

Evaluation of the application of information technology and communication in lectures in the Primary School Teacher Education Study Program

by Andista Candra Yusro

Submission date: 17-Sep-2020 11:17AM (UTC+0700)

Submission ID: 1389196547

File name: Santoso_2019_J._Phys.__Conf._Ser._1363_012064_3.pdf (1,013.62K)

Word count: 3026

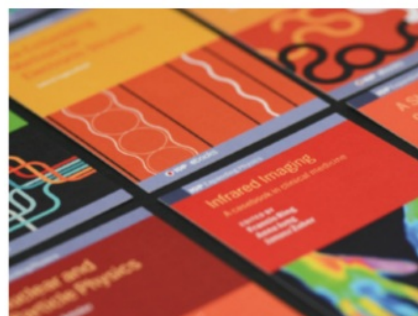
Character count: 16427

PAPER • OPEN ACCESS

Evaluation of the application of information technology and communication in lectures in the Primary School Teacher Education Study Program

To cite this article: Agus Budi Santoso *et al* 2019 *J. Phys.: Conf. Ser.* **1363** 012064

View the [article online](#) for updates and enhancements.



Evaluation of the application of information technology and communication in lectures in the Primary School Teacher Education Study Program

Agus Budi Santoso, Andista Candra Yusro*, Ibadullah Malawi, Muhammad Hanif and Wawan Kokotiasa

¹Universitas PGRI Madiun, Jl. Setiabudi No. 85 63118, Indonesia

*andista@unipma.ac.id

Abstract. This study aims to determine: 1) Lecturer readiness in implementing ICT in lectures; 2) Distribution of ICT application in talks; 3) Students' responses to the implementation of ICT in lecture activities. This evaluation study uses a Stake Countenance model consisting of Antecedent, Transaction, and Outcomes. Respondents in this study were lecturers and students from elementary school teacher study programs. Data collection techniques used purposive sampling and utilized observation sheet instruments, teacher questionnaires, student questionnaires, interview guidelines, and a checklist of RPP documents. The results showed that 80% of lecturers stated using ICT in learning and wrote it in the planned implementation of the lecture, the type of media power point was the most widely used media, and from 145 respondents 80% stated that the application of ICT in talks was excellent and good.

1. Introduction

Improved quality of education continues to be pursued, one of which is through the use of technology Information and communication to improve teacher quality[1]. Familiarizing prospective teachers in lectures based on information and communication technology is undoubtedly a mandatory thing that must be done in lecture classes. The application of online learning to higher education encourages a new atmosphere of knowledge, lecturers are required to position themselves to meet student demands for connectivity, demands to learn experiences and quality learning outcomes[2]. The blended learning model is learning that uses online facilities combined with face-to-face learning (synchronous learning-asynchronous learning)[3]. Blended learning has characteristics that are open, flexible, and can occur anywhere[4]. As an effort to full fill and guarantee the implementation of ICT-based education, universities through learning quality assurance institutions carry out internal audits at the end of each semester, which is also true in the Teaching and Education Faculty, Universitas PGRI Madiun.

An example of the application of ICT-based learning is to implement interactive learning media such as [5] in the introduction of quantum physics which increases the interest and understanding of physics concepts. In the implementation of everyday learning, which is often encountered is a combination of the technology written above (audio / data, video / data, audio / video)[6]. In addition, lecturers / teachers can combine face-to-face learning strategies with e-learning based learning strategies. This learning strategy is called blended learning[7]. Lectures for prospective elementary school teachers can be done by implementing social networks. Through social networks can improve interpersonal relationships and facilitate communication. Therefore social networks can be utilized as a learning medium. Social



Content from this work may be used under the terms of the [Creative Commons Attribution 3.0 licence](https://creativecommons.org/licenses/by/3.0/). Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.

