



# CURRICULUM TRANSFORMATION FOR SANTRI IN RESPONSE TO INFORMATION AND COMMUNICATION TECHNOLOGY (ICT): LEADERS' PERSPECTIVES

**Muyassaroh**

Institut Agama Islam Al-Qolam Malang

Email : [muyassaroh@alqolam.ac.id](mailto:muyassaroh@alqolam.ac.id)

DOI: 10.38073/nidhomiyyah.v4i2.1018

Received: June 2023

Accepted: July 2023

Published: July 2023

## Abstract :

This study aims at examining Curriculum transformation for santri of pesantren institutions at Mifthul Ulum and Al-Bukhori Gondanglegi Malang in response to Information and Communication Technology (ICT). Based on qualitative method employed it is discovered that these pesantren have conducted an adaptation process with ICT in the form of an administrative system such as payment of student fees, student data and lessons, procurement of training and workshops and the establishment of a separate ICT development unit, although there are still obstacles, especially in human resources. Meanwhile, what needs to be maintained is yellow as a medium with sorogan, bandongan, and deliberation as Islamic methods and values

**Keywords :** *Curriculum transformation, santri, Information and Communication Technology (ICT)*

## Abstrak :

Penelitian ini bertujuan untuk mengkaji transformasi Kurikulum bagi santri pesantren di Mifthul Ulum dan Al-Bukhori Gondanglegi Malang dalam merespon Teknologi Informasi dan Komunikasi (TIK). Berdasarkan metode kualitatif yang digunakan diketahui bahwa pesantren-pesantren tersebut telah melakukan proses adaptasi dengan TIK berupa sistem administrasi seperti pembayaran iuran siswa, data dan pelajaran siswa, pengadaan pelatihan dan workshop serta pendirian pengembangan TIK tersendiri. unit, meskipun masih terdapat kendala terutama pada sumber daya manusia. Sedangkan yang perlu dipertahankan adalah kuning sebagai media dengan sorogan, bandongan, dan musyawarah sebagai metode dan nilai-nilai Islami.

**Kata Kunci:** *Transformasi Kurikulum, Santri, Teknologi Informasi dan Komunikasi (TIK)*

## INTRODUCTION

The 21st century is marked by technological progress in almost all areas of life known as the industrial revolution 4.0<sup>1</sup>. Industrial Revolution 4.0 has changed various aspects of human life including in education system<sup>2</sup>. The education system meant here might refer to curriculum -i.e. it is pre-planning<sup>3</sup>. Planning a curriculum change should be commended to

<sup>1</sup> Lilis Kholisoh Nuryani et al, "Independence of Santri in Commemoration of Industrial Era Revolution 4.0," *Advances in Social Science, Education and Humanities Research (ASSEHR)*. no. 258. (2019): 102.

<sup>2</sup> Delipiter Lase, "Education and Industrial Revolution 4.0." *STT Banua Niha Keriso Protestan Sunderman Nias*, (August 2019): 1.

<sup>3</sup> Saedah Siraj & Muhammad Helmi Norman, "M-learning curriculum transformation," *IETC Journal*,

the need of the world change in which fundamental factor of learning is necessary to be customized<sup>4</sup>. Thus, it is required to have a curriculum transformation for the need. Curriculum transformation can be defined as reform or renewal, including changes employed for teaching and learning content. The idea might also refer to the practices and processes that higher education institutions take as part of their social responsibility, engaging with and responding to concerns and complexions. This transformation in management of school is fundamental for ensuring the value and quality of education, both, in elementary schools and tertiary institutions. Similarly, Good or bad teaching outcomes are determined by a curriculum which can stimulate students' critical awareness. The new paradigm shift in teaching methods is one of the solutions and alternatives in education and curriculum transformation<sup>5</sup>. Achieving curriculum development transformation challenges might lead to success and, in turn, a new professional identity for all higher education institutions<sup>6</sup>. Furthermore, in order to achieve the aforementioned benefits of curriculum transformation, it thus must correspond to 21st century learning.

