

## The Implementation of ICT School Based in Indonesia: The Benefits and Challenges

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### Abstract

Nowadays, the concept of learning is becoming modern that linear with the use of information and communication technology (ICT) which is programmed to be involved in all levels of Indonesia education system from Kindergarten to Higher Education. This research is library research that aims to discuss about the benefits and challenges of ICT school-based implementation in Indonesia. As a country with majority schools located in rural areas, Indonesia has to determine the obstacles endurance and reduce the gap exists. This paper discusses on both sides of the ICT implication which are the benefits and challenges sides. Then, the recommendation is offered for those parties that have close relation to the application of ICT school based can work together to give support.

**Keyword:** Implemenatiton, ICT, School

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### Introduction

Nowadays, the use of ICT plays significant role in all sectors in this world including education. As this era is shifting from Industrial Revolution 4.0 to 5.0, every nation has to be ready to work with modern and digital scheme. ICT is short for information and communications technology which is an umbrella term for all communication devices and applications, encompassing, radio, television, cellular phone, computer and network, hardware and software, digital systems, satellite system, and so on, as well as all various services and application associations. This system is mature developed and widely applied in developed countries far before Covid 19 hit the world. In many developing countries, ICT is applied as part of educational system including Indonesia over past two decades of the twenty-one century (Shen & Ho, 2020). Even though, the application of ICT based has been running for more than two decades in developing countries, in Indonesia the ICT based can only be applied in big and developed cities or rural areas.

A statistical number show that urban area in Indonesia in total is 8,488 and the total number of rural areas is 74,953 (Wikipedia). This is implied that there are still many places in Indonesia could not carry out the ICT based in education. However, when the pandemic Covid 19 attack the world constitutes Indonesia, the central government instructed all schools in Indonesia to carry out the online learning system. The Regulation from the Ministry of Education related to Work from Home (WFH) due to prevent the spread of Covid 19 is stated on the Circular Letter No 36962/MPK.A/HK/2020 concerning Online Learning and WFH in the context of Covid 19 spreading prevention.

Consequently, ready or not, all schools must change the teaching and learning system from face-to-face or offline system into online system which means they should apply the ICT based learning. This situation is such an urgent one, as many schools from kindergarten level to Higher Education level in this country do not ready yet to apply this system, but there is a must. Thus, the use of ICT based learning is increased significantly.

In reality, before Covid 19 struck Indonesia, the use of ICT in education sector has already been applied, especially for the Higher Education level and more specifically for the Higher

Education that serve Distance Learning such as Universitas Terbuka. There are some Elementary and High Schools which categorized as elite schools and private schools already accommodate the use of ICT at their schools. These schools are mostly located in the urban areas. It is because they are able to provide their schools with ICT tools needed and as part of developing program in education sector of this country.

The implementation of ICT in education is reflected on UUSPN article 35, paragraph 1; “the standards of development facilities and infrastructure include the classroom ....., other learning sources needed to support the learning process including the use of ICTs” (Moec of RI and Strategic Planning in Mirfani, 2019).

Related to those regulation, the central government concludes ICT in the national curriculum which has started in 2004 curriculum that is called Competency Based-Curriculum or KBK, and 2006 curriculum or Education Unit Level Curriculum, called KTSP which made ICT as a compulsory subject. This is so because the central government wants to accommodate and prepare the students to be able to compete in the globalization era and develop Indonesian community to not left behind from other countries.

Thus, the purpose of this paper is to discuss about the benefits and challenges of ICT school-based implementation in Indonesia.

## **Method**

This is a literature study or library research that carried out by collecting information from journals, articles, and other literature as primary means in generating arguments in this paper (Fidel, 2008). The discussion will cover the overview of Indonesian schools, the implementation of ICT school based in Indonesia, and the benefits and challenges on the ICT implementation.

## **Result and Discussion**

### **The Overview of Indonesian Schools**

Schools in Indonesia with different level started from Kindergarten, Junior High School, Senior High School and Vocational School, and Higher Education which are spread out from urban to rural areas can be categorized as Public and Private schools. Those two types of schools that located in urban areas usually more developed than those are located in the rural areas. Besides, the private schools usually are in the limited in number which located in rural areas. It is because this type of school is rather expensive.

As mentioned above that Indonesia is dominated by rural areas, in connection to the ICT school-based execution, there are many schools from all levels of education do not be able to apply the ICT school based or ICT based learning because of their inadequate funding, devices, and infrastructure.

To make this system running, a school must well be prepared with at least basic standard of ICT work system. The school has to prepare some tools, devices and infrastructure besides black board or white board such as;

- a) Desktop, laptop, tablet, mobile phone, or smart phone
- b) Scanner
- c) Printer
- d) Software program or application such as google meet, google classroom, zoom, etc
- e) World wide web side
- f) Internet connection
- g) Office supplies like printer, scanner, etc

Besides, the school has to make sure that teachers are ready and equipped themselves with the skills to operate this system. School also has to have the operator and technician.

