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Developing Learning System in Pesantren: The Role of ICT

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Abstract: The development of information and communication technology has led to many changes, including in the field of education which is established the concept of e-learning. By using e-learning, learning is become more effective and efficient. Information and communication technology is also used in schools, it is possible to produce the concept of e-pesantren. Through the use of ICT, religion teachers and students at the school could be preaching, teaching and learning with greater ease, and the teaching models e-pesantren is also very useful, both for students and teachers (religion teacher), even for the managers of pesantren, of which is increasing prestige and institutional accountability. E-pesantren allows creating a system of distance education and virtual school / boarding. The integration of information and communication technology in education in schools is to improve the quality of education in schools and ease of propagation.

Keyword: E-Pesantren, E-Learning, santri, ustadz

1. Introduction

In a report from Wingspread Group on Higher Education in 1993, it was written: "The nation that responds best and most rapidly to the educational demands of the Age of learner will enjoy a commanding international advantage in the pursuit of both domestic tranquility and economic prosperity, this will require new ways of thinking". This quote shows that there is a learning era which is requires making a new way of thinking in education. Some students respond better to visual and audio stimuli of lecture but often get lost in the material or lose interest in the presentation. In this type of a learning environment, students have limited opportunity to ask questions or may be uncomfortable asking a question in front of the class. It is well known that many questions go unasked. It is widely recognized that learners are motivated and purposefully engaged in the learning process when concepts and skills are underpinned with technology and sound pedagogy. Learning and Teaching Scotland aims to provide resources for practitioners, parents and pupils to engage with these technologies in order to inform and enhance the learning experience.

We are now living in a constantly evolving digital world. ICT has an impact on nearly every aspect of our lives - from working to socializing, learning to playing. The digital age has transformed the way young people communicate, network, seek help, access information and learn. We must recognize that young people are now an online population and access is through a variety of means such as computers, TV and mobile phones. As technology becomes more and more embedded in our culture, we must provide our learners with relevant and contemporary experiences that allow them to successfully engage with technology and prepare them for life after school.

The development of Information and Communication Technology (ICT) has urged people to develop the efficiency and the effectiveness in every activities. All sectors such as e-commerce, e-banking, e-government has used the ICT in their activities. We just entered 21st century, there are a lot of education institution, especially from the other country which is trying to develop their learning quality by using ICT through E-Learning Program. In Malaysia, the program of E-Learning gets full support from the government through the Agenda, Information Technology National Program whis is established by National Information Technology Council (NITC). NITC wants to make Malaysia ready to compete in globalization era, so they make five agenda, E-Community, E-Public Services, E-Learning, E-Economy, and E-Sovereignity (Koran, 2003). In Singapore ICT is more progress in the *era of E-Government with the vision to be leading E-Government to better serve the nation in the digital economy* (Djunaedi, 2003)

Although the infrastructure of ICT in Indonesia is still lower than the other countries, it will be better if all the people that work in education sector, which are include the teachers (ustadz) and the manager of

pesantren have to try to think and act to increase the function of *dakwah* and education by using the ICT. If it doesn't start from now, it is very possible that *Pesantren* in Indonesia and all the community inside become the community that left behind by the technology.

2. Learning and ICT

Learning is the interaction between what students know, the new information they encounter, and the activities they engage in as they learn. Students construct their own understanding through experience, interactions with content and others, and reflection. Learning style theory proposes that individuals learn in different ways, that there are four distinct learning styles feeling, watching, thinking and doing, and that knowledge of a learner's preferred learning style will lead to faster and more satisfactory improvement.

Learning is seen more and more as an active individual process, where learners construct their own knowledge base. Learning is also increasingly seen as a process based on sharing and the purpose is not to transfer knowledge but to create environments and experiences that bring students to discover and construct knowledge for themselves, to make students members of communities of learners that make discoveries and solve problems, and recognizing that the chief agent in the process is the learner.

Figure 1 The process of learning

Stands for "Information and Communication Technologies." ICT refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums. ICT are often spoken of in a particular context, such as ICTs in education, health care, or libraries.

Since the demand for telephone and internet communication services in all segments of society is increasing, make people more easily and quickly communicate with the outside world and facilitate in finding existing information by using the internet. Nowadays internet access is no longer monopolized by cable or by satellite phone. The current internet access easily can be done by using cellular technology such as GSM technology (Global System Mobile) and CDMA (Code Division Multiple access), even for difficult areas internet can be acces directly via satellite.

