Journal of Computer Assisted Learning*. 18, 449-458.
- Herzig, R.G.M., 2004, Technology and its Impact in the Classroom. *Computers & Education*. 42(2), 111-131.
- Jorge, C.M.H., Gutiérrez, E.R., García, E.G., Jorge M.C.A., & Díaz, M.B., 2003, Use of the ICTs and the Perception of E-Learning Among University Students: A Differential Perspective According to Gender and Degree Year Group. *Interactive Educational Multimedia*. 7, 13-28.
- Littlejohn, A., et al., 2002, The Amazingly Patient Tutor: Students' Interactions With an Online Carbohydrate Chemistry Course. *British Journal of Educational Technology*. 33 (3), 313-321.
- Locatis, C. N., & Atkinson, F. D., 1990, *Media and Technology for Education & Training*. Charles E. Merrill Publishing Company, Columbus—Ohio.
- Means, B., 1994, Introduction: Using Technology to Advance Education Goals. In B. Means (Ed.), *Technology and Education Reform: The Reality Behind the Promise*. Jossey-Bass Inc, California. 452.
- Mohan, T. et al, 2001, *Communicating Theory & Practice*. Thomson, Australia.
- O'Malley, J. M. & Valdez- Pierce, L., 1996, *Authentic Assessment for English Language Learners: Practical Approaches for Teachers*. Addison-Wesley, Reading, MA.
- Shade O, K., Awodele O., & Samuel O.O., 2012, ICT: An Effective Tool in Human Development. *International Journal of Humanities and Social Science*. 2 (7), 157-162.
- Sumintono, B., 2012, Penggunaan Teknologi Informasidan Komunikasidalam Pengajaran: Survei Pada Guru-Guru Sains SMP di Indonesia. *Jurnal Pengajaran MIPA*. 17 (1), 122-131.
- Valasidou A, S.D., Hatzis, T., & Makridou, D.B., 2005, Guidelines for the Design and Implementation of E-Learning Programmes, *Proceedings of the IADIS*". International Conference IADIS E-Society 2005, 27 June- 30 June, Qawra, Malta
- Wheeler, S., 2001, Information and Communication Technologies and the Changing Role of the Teacher. *Journal of Educational Media*. 26 (1), 7-17.
- Young, S.C., 2003, Integrating ICT into Second Language Education in a Vocational High School. *Journal of Computers Assisted Learning*. 19, 447-461.
- Zhao, Y., & Cziko, G.A., 2001, Teacher Adoption of Technology: A Perceptual Control Theory Perspective. *Journal of Technology and Teacher Education*. 9 (1), 5-30.