The Effectiveness of Information and Communication Technology (Ict) In Civic Education Learning

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Abstract: ***The effectiveness of the use of ICT in civic education learning is the level of success on the use of ICT in civic education learning at Senior High School in Surakarta, Central Java. This research aims are: (1) to find out whether or not Civic Education teachers have utilized Information and Communication Technology (ICT) in the learning; (2) to find out the factors affecting the use of Information and Communication Technology (ICT) in Civic Education learning; and (3) to find out the effectiveness of Information and Communication Technology (ICT) in Civic Education learning. This study was a qualitative research taken place in Senior High Schools in Surakarta, Central Java, Indonesia. The sample in this study were civic education teachers and students at senior high school in Surakarta. Sampling technique employed in this study was purposive sampling. Techniques of collecting data used were questionnaire, interview, and observation. Questionnaire was used to collect data on teacher competency in applying Information and Communication Technology (ICT) in Civic Education learning. Interview and observation were used to collect data on the factors affecting the use of Information and Communication Technology (ICT) and on the effectiveness of Information and Communication Technology (ICT) use in Pancasila and Civic Education learning. Triangulation techniques used to validate the data. The data analyzed using an interactive technique of analysis. Data were analyzed using interactive analysis techniques, which include the stages of data collection, data presentation, data reduction, data verification and conclusions.***

The result of research showed that (1) the Civic Education teachers used ICT in the learning process; (2) in the application of ICT in the learning process, some supporting factors were needed: teacher competency and adequate infrastructure such as laptop, computer, LCD, projector screen, and internet connection; (3) Learning based on ICT is very effective in Civic Education learning. It is because ICT-based learning can improve concentration, creativity, innovation, and achievement of students in the learning.

Keywords: Effectiveness, ICT, Civic Education Learning, Senior High School

I. INTRODUCTION

Science and technology development, particularly Information and Communication Technology (ICT) development, has created new tradition and culture in mankind civilization. Information and Communication Technology (ICT) supported with electronic technology affects various aspects of life very widely, including education realm [1]. Indonesian education system is ever changing; such the change is intended to make the education system more quality. The recent change relates to the application of national curriculum that should be implemented nationally.The national curriculum has explained that the learning applies a principle "everyone is teacher"; everyone here is defined as students and anywhere is defined as class. Therefore, the use of Information and Communication Technology (ICT) is required for the sake of learning effectiveness and efficiency. It means that it is possible for the task and the result of assessment to be transferred through Information and Communication Technology (ICT) in the material learning process. The Information and Communication Technology (ICT)-based education is a means of management interaction and education administration that can be utilized well by educators and teaching staffs, as well as students in improving education quality, productivity, effectiveness, and access [2].

Information and Communication Technology (ICT), is limited not only to how to operate computer but also to how to use technology for collaborating, communicating, writing, and solving many more complex problems developing dynamically in the learning process [3]. ICTs stand for information and communication technologies, for the purposes of this primer, as a diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information [4]. These technologies include computers, the Internet, broad-casting technologies (radio and television), telephony and computer. The presence of Information and Communication Technology (ICT)-based learning in education management should be interpreted as an attempt of removing time border, space border, dimension border, and infrastructure border, thereby can improve the effectiveness and efficiency of learning [5]. To improve national development in education realm, particularly in relation to the need for Information and Communication Technology (ICT) in education, government has established some policies, among others: Presidential instruction Number 6 of 2001 about telematics expected to be an important part of education system, so that the school curriculum can be adjusted gradually with such the policy. The next is Presidential decree Number 20 of 2006 about the realization of knowledge-based Indonesian people in 2025 through the utilization and optimization of Information and Communication Technology (CT). Another policy is Minister of National Education's Decree Number 50/P/2007, stating that 50% of SMA/MA/SMK (Senior High School/Islamic Senior High School/Vocational Middle School) applied ICT-based learning in 2009.

In relation to the use of Information and Communication Technology (CT)-based technology as the learning media, the use of learning media in teaching-learning process can generate new wish and interest,

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motivation and stimulation of learning activity, and even affect the students psychologically [6]. Therefore, the use of media in learning orientation stage will very helpful to the effectiveness of learning process and the delivery of message and lesson content.

