

## IMPLEMENTATION OF E-LEARNING SYSTEM TO IMPROVE THE QUALITY OF LEARNING IN VOCATIONAL HIGH SCHOOL (SMK) IN JAKARTA

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**Abstract** –Since 2014 The Ministry of Education and Culture has implemented the National Computer Based Exam for SMU and SMK. SMK Trimulia and SMK Plus AI-Musyarrofah located in South Jakarta, both are vocational schools, have followed the UNBK. In addition to following UNBK, SMK Trimulia and SMK Plus AI-Musyarrofah with all vocational school in Pesanggrahan district held a Joint Exam by using Quantum Computer Base Test (QCBT) for Final Exam, while for Midterm Exam still done manually (not online). SMK Trimulia and SMK Plus AI-Musyarrofah have computer laboratory that connected to the internet. The Laboratory used for teaching and learning activities as well as the implementation of National Based Exam and Joint Exam. In each computer laboratory is equipped with a server, which has not optimally used, only used for National Based Exam, Joint Exam, and internet access. To maximize the utilization of information technology and to improve the quality of learning it is necessary to apply technology that can improve the quality of learning that is e-learning system. The e-learning system that will be implement are used to assist technical adjustment of National Computer Based Exam and Joint Exam by utilizing server and computer laboratory owned by SMK Trimulia and SMK Plus AI-Musyarrofah.

**Keywords:** e-learning, learning quality, information technology

### INTRODUCTION

SMK Trimulia and SMK Plus AI-Musyaroffah are several vocational schools located in Kecamatan Pesanggrahan, South Jakarta. SMK Trimulia is located in Desa Petukangan Selatan and SMK Plus AI-Musyaroffah is located in Desa Petukangan Utara. SMK Trimulia has three computer laboratories with a total of 40PC computers and 2 unit PC Servers. SMK Plus AI-Musyaroffah has one computer laboratory with a total of 32 PC computers and 1 unit PC Server. Since 2014, SMK Trimulia and SMK Plus AI-Musyarrofah have participated in the Computer Based National Examination (UNBK) organized by the Ministry of Education and Culture. In 2017, SMK Trimulia and SMK Plus AI-Musyarrofah in collaboration with vocational schools in Kecamatan Pesanggrahan held a Joint Exam (UUB) using the Quantum Computer Base Test (QCBT) system for the final semester examination, while for Midterm Exam still done manually (not online). The implementation of UNBK and UUB causes technical changes in the execution of exam questions so that teachers and students must adjust these changes.

The use of information technology in SMK Trimulia and SMK Plus AI-Musyarrofah, especially the facilities the schools owned, is not use optimally in improving the quality of learning. Therefore, it need efforts to implement technology that can improve the quality of learning, namely by e-learning system. E-learning system will help technical adjustments from both the teacher and student in the implementation of UNBK and UUB by utilizing the server and computer laboratory. Teachers can use the e-learning system in providing learning materials, assignments, midterm, or end-of-semester tests including their assessment. Students can also work on the questions given by the teacher and see the grade they get directly through the e-learning system.

## METHOD

The approach method used for the application of e-learning systems in SMK Trimulia and SMK Plus AI-Musyarrofah includes:

1. Installation of e-learning system  
On Servers that owned by SMK Trimulia and SMK Plus AI-Musyarrofah will be installed E-learning system using MOODLE.
2. Admin Training  
One or two people will be training to become the admin of E-Learning System. Admin can understand the use of e-learning systems from the back-end such as user management and course management.
3. Teacher Training  
Teachers can use e-learning systems such as quiz management, discussion forum management, and material management.
4. Student Training  
Students can use e-learning systems such as following quizzes, joining forums, and downloading material.
5. Evaluation  
Evaluation of the training, both from admin training, teacher training, and student training.

To support the implementation of activities carried out the following stages:

1. Socialization to related parties such as teachers and students in SMK Trimulia and SMK Plus AI-Musyarrofah so that the implementation of activities can run well and get support both institutionally, materially and morally.
2. SMK Trimulia and SMK Plus AI-Musyarrofah provide training facilities for e-learning system user, which is admins, teachers, and students.
3. Determine at any time the training for the e-learning system admin, teacher, and students.
4. Include teachers and students from SMK Trimulia and SMK Plus AI-Musyarrofah in training e-learning system content creation, such as teaching materials, assignment questions, tests, midterm exams, and semester final exams.