Background of the development and the use of Information and Communication Technology (ICT) has penetrated and coloring all sides of public life, including education. In everyday life the use of information and communication technologies by today's society has become commonplace, no longer become a dream that difficult to realize, including the beneficial in education. Learning via the Internet (e-learning) with multi-media computers are widely known and utilized by the education community, even this has become a necessity for all the information and educational development can be delivered quickly and accurately. In the cities, the students start from elementary school level (SD) to university is used to access the internet to search for material enrichment lessons that acquired in school. Subject matters who have not understood at school or who have not received at school can be easily searched and obtained via the Internet.

The main purpose of ICT in Education means to implement of ICT Equipments and Tools in Teaching-Learning process as a media and methodology. The purpose of ICT in education is generally to familiarize students with the use and workings of computers, and related social and ethical issues. ICT has also enabled learning through multiple intelligence as ICT has introduced learning through simulation games; this enables active learning through all senses. Information and communication technologies (ICT) which include radio and television, as well as newer digital technologies such as computers and the Internet, have been touted as potentially powerful enabling tools for educational change and reform. When used appropriately, different ICT are said to help expand access to education,

strengthen the relevance of education to the increasingly digital workplace, and raise educational quality by, among others, helping make teaching and learning into an engaging, active process connected to real life.

According to C. Paul, ICT can Investigate reality and build knowledge, for example ICT allows students to investigate more thoroughly the real world using up-to-date information and tools to build a broader and deeper knowledge. Students also can collect and analyze data using ICT probes to investigate water salinity problems in a local river. ICT also can Promote active learning and authentic assessment, for example ICT may be used to support students in being more active as participants in their own learning and learn by doing rather than just listening or reading. Students create a digital video of a school camp to communicate what they valued. Students use a simulated environment to consider building a town. Students interact with children from another country to create a play. ICT provide tools to increase student productivity, the activity such as students construct multiple graphically representations of data collected from a survey. Students use a spreadsheet to calculate the costs associated with installing a reticulation system and use the results to successively improve their own designs (Paul Newhouse, 2002).

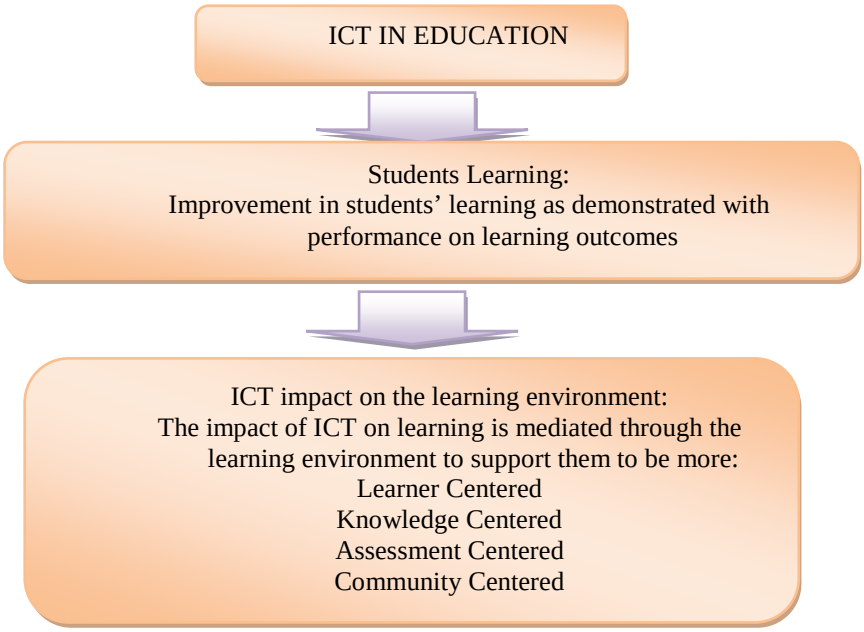

Figure 2 The impact of ICT(Paul Newhouse, 2002)

The power of ICT also urges the changing in curriculum, which is include the changing of the purpose and the content, learning activities, tes and scoring, learning final result, and positive additional score. That's why nowadays there are so many terms that appear such as E-Teacher, E-Test, E-Library, E-assignment, E-Education, Virtual School, Virtual University, E-Learning, and etc. E-Learning is a learning which is using ICT to transform the process of learning between the teacher and the student. The main purpose of the using of this technology is to increase the effeciency and effectivity, transparency, and learning accuntability.

