

## Application of Teaching and Quiz Material Media Towards ICT Literacy and Student Learning Results

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### Abstract

The objectives of this research aims to identifying the impact of online learning and quiz that actually drive better results for ICT Literacy for physics and student exam results. We are doing this observation with 40 students at SMK Ar-Rahman Watusalam with the sampling group method. We are using questionnaire to evaluate the authentic situation of ICT Literacy and the exam results of students before we are using online learning and quiz. The that online learning and quiz make better results for ICT Literacy and student exam results, because the condition of students' physics test scores after the application of online interactive quizzes which reached KKM (Minimum completeness criteria), which reached 75 students out of 40 with a percentage of 65% of students.

**Keywords:** *ICT Literacy; Media, Physics Learning; Online Learning; Quiz; Online.*

### INTRODUCTION

The implementation of the 2013 curriculum of using the Information and Communication Technology (ICT) in the learning process. We have the dealing with bad fact that educators and students have not enough well knowledge about ICT Literacy. Information technology is very important because it is needed for the development of our education system (Habibi, 2014). In the future, ICT will be included in all subjects of the educational curriculum at all levels of teaching (Quijada, 2015). This is not directly proportional to Physics Learning in Vocational Schools in Ar-Rahman Watusalam still uses conventional learning methods. Lecture learning methods commonly used by teachers in the classroom to deliver teaching materials, then students only listening to the teacher.

The lack of students interest in learning in physics has reducing their concentration of learning and not focusing on

the material being taught and it has an effect on the acquisition of student learning results (Santoso & Forestryningrum, 2016). Efforts to resolve the above problems require a variety of learning methods that can increase student enthusiasm for learning and minimize students' boredom in learning. In addition to the method, it is also important to use learning media. Interesting learning media can activate students, so teaching and learning activities become more interactive.

The use of computers today is a part of everyday life, because the popularity of their computers can be an important tool for learning physics concepts (Drigas & Kontopoulou, 2016). The rapid development of technology and the internet has created a variety of new learning media that are considered more supportive of the learning process. One of them is in the form of media applications to make teaching materials and interactive quizzes. Online teaching materials and online interactive quizzes are one of the alternative media that can be used to support the learning process that contains subject

matter, questions or questions that can be accessed through cross platforms and accessed anywhere as long as internet access is available.

Online interactive instructional materials and quiz media are classified into media that can be accessed through existing media on computers, notebooks, smartphones or tablets. Students will be required to carry out the learning process independently. Quiz currently available is still traditional. Traditionally the quiz question items are packaged in the form of written text only, besides the feedback from the teacher to students takes a long time. Traditional quizzes are only used as an evaluation tool at the end of the learning process and are not used during learning. To overcome the shortcomings of these traditional quizzes, researchers used media for online teaching materials and interactive quizzes.

**METHOD**

This research was conducted at SMK Ar-Rahman Watusalam in the 2018-2019 academic year using a survey method with

descriptive qualitative analysis. Samples were selected by purposive sampling technique. The sample used by class X students. From 40 students filled out the ICT literacy questionnaires, with a Likert scale questionnaire according to 4 choices of answers "never", "rarely", "often", "always". The data obtained in this study were collected through test and non-test techniques, test instruments in the form of online quiz evaluations, while non-test instruments namely through questionnaires to determine the ability of ICT Literacy students.

**RESULTS AND DISCUSSION**

The data of the ICT Literacy questionnaire research results of TSM grade X students in Ar-Rahman Watusalam High School, showed that the high ICT Literacy level of students was not directly proportional to student learning outcomes. This is shown in table 1, the tendency for high ICT Student literacy is used more for entertainment than things that support learning.

**Table 1.** Results of the initial ICT Literacy (ICT Literacy) questionnaire for students

No	Aspect	Number of Respondents	Amount			
			Never	Rarely	Often	Always
1	Using a computer	40	0	0	17	23
2	Using Hp	40	0	0	6	34
3	Use the internet	40	0	0	11	29
4	Use the internet to be social media rather than study	40	0	0	13	27
5	Watch entertainment youtube channels rather than educational channels	40	0	10	13	17
6	Using a computer to play games instead of doing work	40	0	0	26	14

In table 1, ICT High student Literacy is indicated by data from most students who frequently or always use technology that is closely related to ICT literacy, namely the use of Computers, Mobile Phones, and the Internet. but in their use most students use their ICT Literacy not to learning tool. This

is indicated by the use of social media, YouTube entertainment channels, and games that are higher than the use of literacy that supports student learning processes.