Sajidan & Afandi convey that the 21st century is viewed as time where information is widely spread and technology deploys and the birth of millennial generation<sup>7</sup>. This insight is in line with skills needed in 21st Century which consist of knowledge construction, real-world, problem solving, skilled communication, collaboration, use of information and communication technology for learning, and self-regulation<sup>8</sup>. One of the

---

(April 2010): 958.

<sup>4</sup> Dyah Werdiningsih et al, "Curriculum Transformation and the Impact to the Implementation in Learning: Lecturers' Perspective," *International Journal of Multicultural and Multireligious Understanding (IJMMU)* 9, no.1 (January 2022): 545.

<sup>5</sup> M., Syukri Azwar Lubis, "Understanding Curriculum Transformation towards Educational Innovation in the Era of All-Digital Technology." *Nazhruna: Jurnal Pendidikan Islam* 5, no. 2. (2022): 526.

<sup>6</sup> Ikanyeng Prince Ramonyai et al, "Challenges of Transformation in Higher Education Curriculum Development in South Africa during Time of Decolonisation," *Jurnal Penelitian dan Pengkajian Ilmu Pendidikan: e-Saintika* 6, no. 3 (November 2022): 157.

<sup>7</sup> Mustika Rosdiana, "Implementation of 21st Century Learning Through Lesson Study," *Advances in Social Science, Education and Humanities Research*, no. 421 (2020): 346.

<sup>8</sup> Stephanie M. Stehle & Erin E. Peters Burton, "Developing student 21st Century skills in selected exemplary inclusive STEM high schools," *International Journal of STEM Education* 6, no. 39 (2019): 1-15.

skills i.e. use of information and communication technology seems to be the core of industrial revolution 4.0. in which -especially in learning -it is called ICT literacy.

According to UNESCO ICT is regarded as the combination of Informatics technology with other related technology, particularly technology of communication<sup>9</sup>. integration of ICT in education might mean technology-based teaching and learning process which closely relates to the use of learning technologies in schools. ICT Integration will assist teachers to the global requirement in replacing traditional teaching methods with technology-based teaching and learning tools and facilities<sup>10</sup>. Due to the fact that students are familiar with technology and they can learn properly within technology-based environment, the idea of ICT integration in schools, specifically in the classroom is urgent to have<sup>11</sup>. ICT involves computers, the Internet, and electronic delivery systems such as radios, televisions projectors among others, and is widely utilized in today's education field<sup>12</sup>. Other kinds of ICT products available and having relevance to education include teleconferencing, email, audio conferencing, television lessons, radio broadcasts, interactive radio counseling, interactive voice response system, audiocassettes and CD ROMs etc which have been used in education for distinct purposes<sup>13</sup>.

ICT can be utilized as a tool for students to discover learning topics, overcome problems, and provide solutions to the problems in the learning process. It can make knowledge acquisition more accessible, and concepts

---

<sup>9</sup> Syed Noor-Ul Amin, "An effective use of ICT for education and learning by drawing on worldwide knowledge, research and experience: ICT as a change agent for education (A Literature review)," *Scholarly Journal of Education* 2, no. 4 (March 19, 2013): 38.

<sup>10</sup> Swarali Sanjay Shah, "Teaching and Learning with Technology: Effectiveness of ICT Integration in Schools," *Indonesian Journal of Educational Research and Technology* 2, no. 2 (September 2022):133.

<sup>11</sup> Simin Ghavifekr & Wan Athirah Wan Rosdy, "Teaching and Learning with Technology: Effectiveness of ICT Integration in School," *International Journal of Research in Education and Science* 1, no. 2 (Summer 2015):175.

<sup>12</sup> Jo Shan Fu, "ICT in Education: A Critical Literature Review and Its Implications," *International Journal of Education and Development using Information and Communication Technology (IJEDICT)* 9, no.1 (2013): 112.

<sup>13</sup> Syed Noor-Ul Amin, "An effective use of ICT for education and learning by drawing on worldwide knowledge, research and experience: ICT as a change agent for education (A Literature review)," *Scholarly Journal of Education* 2, no. 4 (March 19, 2013): 38.

in learning areas are understood while connecting students in the application of ICT<sup>14</sup>. ICTs might enhance the quality of education in various ways, through increasing learner motivation and engagement, facilitating the acquisition of basic skills, and improving teacher training. ICTs are also transformational tools whereby, when used properly, can promote the shift to a student centered atmosphere<sup>15</sup>. ICT assists in simplifying the communication and collaboration for groups of students. It helps to streamline the process of analysis and record keeping as well as facilitating the sharing ideas with others<sup>16</sup>.