From those explanation, it is clear that E-Learning is using ICT as a tool, with the main purpose is to increase the effeciency and effectivity, transparency, accuntability and comfortable learning, which is the object is the learning service become better, interesting, interactive, and attractive. The final result is expected there will be the increasing of achievement, students' academic mastery, and also cost less and time for learning process.

E-Learning is a learning model based on the students' center. By using E-Learning students expected become more individual and more responsible in learning process, because students can learn in anytime and anywhere, the most important is the instrument is available. E-Learning is demanding the students to be more active. Through E-Learning, students can find information/learning material based on the syllabus/criteria that is already stated by the teacher. Students will have a lot of information, because the students can access all information from anywhere which is related with the

learning material. Students also can do on line discussion with all experts, for example by sending e-mail or chatting. It is clear that active students in E-Learning is absolutely determine their final result.

E-Learning is also gives a chance to all students to study without any underpreassure. It means that the students are free to find their own learning material. Students also free from feeling of ashamed, that usually happensnin traditional class, if the students can't answer teacher's questions, or failed in their learning. The students can be free ask some questions and make discussion with the experts or through proffesional help program by on line which is design in E-Learning material. Students also can repeat all the material until the material is mastered. Meanwhile, for the students who "fast" in learning, they can learn the next topic without waiting the "lower" students. By doing this system, it is expected that the result of the final learning will be better by using the E-Learning, because the mastery learning will be reach. Students also free to acces the E-Learning material from anywhere.

E-Learning material that create well and professional will use the characteristic of multimedia. It means that, the learning material should include text, picture, grafic, animation, simulation, audio and video. The choosing of the right color is also can create interesting display in the monitor. This things can make the learning material become more interesting, interactive, and attractive. Because of this situation, it can make students want to learn more and become more curious. E-Learning also can be design to save the students' achievement record, which can be useful for feed back process. This record can be used to reiforcement. Beside that, E-Learning also can be design to check the test and to give score automatically, so that the element of transparency and accuntability can be fullfilled in this process. Based on this evaluation result, students automatically suggested to do certain learning activities. (Pribadi dan Rosita, 2003).

Table 1: The advantages and disadvantages in using ICT

Advantages	Disadvantages
• **Through ICT, images can easily be used in teaching and improving the retentive memory of students.** • **Through ICT, teachers can easily explain complex instructions and ensure students' comprehension.** • **Through ICT, teachers are able to create interactive classes and make the lessons more enjoyable**	• Setting up the devices can be very troublesome. • Too expensive to afford • Hard for teachers to use with a lack of experience using ICT tools

3. ICT and Pesantren (Boarding school for moslem)

The increasing of ICT has made creative persons to bring about and develop their creative idea effectively and efficiently. Nowadays there are some young people who might be don't have real *Pesantren*, try to make electronic pesantren (E-Pesantren), such as Indigo Pesantren and Virtual Pesantren. The basic idea of Virtual Pesantren is the effort to develop Islam idea with all the discourses. The establish of Virtual Pesantren is the answer that we need to develop Pesantren Education System especially in digital and information era. Virtual Pesantren is a proof that Pesantren system also can join the information era with the color and the mission doesn't change with convensional Pesantren.

In E-Pesantren, for example on *http://pesantrenvirtual.com/*, there are some programs that still the same as convensional Pesantren. Such as Ustadz (teacher) Consulting, Dhikr and pray, wisdom, Consultation, Question and Answer, Fiqh, and the studies of Islam. This is shown that by using ICT, magnificence of Islam from Ustadz (teacher) and Santri (students) can be developed. They will not find any difficulties because the media is getting easiest. The characteristics of E-Pesantren is very useful for all Ustadz and Santri, even all the managers of Pesantren. E-Pesantren make the distance learning become more easier. For all santri (students), it is clear that E-Pesantren can train and increase the individuality of santri (students). Moreover, it also can give the easiest way for all santri to access all

the material wherever they are, more economical, and the important is all santri can learn without any embarrasement feeling if they are lower than the other santri.
These are the benefits that can be achieved by Santri in using E-Pesantren, such as can develop the interaction when santri is doing some on line discussion, accomodate the differences in santri, santri can repeat all difficult materials for many times until santri can mastered the material, easiest access, santri can study without any underpreassure, free to ask anything in on line, decrease the cost, force santri to browse all information in world wide web, santri can choose the target and the material that appropriate in website, develop the ability in using the internet and force santri to have responsibility in their learning and develop their self-knowledge and self-confidence.