## **The Implementation of ICT School Based in Indonesia**

The implementation of ICT School Based in Indonesia is still becoming a hot issue with pros and cons perception from experts, researchers, headmaster of schools, teachers, local governments, and other parties related. For those schools situated in the rural areas with easy access and with enough support from local governments, parents, and community surroundings, they are able to carry out this learning system. Different from those schools located in rural areas with limited of sources, devices, tools, access, and supports from related parties may find it difficult.

There are some studies conducted in relation to teachers of different field of studies perceptions on the implementation of ICT at school across Indonesia. Mailizar et al (2020) on their study entitled secondary school mathematics teachers' view on e-learning implementation barriers during the Covid 19 pandemic: the case of Indonesia found that there were four barriers identified from teachers, students, curriculum, and school. From these four barriers, the highest impact on e-learning is students' barrier which has direct correlation to curriculum and school barriers. Thus, these barriers needed to be reduced.

Besides that, Santoso, Istiyono and Haryanto (2022) conducted a study related to the issue on physics secondary schools' teachers' experiences in judging the diversities of students' performances in e-learning and teachers' limitation encounter involved in forming judgment of students. The result showed that there were several limitations discovered as being encountered by physics teachers, particularly in term of judgement of equity and accuracy, as well as the teachers' workload.

Research in EFL teachers' perception of the effectiveness of ICT-ELT integration during the Covid 19 pandemic held by Fitri and Putro (2021) mentioned that from 126 of primary and secondary EFL teachers revealed that the majority of EFL teachers have positive perception toward the integration of ICT in connected to its effectiveness. However, it was also reported that they were in condition of lack of internet access, only few technical supports from schools, have limited knowledge and training of ICT discouraged them in using it.

This study indicated the important of stakeholders and government supports to promote ICT-based teaching and learning by providing adequate technology access and technical supports for EFL teachers.

Based on the explanation above, it can be concluded that even though the implication of ICT is on-going and give many benefits especially during the Covid 19 pandemic situation. Yet, there are many limitations identified from some aspects namely human resources which means teachers and technicians, students, curriculum, schools, tools, access, stakeholders, and so on. Thus, in implementing it will still be facing obstacles.

## **Benefits and Challenges on the ICT Implementation**

Many studies approved that there are many benefits can be gained from the implementation of ICT as School Based Instruction such as Al Ansi, Garad, and Al Ansi (2021) affirm that ICT can make online learning possible, it will save time and money in the future, it can motivate learners, ICT as communication tools, learners can mobile, it can help learners access to remote learning resources, it can help to connect to the world, it support in improving the quality of education, and it can be a media to share knowledge and information.

In addition, Awaludin (2016) explains that ICT can connect people such as teachers, students, administrators, rural communities, including ordinary people from the remote access or rural areas to the world. Beside the benefit, the difficulties are identified in many studies related to the implementation of ICT School Based in Indonesia, as follows:

Andarwulan, Al Fajri, and Damayanti (2021) in their research involving 250 elementary teachers from across Indonesia found that those teachers were still have problems in some issues such as the availability of learning content, the availability of technology or digital devices, the proficiency

in applying technological devices, the ability to buy data packages, the availability of internet access or network, and the teachers' attitude toward online learning.

In 2022, Fauziah, Warsono, and Jacky identified teachers' problems in implementing a web-based assessment system in several Senior High Schools in West Sumatra such as limited of facilities and infrastructure of ICT, limited of internet network, difficulty in the process of entering grades, and problems occur with the system.

Al Ansi, Garad, and Al Ansi, in 2021, conducted a study related to ICT-based learning during Covid 19 outbreak: advantages, opportunities and challenges. The result show that there are facing problem on the low speed and bandwidth of internet, lack of maintenance human resource expertise, limited of electronic tools, high cost for students, and plagiarism.

A study on the implementation of ICT in education in Indonesia during 2014-2017 carried out by Hermawan, Yunita, and Deswila (2018) found that the implementation faced some issues for instance the policies, curriculum, infrastructure, lack of expertise in the regions, gaps of education and teachers' quality.

## **Conclusion**

The use of ICT school based is important and need to be catch up as in this era is shifting from Industrial Revolution 4.0 to 5.0. It is true that using ICT in education gain advantages for teachers and students. Nevertheless, it also has obstacle. Thus, the implication of ICT school based in Indonesia is still becoming a pros and cons topic, especially for those schools placed in the rural areas. There are some parties namely local government, stakeholders, schools, teachers, students, and community have to work together hand in hand to promote and support the application of this system.

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