Sys Rev Pharm 2020;11(5):683-687
A multifaceted review journal in the field of pharmacy

The Ulitilization Of On-line Exams On Health Polytechnic Students

T Wahyudi[1],W Warijan[2], S Suyanta[3]

[1]Blora Nursing Study Programme, Health Polytechnic of Semarang
[2]Magelang Nursing Study Programme, Health Polytechnic of Semarang

E-mail:wahyuudi.teguh@gmail..com

ABSTRACT

Evaluation activities are very time consuming especially in the process of preparation of questions, copying, correction, data entry of evaluation results and need to saving funds used to duplicate questionnaire. The purpose of study is to implement an internet-based exam so that it is easier for Lecturers to manage the exam process, maximize internet resources available and increase the effectiveness of time and cost. This study is an experiment research with One Group Pre Test Posttest research Design. A total of 382 students were selected using simple random sampling techniques and data were collected using a set of questionnaires. The data is processed descriptively to give a general description of the respondents' acceptance of the online test. The results showed that there was 95% of respondents stated that the online exam performance was good, 91.4% stated that the information and data of the online test was good, 87.5% stated that the online test was economically good, 82.5% stated that online exams have good control and security. Moreover, as many as 85.6% stated that the efficiency of online exams was good, 86.7% stated that online exams provided good service in conducting online exams. In General, as many as 97.1% of respondents stated that online exams is good. This research suggests the need for socialization regarding the effectiveness and efficiency of online exams in conducting evaluations. The Evaluation Unit Person should utilize the available online test facilities to increase the time effectiveness and cost efficiency. Other researchers need to study use the free online data collection as an effort to optimize human resources and tools.

Correspondence:
T Wahyudi
[1]Blora Nursing Study Programme, Health Polytechnic of Semarang.
E-mail:wahyuudi.teguh@gmail..com
Keywords: Utilization of online exams, Health Polytechnic

INTRODUCTION

Information technology (IT) has an important role in various aspects of human life both at the individual and organizational level such as educational institutions and institutions that conduct business activities. The use of information technology has become an option due to the ease of operation, the efficiency of working time, and the accuracy and accuracy of data management and cost efficiency.

Of all information technology products, website media or generally better known as the internet is the most widely known and used media today. Besides being able to be used "passively" like surfing in cyberspace, website media can also be used "actively" such as for data collection and processing, data management and even making reports as a basis for decision making for leaders or people authorized in implementing decision making and implementation wisdom.

The Health Polytechnic of Semarang is one of the institutions that uses website media in various activities such as new student registration, online library management, learning management and others. However, the use in the field of education, especially in the process of Learning Theory Assessment which is formed in the form of a quiz during the Midterm Examination (UTS) and Final Semester Examination (UAS) has never been done.

As an educational institution that has received ISO 9001: 2015 certification, the Process of Learning Theory Assessment in the middle of the semester or at the end of the semester must be carried out in all Departments and Study Programs (Sailan, 2016). This evaluation activity aims to determine the value of students, to determine whether a student can or not join the group in accepting the next program and to fill in the progress notes of student learning (Study Results Cards) that will be useful for parents of students, guidance and counseling at

school as well as other parties if the student will move to another school, will continue to study or will enter the workforce.

At present, all theoretical learning assessment activities still use a process that refers to documents where during exams students are given a set of questions and answer sheets. Next students fill in the answers on the answer sheet and then the answer sheet is returned to the exam supervisor. Furthermore, the lecturer makes corrections and data entry of student grades manually to get the test results. Departing from the experience of researchers as Educators for more than 20 years, this evaluation activity was very time consuming, especially during the correction and entry of evaluation data. In addition, the Evaluation Section, also expends extra personnel to duplicate questions and the educational institution also needs to allocate funds for this multiplication activity.

In addition to costs, lecturers also need to set aside a special time to make corrections and data entry on the evaluation results. the average time required by the lecturer for correction and data entry for each subject is 4 hours with the following calculation: if the average correction time for each student is 2 minutes, the lecturer needs to set aside time for each subject as much as 200 minutes or 3.33 hours (2 minutes x 100 students). If time for entry the result of examination is 30 minutes, the total time required is 4 hours for each subjet. In addition to these problems, storing the hardcopy of the exam questions that have been used is also a problem because the hardcopy of the exam questions has been used so much that it requires special storage space.

Responding to the inefficiencies in terms of time and cost above, the researchers tried to conduct a study of a more efficient evaluation process in terms of time and cost by utilizing available resources, namely the internet and the ability of lecturers to operate the internet.