II. METHOD

This research was a qualitative study [7] conducted at Senior High School in Surakarta, Central Java, Indonesia. Sampling technique employed in this study was purposive sampling. The sample in this study were civic education teachers and students at senior high school in Surakarta. Sampling technique employed in this study was purposive sampling. Techniques of collecting data used were questionnaire, interview, and observation. Questionnaire used to collect data of teacher competency in applying Information and Communication Technology (ICT) in Civic Education learning. Interview and observation were used to collect data on the factors affecting the use of Information and Communication Technology (ICT) and on the effectiveness of Information and Communication Technology (ICT) use in Civic Education learning. To validate the data, method and source triangulation techniques were used. Data were analyzed using interactive analysis techniques, which include the stages of data collection, data presentation, data reduction, data verification and conclusions.

III. RESULT AND DISCUSSION

1. The utilization of ICT in Civic Education learning

To find out whether or not Pancasila and Civic Education teachers have utilized Information and Communication Technology (ICT) in the learning, the author used questionnaire technique. The questionnaire measures teacher competency in applying Information and Communication Technology (ICT). Ten (10) respondents were taken randomly. From the result of questionnaire processing, the following data is obtained. A teacher has applied ICT in basic-level learning, seven (7) teachers in intermediate level, and two (2) teachers in advanced level. For detailed information, the data is presented in the figure below.

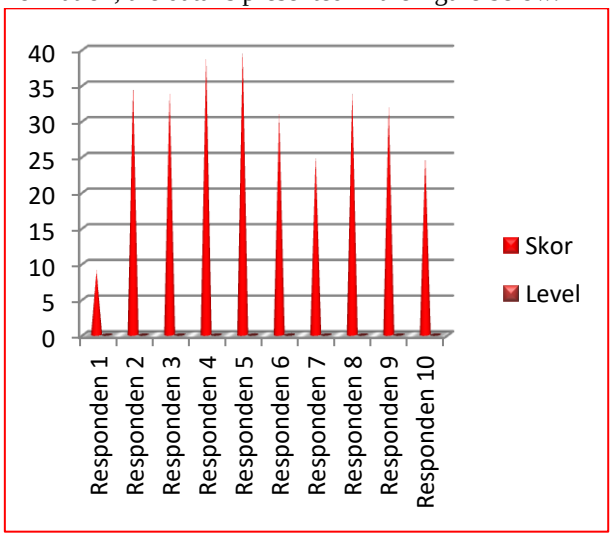

Figure 1. Teacher Competency Level at Senior High School, Surakarta, Central Java

Notes:
0 – 19 : Basic Level
20-35 : Intermediate Level
36 < : Advanced level

From the data above, Teacher Competency Mixed Index (IGKG) can be estimated using the following formula:

$$IGKG = \frac{[(N\ a)x(1)] + [(N\ b)x(2)] + [(N\ c)x(3)]}{N\ a + N\ b + N\ c}$$

Explanation:
a = Elementary teacher
b = Intermediate teacher
c = Proficient teacher

Considering the formula, the result of estimation is IGKG = 2.1. Index value of 2.1, according to Guideline of Self Evaluation on the ICT Application in Senior High Schools in Indonesia [8] means that the teacher competency in applying ICT in the school belongs to "developing" level (Index values of 1: pioneer, 2: developing, 3: adequate, 4: well-established, and 5: advanced). Thus, it can be concluded that the teachers in the schools have applied or utilized ICT, despite their "developing" (second)-level.

2. Factors affecting the use of ICT in Pancasila and Civic Education learning

To find out the factors affecting the use of ICT in learning, the author conducted interview and observation on the schools. Considering the result of observation, it can be concluded that the development and utilization of computer with other supporting tools in teaching-learning process is highly supported by many factors. One of its supporting factors is completed facilities like computer, laptop, permanent LCD, projector screen, and internet connection. Some rooms in some schools have not been equipped with LCD facility, because of the limited number of LCD. When teachers want to utilize LCD as well as its equipments in the learning, they should contact the facility infrastructure division to arrange the using schedule.