Integration of ICT specifically in Indonesia has been implemented not only by students of public schools but also the ones in pesantren. In spite of the obstacles confronted, management of pesantren has led the pupils to have ICT integration in their learning process as in evidenced by Hapsari<sup>17</sup>, Abidin<sup>18</sup> and Mustas<sup>19</sup> in their studies.

Hapsari investigated digital skills of female santri in Modern pesantren of Assalaam Surakarta<sup>20</sup>. In order to discover her investigation she employed descriptive qualitative as the method along with indepth interview, observation, and triangulation as the instrument. Based on The results of observations it was found that not all female santri can use the ICT facilities. The pesantren management provided the facilities in accordance with the policies such as (1) one computer is for each class and two

---

<sup>14</sup> Jo Shan Fu, "ICT in Education: A Critical Literature Review and Its Implications," *International Journal of Education and Development using Information and Communication Technology (IJEDICT)* 9, no.1 (2013): 112.

<sup>15</sup> Syed Noor-Ul Amin, "An effective use of ICT for education and learning by drawing on worldwide knowledge, research and experience: ICT as a change agent for education (A Literature review)," *Scholarly Journal of Education* 2, no. 4 (March 19, 2013): 38.

<sup>16</sup> Stephanie M. Stehle & Erin E. Peters Burton, "Developing student 21st Century skills in selected exemplary inclusive STEM high schools," *International Journal of STEM Education* 6, no. 39 (2019): 1-15.

<sup>17</sup> Noerma Hapsari, "Digital Skills pada Santriwati di Pondok Pesantren Modern Islam Assalam Surakarta (Studi Deskriptif Penggunaan Media Digital oleh Santriwati SMA PPMI Assalaam Surakarta)." Muhammadiyah University Surakarta. (2019). Unpublished Thesis.

<sup>18</sup> Zaenal Abidin, "Educational Management of Pesantren in Digital Era 4.0," *Jurnal Pendidikan Agama Islam* 17, no. 2 (December 2020): 203.

<sup>19</sup> Chusaini Mustas, "Information Behavior of Santri in the Digital Era: From Literacy to Multiliteracy," *Library Philosophy and Practice (e-journal)*, (June 25, 2021): 1-12.

<sup>20</sup> Noerma Hapsari, "Digital Skills pada Santriwati di Pondok Pesantren Modern Islam Assalam Surakarta (Studi Deskriptif Penggunaan Media Digital oleh Santriwati SMA PPMI Assalaam Surakarta)." Muhammadiyah University Surakarta. (2019). Unpublished Thesis

computers in the student room. (2) Computers can only be used during school breaks and during evening study hours. (3) The use of computers in student rooms must be with permission and supervision. (4) Management of the pesantren also provided four computers in the laboratory that students can use for certain subjects, but the number of computers provided is not proportional to the number of students in one class so students have to take turns using the computers. (5) wifi connection was available in the cottage area but was accompanied by a password so that it was not easy for the students to directly connect to the internet.

Moreover, Abidin examined digitalization of education system at pesantren institution of Darussalam Gontor 12 Tanjung Jabung Timur<sup>21</sup>. He employed the method of descriptive qualitative and instruments of observation, interview, documentation, and literature relevant to this study. By using the method and the instruments it was discovered that all teachers or ustadz use the transfer of technology, communication, and information material from the hand-to-hand method (*yadan-biyadin*). This means that the process of transferring material with e-learning through intensive guidance, a teacher or ustadz must select several students who have the potential to quickly understand the material carefully. Then students who have the potential to be educated by teachers or ustadz, then students must deliver goods to other students continuously. Therefore, the management of Islamic boarding schools in the digital 4.0 era at Modern Darussalam Gontor Islamic Boarding School 12 Tanjung Jabung Timur is more advanced in face-to-face (conventional or traditional) Islamic religious education learning, while the e-learning method is only a complement in educating students to improve their skills.