## RESULT AND DISCUSSION

The implementation of E-Learning System in Vocational High Schools (SMK) to improve the quality of learning has been carry out well at SMK Trimulia and SMK Plus AI-Musyarrofah. The result of this activity is an E-Learning System using Moodle version 3.0 on the server owned by each school partner as one of the efforts to maximize the use of the server and computer laboratory that owned by the school. Users in this E-Learning System are admin, teacher, and students. Each user has the role, rights and obligations in the E-Learning System.



### Figure 1. E-Learning System Installation

Each partner of the School provides 1-2 people for E-learning admin. The achievement of the results in admin training is to do user management and course management. Admin is able to do User Management, among others, adding users one by one or simultaneously (bulk user); determine additional data fields; upload users; and upload user profile photos. Besides that, admin can also do course management, including: Adding Course (Subject); Removing Course (Subject); Editing Course (Subject); Sort Course (Subject); Add Course (Subject) in Bulk; Add Category (Academic Year); Delete Category (Academic Year); Editing Category (Academic Year); Sort Category (Academic Year); and Set Enrollment Users (teacher and student users).



Figure 2. Admin User Training

The application of E-Learning System in the making of Question Banks that can be used for the execution of daily exam and midterm so that students are familiar with Joint Exam (UUB) using the Quantum Computer Base Test (QCBT) system for Final Semester Exams and National Based Exams Computer (UNBK). Teachers who take part in the training can use the implemented E-Learning System such as Quiz Activity Management, Discussion Forum Management, and Material Management. To manage all activity, teacher will receive username and password to access E-Learning System. The teacher is able to carry out the test implementation activities (Quiz) such as Creating Quiz that contains a method for question management, such as Adding Question Categories, Adding New Questions, Adding Questions from Question Banks, and Adding Questions Randomly. The teacher also able to determine Layout Quiz, Preview Quiz, and Preview after the Quiz is done; activities include Quiz Comments and Grading, Sending Quiz Messages, Viewing Grade Reports, Viewing Statistical Quiz, or Manual Grading.

In Management Discussion Forums, teachers can carry out activities including: Adding a Discussion Forum; Change the Discussion Forum; Determine Forum Type; Provide a Discussion Forum Rating; Provide Grade Discussion Forums; Determining Access Rights (Moderator) Discussion Forum; Using Discussion Forums; and Add Posts to Discussion Forums. While in the management of User material, the Teacher can add material files that upload into the E-Learning System. The added material can be a power point file, document, pdf, or hyperlink.



**Figure 3.** Teacher Training at SMK Trimulia



**Figure 4.** Teacher Training at SMP Plus Al-Musyaroffah

Students can use the implemented E-Learning System such as Following Quiz, Following the Forum, and Downloading Material. Students take part in assignments, tests, or midterms using the E-Learning System to become familiar with the environment at the time of the Joint Exam (UUB) using the Quantum Computer Base Test (QCBT) system for the Final Semester Exams and Computer-Based National Exams (UNBK). Students can use the E-Learning System for Following Quiz (Exams) activities, including: Save Quiz Automatically, Review Back Quiz, View Quiz Results, Save Questions, and Follow Quiz Back; Joining the Forum, among others: Giving Rating Forum Discussions, Adding Posts to Discussion Forums, and Viewing the Results of the Discussion Forum Grade; or Download Material.



**Figure 5.** Student Training at SMK Trimulia



**Figure 6.** Student Training at SMK Plus Al-Musyaroffah

## **CONCLUSION**

Based on the description previously stated, the following conclusions are:

1. Produced an E-Learning System to assist in the technical adjustment of the implementation of UNBK and UUB by utilizing Computer Servers and Laboratories owned by School partners.
2. When giving assignments, daily test, midterm test, end of semester test, or tryout will use Question Bank by collecting questions that stored.
3. The teacher can understand the use of the E-Learning System that is applied to assist teachers in giving assignments, tests, midterm, end-of-semester including assessments by holding an online exam.
4. Students can use the E-Learning System to work on the questions given and see their grade directly.
5. Teacher and students can reuse the material provided by upload it to the E-Learning System.
6. Use of Discussion Forums on E-Learning System as a substitute if the Teacher is not present in the class. Students and teachers can still interact through the forums created.

## REFERENCES

Asmani, Ma'mur. (2011). *Teknologi Informasidan Komunikasidalam Dunia Pendidikan*. Jogjakarta: Diva Press.

Cole, Jason. (2008). *Using Moodle*. 2<sup>nd</sup> Edition. O'Rilley.

Ellis, R.K. (2009). *Field Guide to Learning Management System*. ASTD Learning Circuits.

Mealor, S.R. (2014). *Using Moodle in Organisations*. HRDNZ. Moodle Partnet.