Considering the data above, it can be concluded that generally a variety of ICT facilities, particularly computer and other supporting tools existing, according to the author, has fulfilled the government's stipulation as mentioned in Permendiknas (Minister of National Education's Regulation) No. 24 of 2007 about "Standard Facilities and Infrastructures". In addition, such facilities required by teachers as room, software, computer, and other supporting tools to develop and to utilize ICT, particularly computer, in the learning process have been provided completely [9].

Civic education is a compulsory subject prepared to create active citizens [10] in undertaking their task and responsibility as good citizens [11]. To achieve the objective of learning, ICT use is required to support the learning process. The competency of Pancasila and Civic Education teachers in computer skill mastery is relatively the same, at intermediate (developing) level. Pancasila and Civic Education teachers are capable of using computer (at least Ms. Word and Ms. Excel), internet, PowerPoint, and E-learning in teaching and learning process, and of developing Information and Communication Technology

(ICT)-based teaching material, particularly computer.

In addition, generally the competency of Pancasila and Civic Education teachers has been compatible to the five competency categories required by UNESCO. UNESCO determines five categories of competency: (a) *Basic operations* encompassing: knowing the functions of some computer components, using a wide range of software including word processing, database and excel, acquiring information through CD Roms and other programs; (b) *Information technology* including utilizing multimedia presentation, utilizing interactive presentation, utilizing internet and electronic mail programs, being aware of developing ICT potency for the students' learning; (c) *Evaluation of software* including selecting and assessing a variety of technology (computer)-based teaching material, adjusting computer application with specific learning material and process, evaluating computer service for education purpose, and integrating the lesson material into computer appropriately; (d) *Pedagogical issues classroom management learning* including understanding how computer technology helps the students learn and explore the world, organize and create their own learning environment, using computer to prepare learning material in the class; and (e) *Values and ethics* including understanding the essence of plagiarism, finding out issues around copyright, censor and confidentiality, understanding various problems through accessing and reifying information obtained from various sources such as internet.

Meanwhile, the factors inhibiting Pancasila and Civic Education teachers in developing and utilizing ICT, particularly computer as well as other supporting tools, are relatively the same, the slow internet network. Because of this slow internet network, Pancasila and Civic Education teachers do not utilize internet directly.

3. The Effectiveness of Information and Communication Technology (ICT) in Pancasila and Civic Education Learning.

To find out the effectiveness of ICT use in Pancasila and Civic Education learning, the data resulting from the interview concerning the effectiveness of ICT use in Pancasila and Civic Education will be presented. In conducting field survey, the author employed interview technique and interviewed the Pancasila and Civic Education teachers in Public Senior High Schools in Surakarta, Central Java, Indonesia.

From the result of interview, it can be seen that all Pancasila and Civic Education teachers interviewed stated that ICT (LCD, Power Point, Film, Internet network and etc)-based learning can improve the students' concentration on and attention to the learning, so that the learning materials are more understandable to the students. Teachers can also present more varying learning material rather than monotonous material with lecturing, because in ICT-based learning, teacher can present the material in the form of motion pictures and silent pictures, charts and colorful writing, and many shapes, all of which are accompanied with sound effect. Teachers can also explain the process of making something or the process by which something occurs.

Teachers also perceive that the learning can run more effectively without much lecturing, but material discussion can be completed more quickly. Students are more active in the learning process because they pose question more frequently. It cannot be found in the learning using lecturing traditional method. Through ICT-based learning, the Pancasila and Civic Education teachers can explain the process of an occurrence more easily as well. For example, in the process of developing video can be presented in the learning process.

ICT-based learning can also improve the creativity of students, in the sense of students not only imitating the examples given by teachers [12]. In Civic Education lesson, the creativity of students appear when they have more initiatives in developing material [13], particularly in learning new materials, students often do search for and browse the new materials. In addition to be creative, the students are more independent as well, meaning that when they are given assignment they will no longer cheat their friends, but begin to do it themselves volitionally and more diligently.

However, in addition to many advantages of ICT-based learning aforementioned, in fact it also has some disadvantages. The disadvantage of ICT-based learning, according to the Pancasila and Civic Education teachers, is that students enjoy exceedingly the display of power point presented, and pay less attention to the points of content (basic material of subject) existing in the slide, and even the points to be recorded or noted by the students are missed.