Published under licence by IOP Publishing Ltd

Network which is used for learning is known as Social Learning Networks (SLNs)[8]. In addition, the effectiveness of learning plans in the study is determined by aspects of activities, attitudes, skills, and learning outcomes[9]. Besides that the application of ICT can also change the way teachers teach which includes the quality of teachers in guiding students, time management to help learners learn, overcome problems, preparation, classroom management, class discussion, collaboration with students, communication with the outside world, ability to provide content of new learning materials by using various kinds of learning resources, doing various kinds of learning activities, facilitating students' needs, motivating students, recording the development of students, and increasing confidence.

At the end of each lecture students are asked to fill out a questionnaire on learning that has been carried out for one semester, filling is done before students see the final grade of the course being followed. The evaluation process begins by checking the lecture event units. In the implementation plan of the lecture, the ICT-based learning stage emerged.

2. Methods

The type of research used is program evaluation research. The evaluation model used is the Stake Countenance model consisting of a description and a judgment about something evaluated. This model is chosen with consideration that it can be used to evaluate programs that are currently or are running as well as things that support the program, and help beginner researchers because the stages and spaces that must be filled between the standard parts and those observed are clearly presented so that it is easy to compare and make decisions.

Data collection techniques in this study were (1) questionnaire distribution, (2) interview, and (3) document checklist. Researchers aimed at students and lecturers distributed the questionnaire. Observations were made by researchers who acted as observers/observers. Interviews were conducted by researchers in a structured manner using interview guidelines for lecturers. The document checklist is carried out by researchers related to the study documentation of the lecture plan that has been designed by the lecturer. The students involved as the sample of this study were the first generation students, who took the basic concepts of science, the basic concepts of social studies, Pancasila education and citizenship and Indonesian.

3. Result and Discussion

Antecedent stage is the stage of input exposure, namely the factors that support the implementation of ICT in lecture activities. The thing included in the antecedent here is the understanding and experience of lecturers in using ICT. The frequency of lecturers attending ICT use training for lectures. The experience of lecturers in making and updating ICT used in lectures. The types of ICT applications that are often used by lecturers, as well as obstacles faced by lecturers during implementing ICT in lectures. More than 80% of lecturers in the Primary School Teacher Education Study Program have received training in the use of ICT in learning. Less than 50% are able to independently develop learning media and lectures based on ICT and learning community. All lecturers agreed that lectures based on ICT and communication were able to improve students' motivation, interests and understanding. however, based on the results of the interviews, they realized that there were limited skills and knowledge in making the learning media, so they have difficulties in integrating ICT in the classroom[10]. According to [11] lecturers who have ICT knowledge and are able to integrate it into learning, they also encourage their students to use ICTs to learn for that they become proficient in them and able to expand their knowledge.

In this study we limit the use of ICT in 4 stages of introduction, the core of the lecture, closing and assessment. Based on the 4 stages, we give a test in the form of a questionnaire to the lecturers and students with a tabulation of the percentage of the use of ICT in lectures as in Figure 1. The application of ICT to the preliminary activities of the lecture is emphasized more on building students' concepts and interest in learning, often using video, audio in its application which aims to explore the opinions and initial knowledge of students. In the core of lecturers activities of the implementation of ICT, it is emphasized more on strengthening concepts, media that is often used in the form of power point, video, simulation. At the closing stage the lecturer will facilitate students to draw a conclusion, reflection,

feedback and explain the next meeting plan. The application of ICT at this stage aims to assist the lecturer in carrying out the objectives to be achieved at the end of the lecture. The choice of using ICT in learning for the opening stages, the core of the lecture and the closing course must be adjusted to the needs of students[4].