Meanwhile, Mustas identified the information behavior developed by santri of Abdullah Faqih Islamic Institute and how literacy was built when santri enhanced information behavior<sup>22</sup>. Based on the results of the

---

<sup>21</sup> Zaenal Abidin, "Educational Management of Pesantren in Digital Era 4.0," *Jurnal Pendidikan Agama Islam* 17, no. 2 (December 2020): 203.

<sup>22</sup> Chusaini Mustas, "Information Behavior of Santri in the Digital Era: From Literacy to Multiliteracy,"

field study, it was proved that the santri had adapted to the process of digitalization through employing information technology to access information in virtual space. The process of implementation was supported by the policy made by chairperson of this institution which was based on the principles of “Al- muhafadhotu ‘ala qodimis sholih wal akhdzu bil jadidil ashlah”, and a curriculum which supported santri in adapting to the advancements in the disruptive era. The support was in the form of preparing software and hardware facilities. On the other hand, several obstacles in the application of the digitalization were factors from within oneself, factors from other people, and factors from the environment.

By the supports, pesantren administrators could encourage the transformation of information behavior of santri (transformation of form, nature, and function of information, attitude toward information gained, and information processing), which was marked by the realization of information seeking behavior, information searching attitudes, and information utilization behavior by creating a dialogical and harmonious network with stakeholders and education doers at pesantren.

The aforementioned researchers have presented studies about santri and ICT. They proved that many pesantren institutions try to adjust to industrial revolution 4.0. through leading santri to have skills in ICT embedded in their learning though the efforts are not maximum yet due to some factors such as the availability of skillful teachers and sufficient facilities. Moreover, their investigation emphasizes more the systems which had already made and run instead of having direct investigation to the brain behind the creation of the system. Accordingly this current study tries to provide new insight for filling the gap through formulating the objective of this present study in the form of investigating how curriculum transformation for santri as preparation for adjusting to ICT by having deep interview to the leader of pesantren -which is commonly referred to as a kyai or a representative. Meanwhile, the selected pesantren institutions are

---

*Library Philosophy and Practice (e-journal)*, (June 25, 2021): 1-12.

hybrid pesantren whereby they adopt both salaf (traditional) and modern teaching and learning i.e. Mifthul Ulum and Al-Bukhori Gondanglegi Malang

## RESEARCH METHOD

This current study is carried out due to one purpose i.e. to identify Curriculum transformation for santri of pesantren at Gondanglegi Malang in response to Information and Communication Technology (ICT). The selected pesantren institutions are hybrid pesantren whereby they adopt both salaf (traditional) and modern teaching and learning such as Mifthul Ulum and Al-Bukhori Gondanglegi Malang. Accordingly, qualitative research is utilized to find out the answer for the objective. Qualitative research is defined as study whereby by the data are in the form of words which require comprehensive exploration and interpretation as well as the results of the study is represented using words containing deep description of the analyzed data<sup>23</sup>. The data of this current study are in the form of words taken from the result of interview toward the leaders -or representative- of the pesantren chosen. The data of this present study are gathered using interviews. The interviews are addressed to the leaders -or representative- of two pesantren at Gondanglegi Malang namely Mifthul Ulum and Al-Bukhori Gondanglegi Malang Kind of interview selected is indepth interview.

## RESULTS AND DISCUSSIONS

### A. Results

In order to uncover perspectives of pesantren leaders on Curriculum transformation for santri in Gondanglegi Malang in response to industrial revolution 4.0, result of the interview toward the pesantren leaders are provided in five main aspects i.e. 1) their perspectives about the fact that the curriculum must be able to adapt to 4.0 (ICT). so that learning must be based on IoT, 2) How their pesantren conduct curriculum transformation

---

<sup>23</sup> Muyassaroh, Properties of Conversational Implicature on Iran Nuclear Deal Interview. *Jurnal Penelitian Ilmiah INTAJ 4*, no.1 (2020): 57.

(design/learning system) so that they can adapt to 4.0 (ICT), 3) boundaries so that the identity of the pesantren is maintained purely while still being able to contribute to the development of NKRI, 4) their suggestion to the government / minister of education and the Ministry of Religion in particular and also for other sectors related to education and 4.0 (ICT).