Departing from the experience of researchers in conducting research on the Development of Internet-Based Academic Administration Systems in Conducting Student Satisfaction Survey Against Lecturers, 62.2% of respondents and 70% of survey managers stated that this online system was very effective for collecting survey data. The complete survey results show that the use of online surveys has proven to be effective in increasing the effectiveness and time efficiency and cost of conducting a student satisfaction survey for lecturers (Agustiani, 2010).

The effectiveness of the online exam system is proven in research conducted by Nurkhoti'ah & Kamari (Saraswati & Putra, 2015) where it was found that the implementation of online exams had an impact on graduation and students were very satisfied with the implementation of online exams because students could immediately find out the Score obtained after the exam was completed. In line with the above research, research conducted by Akbar & Ginting (Akbar & Ginting, 2014) also found that the online examination system was very effective to be applied to examinees because this system greatly facilitates student work and can help improve achievement.

Methodology

This study is a One Group Post Test Design study in which the researcher conducts treatments and ends with a posttest. These observations are then compared to see the effectiveness of the treatment given (Arikunto, 2010). This study uses a cross sectional approach where the subject is only observed once, and measurements are made quantitatively or qualitatively on the character or variable of the subject at the time of examination.

The study population was students throughout the Study Program at the Kenenkes Health Polytechnic Environment in Semarang. The sampling technique used in this study was

simple random sampling in which the researcher took a sample by randomizing the Study Program in the Polytechnic of the Ministry of Health of Semarang until the number of samples were met (Arikunto, 2010). Based on Roscoe in Sekaran (Sekaran & Bougie, 2006), the researcher determined the number of samples as many as 9 study programs at the Health Polytechnik of Semarang. All samples are then given treatment in the form of conducting an online test and ending with filling out a questionnaire about the perception of the online examination system.

This study uses a questionnaire as a measuring tool consisting of three parts namely characteristics of respondents, Students' perceptions as respondents to the online exam, perception erceived Unit Evaluation of Online Exams and Perceived evaluation units as respondents of the Online exam. The questionnaire for students uses a system analysis that is seen from the aspects of performance, economy, security, efficiency and service (PIECES / Performance, Information, Economic, Control, Efficiency, Service), where this analysis is used to find out the problems that exist to be used as reference and control material for changes in the system itself (Guidry, Stevens, & Totaro, 2011). Meanwhile, the questionnaire for the evaluation sub-unit used seven questions that asked about the ease of carrying out the survey, the ease of studying the survey, the ease of filling out the survey, the speed of filling out the survey, the ease in correcting errors, disruption to the system when filling out the questionnaire, and the appearance of the system.

Result

When viewed in general from each of these categories, it was found that 95% of respondents stated that online exams were good in terms of performance, 91.4% were good in terms of information and data, 87.5% were good in economic terms, 82.5% of the control and security side, 85.6% in terms of efficiency and 86.7% in terms of service. The results of research in each area can be explained as follows:

1.1. Performance

Performance is the performance of an information system judged by the amount of work done in several periods of time, the system's work process is carried out quickly or slowly, the compatibility of the work functions performed by the system with established standards, easily or whether a system is understood by the user, the completeness of the functions performed by the system, and damage or errors that occur in the system. All six questionnaires about performance received positive responses (about 70%) and there was only one questionnaire that received negative responses (about 30%), which was about errors that occurred in the system when running online tests. In this section, there is one item that gets the highest response, the question about speed in conducting online exams (78.7%).

1.2. Information and Data

Information and data Is the ability of a system to collect the necessary information which is assessed from the accuracy of the computational process of a system, the suitability of the information produced with what is needed, the suitability of the display of information with the needs and ease of accessing data. In this study, the highest rating is in the item that asks about the ease of accessing data where as many as 86.9% of the total respondents stated that the online exam was easy to access. On the other hand, the lowest rating is in the question item about Accuracy in conducting survey activities where there are 26.2% of respondents who stated that the system was not thorough in conducting online exams.

1.3. Economic

Economic Questionnaire asks about the ability of a system to make operational cost savings as measured by the number of programs that can be used and the amount of resources needed in system development. As many as 82.4% of respondents stated that the number of programs that can be used to process data collected from the system is a lot and there are 32.6% who stated that the system is not good at making cost savings.