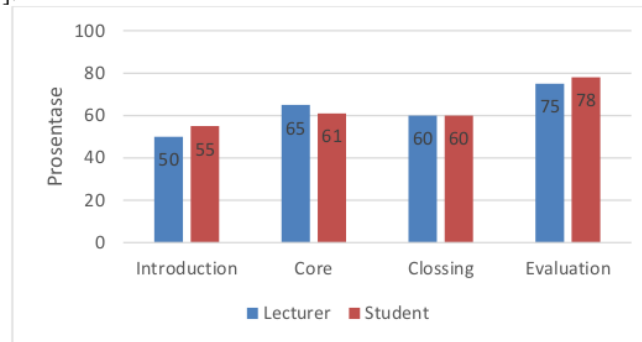


Figure 1. ICT Announcer in lectures based on the results of lecturer and student questionnaires

The use at the evaluation stage is higher than the other three stages and reaches a percentage above 75%. At the evaluation stage students usually do online evaluation questions on the EDMODO platform, Google doc, via email, upload videos to YouTube, e-portfolio and others. Because evaluation is more open and transparent for lecturers and students. Because assessment or evaluation using ICT allows lecturers to get feedback directly from students[12]. Some lecturers in the purpose of communication form WhatsApp groups to support lecture activities. According to [13][14] the use of WhatsApp in learning can improve the communication mobility of lecturers and students as well as the means of question and answer on lecture materials and task collection.

The transaction stage is the stage of the process of implementing the implementation of ICT in the implementation of lectures in the Elementary School Teacher Education Study Program, both in the preliminary, core, closing and assessment activities. This transaction stage is done by distributing questionnaires and observing the activities of implementing ICT in learning in lecture classes. Many types of ICT can be applied in lectures, the type of ICT used in lectures for each stage of the lecture. The types of ICT that are often used are as shown in Table 1.

Table 1. Type of ICT used in the lecture

Activities	Media	Perecentage (%)
Introduction/ opening	Edmodo, Moodle, google class and schoology	25
	Video	40
	Picture and Poster	20
	PPT (Power Point)	100
	PPT (Power Point)	100
	Simulation (Adobe Flash)	30
The Core of lecture	Text	20
	Picture and Poster	20
	Video	40
Closing	Edmodo, Moodle, google class and schoology	25
	Email	60
	Edmodo, Moodle, google class and schoology	25
	PPT	100
	Email	60
Evaluation/assessment	Edmodo, Moodle, google class and schoology	25

Based on table 1, 100% of lecturers use PPT both in preliminary, core, closing and assessment activities. And only 25% of lecturers use PMS to combine face-to-face lecture activities online. This figure needs to get serious attention in order to meet the industrial revolution 4.0, where lectures must better integrate the face-to-face meetings in class with online activities through the LMS [3].

The results of data outcomes analysis consist of student assessment of the lecture process. At the end of each lecture every semester, students are asked to give opinions related to the implementation of the lecture through a questionnaire. The questionnaire compiled by the internal monitoring and evaluation division amounted to 40 questions, out of 40 items 4 items that were in accordance with this research study and that we will discuss. The question item is; Ability to use science and technology-based learning media that attract students to study; Ability to use learning media, lecturers use media when giving lectures (eg props, multimedia, websites and others); and Can use information technology functionally, a description of the score for filling out the questionnaire can be seen as in Figure 1, Figure 2, and Figure 3.

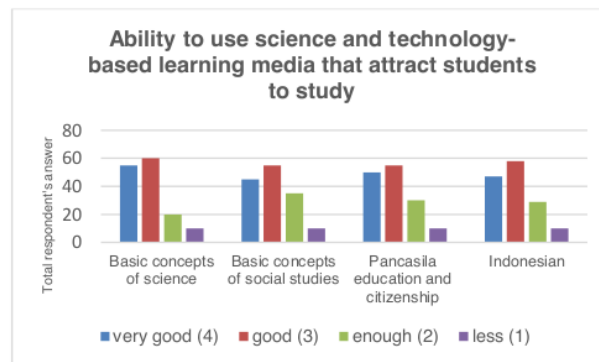


Figure 2. Total respondent's answer for question Ability to use science and technology-based learning media that attract students to study

Students in giving an assessment are not affected by the value because they can see the value when they have filled the questionnaire. Base on figure 2, students who gave excellent ratings as much as 34%, both as much as 39%, moderate as much as 20% and students as much as 7%. The use of media in learning helps students in understanding the concepts being taught[5], [13], [14].

