Teacher Perception on the Implementation of (Information and Communication Technology) ICT-Based Training in Managing Practicum of Physics

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Abstract. This study aims to reveal physics teachers’ perception on the implementation of Information and Communication Technology (ICT)-based training to improve their professionalism in practicum management. There are 40 physics teachers from 25 different senior high schools in Bandung, Indonesia, involved in this study. This study is based on qualitative methodology using a descriptive approach. Data were collected using closed questionnaires with interviews added. Perceptions consist of 3 (three) types of spirit (enthusiasm), visibility (literacy), and absorption (success). Training is a professionalism improvement program using android-based smartphones. The results show that the enthusiasm level reaches 85% of the participants, the visibility reaches 50% of the participants, and 70% of the participants identifies appropriate training. Based on the results obtained can be stated that the program improves the professionalism of teachers in managing practicum can be done using android-based smartphone. ICT-based practice management training program is more effective and efficient, and focuses on 21st century development towards Indonesia Emas (Golden Indonesia) 2045.

1. Introduction
Nowadays, Information and Communication Technology (ICT) is a lifestyle in many aspects of life, including in education. The advancement of science and technology is actually a big factor of globalisation which has an impact to education. Thus, it is expected that ICT is able to improve the quality of education. It is said that ICT has a transformative role in such aspects of Indonesia’s education as (1) curriculum and content; (2) teaching and learning process; (3) educational facilities; (4) human resources; (5) administrative affairs; (6) management and policies in education; and (7) educational infrastructure and supra-structure.

Education is the main key to proceed to Indonesia Emas (Golden Indonesia) 2045. Some believe that to reach the goal of Indonesia Emas, some of the biggest challenges are innovation and ICT (in these contexts, in Indonesia might be in the lowest place in ASEAN). To break this down, there are specifically three biggest challenges Indonesia needs to cope with, comprising the rapid growth of knowledge-based economy, innovation and technology, and the utilization of ICT.

The role of teachers is inevitable in the quality of education so that they are demanded to enhance their competences, especially in ICT to support the development of globalization. Thus, understanding
ICT is something they need to possess since ICT can improve their professionalism [1]. Integrating science and technology in teaching and learning process also makes it meaningful [2].

Recent studies show that ICT-based training can improve the teachers’ professionalism which is related to their competences [3]. It has also been proven that such training can improve the competences of physics teachers [4]. In Shanghai, a study revealed that the kind of training has at least two advantages: enhancing teachers’ ICT literacy and improving their professionalism [5].

The ICT referred to in this training is limited to online training through Smartphones, where physics teachers who are members of the WA MGMP group Bandung City can attend the training in accordance with the agreed schedule. Smartphone usage at this time is very lively because simple and easy to carry but in education need to be optimized not just for general communication. Therefore, researchers develop training programs using Smartphone.

In Indonesia; however, the teachers’ ICT literacy is still low. This is due to the fact that it is a big and maritime country so that the education is not equal. In fact, ICT is very important. In physics, for instance, the use of ICT in the practicum is very meaningful. The integration of ICT can creative innovative teaching and learning process [6]. Considering the aforementioned facts, this study aims to find out teacher perception of the ICT-based training to improve their professionalism in managing practicum.

2. Method
This research is a qualitative descriptive through techniques of documentation study, questionnaire, interview, and observation. To collect data, this study uses questionnaire and interview. This type of study allows the researcher to understand the participants’ perceptions. Perceptions consist of 3 (three) types of spirit (enthusiasm), visibility (literacy), and absorption (success). Training is a professionalism improvement program using andriod-based smartphones. The data are then analyzed using percentage. There are 40 physics teachers coming from 25 different senior high schools in Indonesia involved. The procedure is that teachers are given online training in Whatssap group twice a week. Each training lasts for 90 minutes. The materials are all related to physics teaching.

3. Results and Discussion
The teacher’s perception of ICT-based training can improve ICT literacy skills as well as develop the teacher’s own professional [7] so the researchers are interested in conducting this research. After the collected list of questionnaires was obtained results of teachers’ perceptions of ICT-based training in managing Physics subject practice can be seen the following picture:

3.1. Teachers’ Enthusiasm on the Training

![Figure 1. Teachers’ Enthusiasm on the Training](http://science.conference.upi.edu/proceeding/index.php/ICMScE/issue/view/3)
Figure 1 shows that 85% of the teachers are enthusiastic about the training. This is due to the fact of implementing ICT in the teaching and learning process makes the process more meaningful [7]. Meanwhile, 15% do not show enthusiasm since their prior knowledge is very low.

The dissonance between the positive attitudes of the science teachers in this study and their limited use of technology in their teaching, points to the need for supporting these teachers to broaden their repertoire of teaching strategies based on technology.[2]

3.2 Teachers’ Literacy on the Content of the Training

Educational dimension of ICT can be studied in many dimensions. ICT should be integrated with teaching for it provides a rich learning environment, forms the skill of developing a multi-dimensional perspective related to a complex phenomenon for the students, supports a flexible information structuring for complex learning contents and meets different needs resulting from individual differences[8]. Teachers understanding on ICT is one of the fundamental issues in making learning more effective, efficient, and innovative [9], [10].

Figure 2 presents that 50% of them understand well the content of the training and 35% quite and understand and 15% even do not understand

3.3. Teacher Absorption (Success) on the Training

![Figure 2. Teachers’ Literacy on the Content of the Training](image)

![Figure 3. Teacher Absorption (Success) on the Training](image)
Figure 3 shows that 70% of the teachers agree that the training is beneficial for the teachers to improve their professionalism. With ICT-based training the teacher feels successful in managing the practicum.

The central challenge to teachers is to move from traditional instruction integrating computers to instruction integrating ICT. Effective use of technology entails an intelligent and critical attitude toward this pedagogy. Many educators have claimed that integrating ICT in instruction will lead to a techno-pedagogical revolution[2].

4. Conclusion
This study concluded that teachers are enthusiastic about the training on ICT to improve their professionalism in managing practicum. Most of them also understand the content of the training and agree that the training can improve their ICT literacy as well as competences. However, one of the biggest obstacles is the inequality of understanding ICT, particularly the use of Android-based smartphones.

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6. References