1.4. Control and Security

Questionnaire on control and security asks about the ability of the system to secure data from damage and from illegal access as assessed by the suitability of access and data security restrictions. Research data shows that 86.5% of respondents have a good perception of the online examination control and security system. However, when viewed per item, respondents' perceptions of data security obtained a low score, with 55% of respondents stating that the online examination system was not safe.

1.5. Efficiency

The efficiency questionnaire collects data about the use of existing resources in the development or use of the system which is assessed from the ease of learning and operating the system as well as the ease of repairing errors in the system. Data on efficiencies collected from respondents showed that 75.7% of respondents thought that developing and operating an online survey system was easy.

1.6. Service

Service questionnaire asks about the ability of the system to provide services that are assessed from the accuracy of the system in carrying out the process, the reliability of the system in carrying out the process and the ease of users in understanding the system. From the research data, it can be seen that there are 78.5% of respondents who stated that the Online Examination system can be trusted in carrying out their duties and there are 79.6% of respondents who stated that the online examination system was thorough in carrying out their work.

1.7. Perception of Evaluation Sub Unit on Effectiveness of Online Survey

Descriptive data on managing exams using the conventional method states that the evaluation sub-unit takes 1-14 days in 3-day mode to prepare for the midterm and final semester exams. The number of papers used for the midterm exams is between 100-720 sheets with 250 sheets mode and the number of papers used for the final exam is between 100-720 sheets with 500 sheets mode. From the data collected it was found that the Evaluation Sub Unit stated that the online examination system was very good in carrying out the evaluation task. This is indicated by the fact that 87.5% of respondents said that the system used for online exams was good, there was only 1 respondent (12.5%) stated that it was not good

Discussion

This online-based exam system was compiled using Google Form® and by using Wordpress® Blog media. Google form was chosen because 1) Appealing form. Google Form® allows users to adjust the display including using photos or personal and institutional logos in the survey. In addition, Google Form® also has many many templates that can be used free of charge to make the interface look attractive and colorful. 2) Having various types of tests. This application provides a variety of test options ranging from multiple choice, checklist, drop-down, linear scale, etc. that allows users to arrange various types of questions in one bag. In addition, more interesting, users can also insert images and videos into the quiz. 3) Respondents can respond immediately anywhere. The exam administrator only needs to paste the link provided by Google Form® on the web page (it

can be the institution's web or personal website) and the respondent or examinee only needs a laptop or cellphone connected to the internet to answer the exam. 4) The answers are neatly arranged and easy to analyze. Respondents 'or participants' answers will be stored on Google's server so that the answers of the test participants are safe and users can also download the results of the exam and view them on a Spreadsheet by using an application such as Ms. Office Excel®. 6) Can be done with others. Questionnaires and quizzes made with Google Form® can be done together with whomever the user wants, thus allowing the work of the team to create and compile questions (Akbar & Ginting, 2014).

The perception of online exams is generally good and this arises because in reality the online exams have more advantages compared to paper-based (conventional). These advantages include the test participants can get feddback results directly once the test answers have been sent, the possibility of fraud by seeing the answers of friends is very small, there are no incomplete questions because there is no question binding process, all questions can be read due to the absence of printouts which is opaque, supports the "go green" program because it can significantly reduce the use of paper which means it also reduces the number of trees cut down for making paper, there is an ease in the process of answering questions by simply clicking on the answers, and the exact response of the test participants can be read by a computer .

The above statement is supported by research where it was found that computer-based exams make it easy to fill in the answer sheets because respondents only need to click on the answers they think is right and mentally respondents are not more calm in facing the exam because their answers will certainly be read by computers unlike with paper-based exams that still have students' answers unreadable by computers (Sailan, 2016). Other research by Akbar and Ginting (Akbar & Ginting, 2014) states that the use of Google Form® in evaluation activities has impacts and benefits both in terms of effective, efficient, attractive and appearance design and teachers are very helpful both in terms of cost, time, and energy.

1.8. Performance

Although the use of software to handle various organizational problems has grown rapidly, it should also be understood that the simpler a system the less work will be handled and conversely the more complex a system will be, the more work can be handled. The online application provided by Google is a simple program so that its use is not required high expertise in the IT field. The simplicity of the online questionnaire program is intended to have high acceptability so that it can be accepted by all users and vice versa if technological development is not acceptable, it can lead to unexpected behavior such as resistance to change (Akbar & Ginting, 2014).

1.9. Information and Data

In this research, questionnaire data that has been filled out by students is stored in Google's server. To be able to access the data, the survey administrator is required to log in to a Google account and then download and save the file in Microsoft Excel® format or other number processing format. Thus the data stored is safe, Google is a large website which certainly has a lot of experts to ensure the security of data on its users.