The use of media and teaching aids in lectures [15], [16] was responded well by students, because it was able to increase motivation and understanding of the concept. Base on figure 3, students who gave excellent ratings as much as 35%, both as much as 40%, moderate as much as 19% and students as much as 6%.

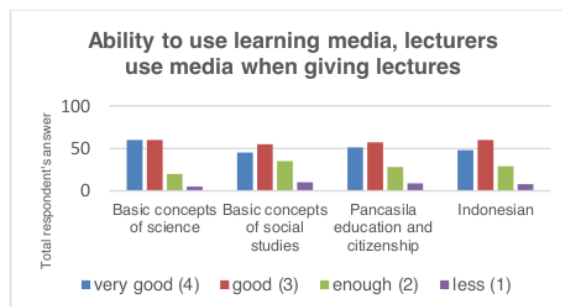


Figure 3. Total respondent's answer for question Ability to use learning media, lecturers uses media when giving lectures

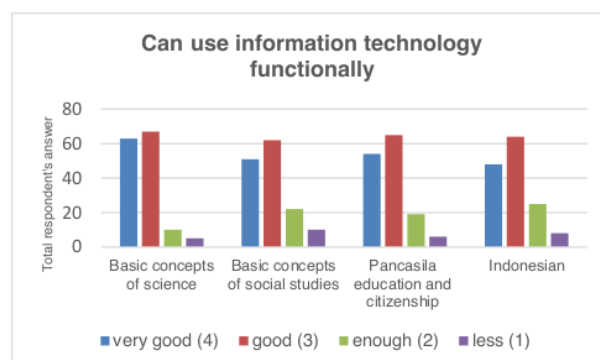


Figure 4. Total respondent's answer for question can use information technology functionally

Base on figure 4, students who gave excellent ratings as much as 37%, good as much as 44%, moderate as much as 13% and students as much as 5%. ICT-based learning is an obligation amidst the incessant government campaigning for industrial revolution 4.0. Some research [3], [4], [11], [15], [17] results also support that the application of blended learning in lectures has a positive impact on students, lecturers and universities. If the average student response to the application of ICT is taken for the basic science concept subjects, the basic concepts of IPS, Pancasila Education and Citizenship and Indonesian Language are as follows; 38% of respondents gave a very good score (4), 42% of respondents gave a good score (3), 15% of respondents scored moderate (2); and 5% score less (1).

4. Conclusion

Based on interviews, questionnaires and checking documents in the lecture plan, more than 80% of lecturers use ICT in lectures. The type of ICT that is used mostly is power point (PPT), only 25% use LMS. 42% of the results of the student questionnaire stated that the application of ICT in lectures was good and 38% respondents said it was very good. There needs to be a range of meetings for lecturers to begin developing LMS-based lecture designs so that they can combine face-to-face and online lectures.