The initial conditions of the students' physics test scores that reached the KKM

(Minimum completeness criteria), namely 75 only amounted to 5 students out of 40 students as in table 2 and figure 1. Less optimal student physics learning outcomes are caused by lack of learning and mastery of physical material, and based on the results of the analysis of the questionnaire conducted on ICT literacy. This is also related to the use of ICT factors that are less than maximum student literacy to support the teaching and learning process of students in the classroom or outside the scope of teaching and learning in the classroom. ICT can change the way teaching and learning take place (Khursid & Khalid, 2016), because it can increase interactions between students and teachers in teaching and learning processes, including interactions during lessons and outside classroom interaction (Jacob, 2013).

Table 2. Condition of initial physics values based on daily tests

Score	Amount
0-25	4
26-55	16
56-74	15
75-100	5

Based on the results of the analysis in table 2, the authors utilize the conditions of high ICT Literacy students to be used more frequently on things that can support the teaching and learning process that has an impact on improving learning outcomes and increasing the use of ICT Literacy on learning. ICT Results High literacy is the potential for students to support learning, by using interactive media teaching and quizzes online, because it will increase the intensity in the interaction of teaching and learning between students and teachers which does not only occur in face-to-face interaction in the classroom. E-learning material increases students' interest and increases their motivation to study physics and science (Jarosievitz, 2012).

The initial ability of students is seen from the daily scores of the previous

material. Then, students work on the questions in the online interactive quiz. Work on this question is done five times. This repetitive work is done to train students' exploration skills, so that student learning outcomes can improve after doing work on interactive quizzes. After working on the questions on an interactive quiz, students conduct a final test. This final test is done to see how the students' learning outcomes after doing the exercises on the interactive quiz created. The implementation of an electronic test evaluation system is more effective and better than a paper test and can minimize acts of fraud that occur between students (Rochmah, 2013). The use of ICT in the teaching and learning process can improve student competency based on global needs through the formation of skills and increase knowledge (Dwi & Kusairi, 2013). as well as being able to improve students' cooperative learning through ICT (Khurshid & Khalid, 2016).

The condition of students' physics test scores after the application of online interactive quizzes which reached KKM (Minimum completeness criteria), which reached 75 students out of 40 with a percentage of 65% of students as in table 3.

Table 3. Learning outcomes of physics after applying online interactive quizzes

Score	Amount	Percentage (%)
0-25	0	0.0
26-55	6	15.0
56-74	8	20.0
75-100	26	65.0

## CONCLUSIONS

This study shows that the average student has a high ICT Literacy level, but it is not directly proportional to the expected learning outcomes. This is due to the ineffective use of information and communication technology (ICT Literacy)

used in learning. Application of instructional media online teaching materials and quizzes can further enhance the level of ICT Literacy and student learning outcomes.

## REFERENCES

- Drigas, A., & Kontopoulou, M.-T. L. (2016). ICTs based Physics Learning. *International Journal of Engineering Pedagogy (IJEP)*, 6(3), 53. <https://doi.org/10.3991/ijep.v6i3.5899>
- Dwi, I. M., Hidayat, A., & Kusairi, S. (2013). The Effect of ICT-Based Problem Based Learning Strategies on Understanding Physics Concepts and Problem Solving Capabilities. *Indonesian Journal of Physical Education*, 9 (1), 8-17. <https://doi.org/https://doi.org/10.15294/jpfi.v9i1.2575>
- Habibi, Z., & Habibi, A. (2014). The effect of information technology in teaching physics courses. *ICEMST 2014*, 391–396.
- Jacob, A. (2013). Integration of *ICT* into Physics Learning to Improve Students' Academic Achievement: Problems and Solutions. *Open Journal of Education*, 1(3), 117. <https://doi.org/10.12966/oje.07.01.2013>
- Jarosievitz, B. (2012). ICT in Physics Teaching for Secondary Schools and Colleges. *New Perspective in Science Education*, (November), 1–6.
- Khurshid & Khalid (2016). Information and Communication Technology in Learning Physics at Secondary School Level in Pakistan. *Bulletin of Education and Research*, 38(2), 135-151.
- Quijada, R. (2015). Information and communication technologies (ICT) in physical education. A theoretical review. *Sportis: Revista Técnico-Científica Del Deporte Escolar, Educación Física y Psicomotricidad*, 1(1), 75–86. <https://doi.org/10.1017/CBO9781107415324.004>
- Rochmah, E. (2013). *The Effectiveness Ratio of conducting an electronic form evaluation system using Wondershare Quiz Creator and Paper Test in terms of student learning outcomes tests on the word processing application material at MAN 1 Yogyakarta*. Thesis. Not published.
- Santoso & Forestryningrum, S. (2016). Implementation of Learning Media in the Form of Interactive Quizzes to Improve Student Learning Outcomes in Basic Networking Subjects. *Journal of IT-Edu*. 1(1), 37-41