1.10. Economic

Most respondents thought that the online test opinion could save costs and this opinion might be based on the respondents' awareness that with the online test there was a significant saving in the use of paper. This paper saving has an impact on the efficiency of the funds used for doubling the questionnaire and also has a positive impact on environmental preservation

efforts because reducing the amount of paper used means also reducing the number of trees cut down as raw material for making paper. In addition, Google form is a free application that can be used by everyone, easy to learn and in maintenance does not require a large budget (Suhaerah, 2018). Data that has been downloaded from Google Drive can be saved in the form of Excel files, open document format, web pages and PDF. Thus the programs that can be used to process data will start from paid ones like Microsoft Excel or free ones such as Kspread, OpenOffice Calc, GNOME Office WingZ and others.

1.11. Control and Security

Respondents' good perception of control and security is supported by the fact that questionnaire data from each student is stored on google servers and someone needs a password to access the data. This means that the system already has sufficient ability to prevent data access by unauthorized parties. In addition, students as users of the Online Examination system need to enter a password to be able to fill out an online survey. Thus, filling out survey data conducted by incompetent parties can be minimized.

From the explanation above, although there are still shortcomings, this Online Examination system has met the security requirements in the field of computer technology that is ensuring 1) confidentiality where the information on the computer system is guaranteed confidentiality because it can only be accessed by parties who have authority and 2) Integrity that is, it has a guarantee that the modification process can only be carried out by authorized parties (Winanti & Dzulhan, 2018). The system used in this study also considers data security with a data back up mechanism. Data back up mechanism is done by downloading data which is then stored in the storage media on the computer or portable storage media. Thus the possibility of data loss can be minimized because in addition to data stored on google servers, survey administrators also have data stored in other storage media.

1.12. Eficiency

Efficiency is one of the characteristics of software related to the resources used when the software performs its functions. There are two sub-characteristics of the quality efficiency factor, among others: 1) Time Behavior, the ability of the software to provide appropriate response time when performing its function. 2) Resource Utilization, the ability of the software to use the resources it has when carrying out predetermined functions (ISO & IEC, 2003).

This research shows that this Online Examination has user friendly capabilities, namely the ability of applications to be used by users easily even by novice computer users though, simple without the need to be too complicated to study in detail in a long period of time so that users immediately feel comfortable using it and have the ability in accordance with the wishes of the user (Firmansyah, 2018).

Huffman in Riana (Riana, 2006) explained that the indicator of the problem in the aspect of efficiency is the inefficiency of time, ie wasting time in the sense that users often input repeatedly into the system because it is not processed or stored and resource inefficiency is the inability of the system to provide appropriate reports by user needs. Questionnaire data shows that this inefficiency problem can be minimized because 60% of respondents stated that they had no difficulty in developing and operating the Online Examination and 70% of respondents also stated that they had no difficulty in correcting errors that occurred during the preparation of the questionnaire.

1.13. Service

The respondent's statement that the service provided by the system is good is supported by

the fact that all respondents stated that the system was thorough in doing the work and trusted in carrying out the process. With this accuracy and trust, the system can provide data accurately, easily used, and make it easier to achieve goals. The results of the above study are supported by Musalini (Musalini, 2004) who suggest that a system can provide good service if it is able to process data accurately, has reliability in processing inputs and outputs, is able to handle problems outside normal conditions, is easy to use, and is able to coordinate activities for achieve goals and objectives.

1.14. Perception of Evaluation Sub Unit on Effectiveness of Online Exam

The data collected from the research shows that almost all respondents stated that the system used for online examinations was good. this statement is based on the fact that online exams can save the state budget because there are no more printing costs of questions and answer sheets, as well as the cost of overseeing the distribution of exam questions and answer sheets, valid and accountable test results because students find it difficult to get help from any party , increasing students' literacy in information and communication technology, minimizing leakage of exam questions because questions can only be accessed during exam hours, and delivery of exam results is faster.

From the data above it appears that the test system used in this study fulfills the user friendly criteria as stated by Musalini In Erywijaya (Musalini, 2004) namely the first "How to make the application run correctly and in accordance with the wishes of the user" and second "How to make the interface display from applications that are made to be attractive, easy to use and as beautiful as possible so that users are not bored and continue to be interested in using it ". The results of this study are also in accordance with the theory of Technology Acceptance Model (TAM) which focuses on attitudes towards the users of information system technology, where users develop it based on perceived usefulness, namely the level of someone's belief that a use of an information system increases performance in their work and ease (perceived ease of use) and does not require a lot of effort (Agustiani, 2010; Kaparang, 2018).