References

- [1] Riyana C, 2010 Peningkatan kompetensi pedagogis guru melalui penerapan model Education Centre of Teacher Interactive Virtual (EDUCATIVE) *J. Penelit. Pendidik.* **11**, 1 p. 40–48.
- [2] Garrison D R and Kanuka H, 2004 Blended learning: Uncovering its transformative potential in higher education *Internet High. Educ.* **7**, 2 p. 95–105.
- [3] Hudha M N *et al.*, 2018 SPADA : Online learning between universities of PGRI Indonesia in *The 3rd Annual Applied Science and Engineering Conference (AASEC 2018)* **197** p. 1–6.
- [4] Purnomo A Ratnawati N and Aristin N F, 2016 Pengembangan Pembelajaran Blended Learning Pada Generasi Z *J. Teor. dan Praksis Pembelajaran IPS* **1**, 1 p. 70–76.
- [5] Saregar A, 2016 Pembelajaran Pengantar Fisika Kuantum dengan Memanfaatkan Media Phet Simulation dan LKM Melalui Pendekatan Saintifik: Dampak pada Minat dan Penguasaan Konsep Mahasiswa *J. Ilm. Pendidik. Fis. Al-Biruni* **5**, 1 p. 53.
- [6] Kusmana A, 2011 E-Learning Dalam Pembelajaran *Lentera Pendidik.* **14**, 1 p. 35–51.
- [7] Lestari D Mulyani E.S S and Susanti R, 2012 Pengembangan Perangkat Blended Learning Sistem Saraf Manusia Untuk Meningkatkan Keterampilan Berpikir Kritis *J. Innov. Sci. Educ.* **1**, 1 p. 1–9.
- [8] Rochmah E and Abdulmajid N W, 2018 Membangun virtual classroom melalui social learning networks (SLNS) *Prem. Educ. J. Pendidik. Dasar dan Pembelajaran* **8**, 1 p. 15–21.
- [9] Astuti E D Rahayuningsih M and Ngabekti S, 2018 Development of Project-Based Learning Guide on Pollution and Environmental Conservation Material at SMA 1 Jekulo Kudus *J. Innov.*

Sci. Educ. **7**, 34 p. 215–222.

- [10] Pheeraphan N, 2013 Enhancement of the 21st Century Skills for Thai Higher Education by Integration of ICT in Classroom in *Procedia - Social and Behavioral Sciences* **103** p. 365–373.
- [11] Guma A Haolader.F.A and Khushi M, 2013 The Role of ICT to Make Teaching-Learning Effective in Higher Institutions of Learning in Uganda *Int. J. Innov. Res. Sci. Eng. Technol.* **2**, 8 p. 4061–4073.
- [12] Lukitasari M Hidayati N R and Susanti J T, 2011 Pengaruh penggunaan asesmen portofolio pada perkuliahan Biologi Sel terhadap motivasi belajar mahasiswa IKIP PGRI Madiun *J. Pendidik. Biol.* **6**, 1 p. 22–28.
- [13] Pratama H and Yusro A C, 2016 Implementasi WhatsApp mobile learning untuk meningkatkan hasil belajar mahasiswa pokok bahasan Pengenalan Komponen Elektronika *J. Pendidik. Fis. dan Keilmuan* **2**, 2 p. 65–69.
- [14] Kartikawati S and Pratama H, 2013 Pengaruh penggunaan WhatsApp Messenger sebagai mobile learning terintegrasi metode Group Investigation terhadap kemampuan berpikir kritis *JUPITER(Jurnal Pendidik. Tek. Elektro)* **1**, 1 p. 33–38.
- [15] Barokati N and Annas F, 2013 Blended Learning Pada Mata Kuliah Pemrograman Komputer (Studi Kasus : Unisda Lamongan) *J. SISFO Inspirasi Prof. Sist. Inf.* **4**, 5 p. 352–359.
- [16] Huriawati F and Yusro A C, 2016 Pengembangan Odd " Osilator Digital Detector " Sebagai alat peraga praktikum gerak harmonil sederhana *J. Inov. Dan Pembelajaran Fis.* p. 1–9.
- [17] Triyono M B, 2015 The Indicators of Instructional Design for E- learning in Indonesian Vocational High Schools *Procedia - Soc. Behav. Sci.* **204**, November 2014 p. 54–61.

Evaluation of the application of information technology and communication in lectures in the Primary School Teacher Education Study Program

ORIGINALITY REPORT

5%

SIMILARITY INDEX

%

INTERNET SOURCES

%

PUBLICATIONS

%

STUDENT PAPERS

PRIMARY SOURCES

1

orca.cf.ac.uk

Internet Source

5%

Exclude quotes On

Exclude bibliography On

Exclude matches < 2%