Another disadvantage is that students often focus exceedingly on the illustration displayed in the slide, and pay less attention to the points of content (basic material) in the learning. Consequently, the understanding of learning material is provisional in nature and not last long. Considering such condition, some teachers take contradictory such measures as writing the points of learning materials directly on blackboard, and using slide as the illustration only. When teachers write the points of materials, students pay more attention and note the material. In this case, teachers try to establish interaction between teacher and student, by conducting debriefing with students. In such condition, teachers cannot abandon the use of lecturing method.

Considering the result of interview, it can be seen that the use of ICT in Pancasila and Civic Education learning makes the learning process more effectively. This result is supported with the following reasons.

Some important reasons concerning the effectiveness of ICT use in Pancasila and Civic Education learning in the class functioning to correct and to improve the learning process are: (1) ICT can motivate the students' learning; (2) ICT can improve the students' active learning; (3) ICT can prepare the students for learning uniquely asking for the prior skill precondition; (4) ICT give the students the discretionary to search for and to construct thinking framework; (5) ICT prepares visual aid to improve the learning productivity; (6) ICT can improve the high-order thinking ability; (7) ICT gives the students freedom and self-control in the learning, (8) ICT

can improve collaboration in corporation in the learning; (9) ICT can improve independent learning; and ICT gives the students an opportunity of giving feedback spontaneously.

In addition, ICT not only improves the learning process but it can require the students to formulate instructional objective varyingly, including: (1) ICT improves the capability of learning instructional objective; (2) ICT improves the Pancasila and Civic Education teachers' ability of using technology to improve the learning process; (3) ICT can improve the exploration of special material studied in order to speed up the learning process; (4) ICT can motivate the Pancasila and Civic Education teachers to give assignment that can improve the students' thinking ability; (5) ICT can take abstract thinking into the real world; and (6) ICT can monitor the learning development.

Some benefits are obtained from the integration of ICT into the learning: (1) ICT can give the students the opportunity of learning not only in the classroom, but also anywhere, anytime, with flexible circumstance; (2) ICT provides distant learning model and e-learning that is affordable to those beyond school; (3) it grows creativity in processing the learning material. The learning material with simulation program and virtual laboratory help can be packaged attractively and give the students imagination; (4) ICT is adaptive to the learning program corresponding to the characteristics of individual students; (5) ICT access a variety of supporting material from the lesson material, library, and many other materials that can be put onto web.

On the other hand, the use of ICT also has some negative aspects, as suggested by some teachers in the field interview. It is noteworthy that there are three conditions needed by teachers to introduce ICT in the class: (1) teacher should trust the effectiveness of technology; (2) teacher should believe that the use of technology will not be harmful; (3) teacher should believe that they have control over the technology [14].

Considering the result of interview, it can be seen that it is the third factor i.e. control that should be prepared and owned by the Pancasila and Civic Education teachers in utilizing ICT. Through having control, the disadvantages of ICT use, such as students who are sleeping during the learning process in the class, can be avoided and minimized.

IV. CONCLUSIONS

1. In addition, the following conclusions can be drawn: (a) All the Civic Education teachers have used Information and Communication Technology in learning process; (b) in the application of Information and Communication Technology supporting factors are required, including teacher competency and adequate infrastructures, such as computer, laptop, LCD, projector screen, and internet connection; (c) ICT use can be applied effectively in Pancasila and Civic Education learning. It is because ICT can improve the students' concentration in the learning process.
2. There were several factors that influence the use of Information and communication Technology in learning civic education at Senior High School in Surakarta ,Central Java, namely: (a) teacher competency factors, such as: mastery of subject matter, mastery of learning strategies and mastery of information and communication technology; (b) adequate infrastructure facilities include laptops, computers, LCDs, projector screens and internet connections.
3. Learning based on Information and Communication Technology (ICT) is very effective in learning Civic Education. This is due to learning based on Information and Communication Technology (ICT) can increase concentration, creativity, and innovation and student achievement in learning.

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