Concluition

This research concludes that the online exam system can be used by students with very cheap reasons because it uses a free web application (Google form and wordpress), respondents can immediately respond anywhere, answers are neatly arranged and easy to analyze, can be done together with anyone desired by the user making it possible for teamwork to create and prepare questions, support the go green program because it doesn't use paper at all, and it doesn't cost at all because there is no cost to duplicate the questions.

For this reason there is a need for socialization to the leaders of the Health polytechnic of Semarang about the effectiveness and efficiency of online exams in conducting evaluations, the need for support from the head of the Health polytechnic of Semarang for the implementation of online exams, and the need to increase the utilization of internet facilities for online exams in order to increase the effectiveness of time and cost efficiency when implementing exam.

REFERENCES

1. Agustiani, N. H. (2010). *Pengaruh pemanfaatan sistem informasi akademik terpadu (sikadu) terhadap Kinerja individual dengan kemudahan penggunaan sebagai variabel moderating (studi empiris pada fakultas teknik Universitas Negeri Semarang).* UNIVERSITAS DIPONEGORO,

2. Akbar, I., & Ginting, D. B. (2014). Analisis Terhadap Penerimaan Penerapan Sistem Ujian Online Oleh Siswa Menggunakan Metode TAM (Technology Acceptance Model)(Studi Kasus: Smkn 13 Bandung). *Media Informatika, 13*(1), 17-43.
3. Arikunto, S. (2010). Prosedur Penelitian: Suatu Penelitian Praktik, EdisiRevisi. *Jakarta: Rineka Cijalan*.
4. Firmansyah, R. (2018). Usability Testing Dengan Use Questionnaire Pada Aplikasi Sipolin Provinsi Jawa Barat. *Swabumi, 6*(1), 1-7. https://doi.org/10.31294/swabumi.v6i1.3310
5. Guidry, B. N., Stevens, D. P., & Totaro, M. W. (2011). The systems analysis and design course: An educators' assessment of the importance and coverage of topics. *Journal of Information Systems Education, 22*(4), 331.
6. ISO, I., & IEC, T. (2003). 9126-2: Software Engineering-Product Quality-Part 2: External Metrics. *International Organization for Standardization, Geneva, Switzerland*.
7. Kaparang, D. R. (2018). PENGEMBANGAN KODE PROGRAM PADA SISTEM INFORMASI AKADEMIK PROGRAM STUDI PENDIDIKAN TEKNOLOGI INFORMASI DAN KOMUNIKASI. *Engineering Education Journal-E2J, 5*(1).
8. Musalini, U. (2004). *Membangun Aplikasi Super Cantik dan Full Animasi dengan Delphi*: Elex Media Komputindo.
9. Riana, A. (2006). *Evaluasi kinerja sistem informasi manajemen ditinjau dari aspek persepsi pengguna dalam mendukung proses manajemen di rumah sakit PKU Muhammadiyah Yogyakarta*. program Pascasarjana Universitas Diponegoro,
10. Sailan, M. (2016). PERSEPSI SISWA TENTANG PELAKSANAAN UJIAN NASIONAL BERBASIS KOMPUTER DI SMK KOMPUTER MUTIARA ILMU MAKASSAR. *Jurnal Tomalebbi*(4), 25-32.
11. Saraswati, N. W. S., & Putra, D. M. D. U. (2015). Sistem Ujian Online Berbasis Website. *S@ CIES, 6*(1), 21-30. https://doi.org/10.31598/sacies.v6i1.78
12. Sekaran, U., & Bougie, R. (2006). Metode penelitian untuk bisnis, Edisi 4. *Jakarta: Salemba Empat*.
13. Suhaerah, S. (2018). *Analisis Sistem Informasi Layanan Sirkulasi UPT Perpustakaan UIN Alauddin dengan Metode PIECES*. Universitas Islam Negeri Alauddin Makassar,
14. Winanti, M. B., & Dzulhan, I. (2018). Audit Keamanan Sistem Informasi Akademik Dengan Kerangka Kerja ISO 27001 Di Program Studi Sistem Informasi Unikom. *Majalah Ilmiah Unikom, 16*(2), 1-12. https://doi.org/10.34010/miu.v16i2.1355