The benefit of E-Pesantren also can be felt by the Ustadz (teacher). For example Ustadz can give materials and problems which is up to date to be studied by the santri (student), easy to access anything in every situation and condition, decrease the cost of accomodation in training program, and also can communicate their ideas in wider area.

The development of ICT can be very useful for pesantren. Pesantren is a learning community, that's why pesantren can use ICT to expand the society education. It also can improve and increase the quality of formal education. These things are very possible to be done because the human resources are already complete. It means, there are Kyai and Ustadz, santri who are already use to do anything by themselves, there is interaction media, education facilities, and management of pesantren. In the real world pesantren is already goes well, that's why it is very possible to bring "real" pesantren to the electronic pesantren.

4. The Preparation of The Using of ICT in Pesantren

From the explanation above, in order to expand the "real" pesantren to E-Pesantren, there are some preparation that should be filled, such as infrastructure, human resources, and the learning material. From the infrastructure, we need the available of computers, LCD Proyektor, Computer Network, Internet Connection, homepage of all Kyai and Ustadz, and E-Library. In general the availability of ICT infrastructure in Indonesia is still low. Penetration Computer (PC) IN Indonesia is only about 4%, than in Malaysian and Australia which is can reach until 80% (Koran Tempo, 18 February 2008).

Our spirit should not be down because of those condition, in the future the suppliying of Information Technology is become cheaper. It is very possible that someday pesantren can fullfilled their hardware needs in information technology. From the side of communication technology (include the internet connection), in Indonesia is still more expensive than the other countries. That's why we hope there is some regulations from the government (Minister of Information and Communication) who can descrease the cost of internet connection, so can increase the connection from computer to the internet. The existence of Warnet (Warung Internet) also can be said as the support of infrastructure that can be used to start the E-Pesantren.

The preparation of the human resources (ustadz and santri), in using ICT they must understand about Computer. The literacy of computer is absolutely different, it depends on the role and the responsibility. The computer literacy is a term that usually used to explain the basic knowledge of computer. *Konsep literasi komputer lebih berkaitan dengan segi praktis penggunaan komputer,bukan perancangan dan pengembangan komputer itu sendiri* (Sugilar, 2005). The computer literacy concept is more related with the practical of the using of computer, not about the planning and the developing of the computer itself.
As the term of the development of learning program, computer literacy refers to the operation of aplication program, the social context in the using of computer, the understanding about what is computer and how does it works, the history of computer, and practical knowledge, at least one of the highest program in computer. Computer literacy also can be seen from what things that has been done by someone that related with computer, such as the time length in using computer, the using of computer program, and the skill in making computer program.

From those explanation above, we can say that the main qualification to do E-Pesantren are learning activity is done by using the computer network, the availability of learning service that can be used by all santri, such as CD ROM, and the last is the availability of tutor service. Beside of that the role of Kyai and Ustadz can't be changed all by technology. It means that in implementing, the role of E-Pesantren is as a supplemen. For example Kyai and Ustadz as a good model for moslem.

There are so many kinds of pesantren in Indonesia based on the condition, so the level of the infrastructure's availability and the human resources is different. That's why the steps of developing ICT can be categorized in emerging, applying, infusing, and transforming fase, (Majumdar, 2005). Emerging is the step where all the educator gives more attention to ICT. Applying is the step where all educators start to learn by using ICT. Infusing is the step where all the educators start to know how and when the ICT is used. The last step is transforming, in specific can use ICT to help the finishing of all works in learning and managing the education.
The using of ICT in pesantren gives a wide impact. If an Ustadz can use ICT in learning system, it will also gives impact to all santri. This condition can make all santri are using ICT. So that all the Indonesian people can become computer literacy. That's why it is very important for pesantren to give ICT skill in learning for all santri.

5. Closing

The power of ICT has made a lot of changing in learning. Institutions outside of pesantren, has tried to do their learning process bu using ICT. It means that the virtual college concept is about to entered by them. So that they can reach the target without any obstacles. This condition can cause education become cheaper and interesting. The using of ICT in learning gives a lot of advantages for santri, ustadz and the manager of pesantren. The use of ICT can increase the efficiency and the effectivity in learning process and pesantrens' manager. Beside that, ICT will expand and increase the society education, especially for moslem. Eventhough the infrastructure in implementing E-Pesantren is still low, the E-Pesantren concept should be introduce to all santri. It is must be done to make santri doesn't left behind in the development of ICT.

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