**1) Their perspectives about the fact that the curriculum must be able to adapt to 4.0 (ICT)**

Regarding the first aspect namely the perspectives of pesantren leaders about the fact that the curriculum must be able to adapt to 4.0. (ICT) so that learning must be based on IoT, they have similar arguments. According to them, pesantren must adapt to 4.0 (ICT). Like it or not, the Institution has to adapt because it will not automatically lose out in competition. Because so far the impression of pesantren is rather indifferent. Very few among the pesantren emerged from the adjoining group. The adjoining group referred to here is the Wahhabi community, where there are a lot of recitations that appear compared to those from the pesantren.

In Islamic boarding schools, figures are very influential. There are already a number of Islamic boarding schools which operate in a manner which means they are not based on figures (Kyai). However, most of the pesantren run according to the figure of their caregivers, which if the caregivers are not very familiar with the industrial revolution 4.0. (ICT) as a result will affect the learning process in the pesantren. So the point is back to the caregiver figure. There are caregiver figures who are open and there are also those who are closed. In other words, figures like this still prefer the conventional one and don't like the new learning system. Even so, almost the majority of Islamic boarding schools have started collaborating, namely that the material remains traditional but the techniques are more contemporary, namely they have started to touch ICT.

Santri are also world citizens. they too will be in the same reality. in



other words, in the future, students will also be required to be proficiency in utilizing digital technology also called ICT literacy. However, the point of ICT literacy is only for basic use need for learning instead of focusing on concrete skills like programming, designing, developing application etc. According to one of the respondents, simple examples of the use of ICT literacy are in the learning of hadits and fiqh.

For example, if you want to find a particular fiqh study, you can find out which ones on Google or YouTube are correct according to the school of thought, so reference literacy is ultimately needed here.

## **2) How do their pesantren conduct curriculum transformation (design/learning system) so that they can adapt to 4.0 (ICT)?**

The process of adaptation to ICT in selected Islamic boarding schools has begun, although there are still obstacles, especially in human resources. Due to the development of 4.0. so fast that it doesn't crash. As is the case for infrastructure facilities, including the learning process, teaching methods, and other regulations already exist, but the people behind it are not optimal. Therefore, the pesantren has started to hold trainings and workshops but still not optimal.

Meanwhile, there have been attempts made in the digital system, namely in the administrative system in terms of payment of student fees, student data and lessons. - In addition, there are also selected Islamic boarding schools that have their own unit related to ICT development called "al immah". If in school units such as OSIS or BEM and UKM if on campus. Institutionally, they move to invite skills such as journalism, blogging, graphic design, photography, how to create content. Therefore, it is wrong to know that the hope of the selected pesantren is to build a kind of lab - in the past it was a computer lab - specifically for the development of ICT literacy for students, such as how to edit videos, how to become a blogger. The point is all the skills that are not taught in madrasah diniyah. Apart from that, there are also discussion forums such as Bahsul Matsail which have started to involve technology even though they only use groups

such as WhatsApp and references in digital form. Meanwhile, if the madrasah diniyah does not mention ICT, it only shows that this is what digital technology is like. Even then, only a small portion of ustadz/ustadzah can do it.

**3) Boundaries so that the identity of the pesantren is maintained purely while still being able to contribute to the development of the Republic of Indonesia**

Limitations for Islamic boarding schools in using ICT are not to change the material that becomes the identity of Islamic boarding schools, while the media can adjust it. Do not let the ideas of liberalism and materialism change the direction of pesantren education. For example, now there are pesantren which operate without kyai figures. Islamic boarding schools like this run according to the system and are like profit institutions. So if you don't want this to happen, don't change the subject matter of the Islamic boarding school. Furthermore, there are also respondents who think that the problem is not a matter of maintaining it so that it seems as if technology will shift everything. So technology is no more than the medium so it's not about optional issues between A and B. For example, the yellow book is the medium with sorogan, bandongan, and deliberation as methods. In addition, the Islamic identity that needs to be maintained is its values. In other words, what ICT needs to be honed is skills in its use while values such as stealing are still not justified.

**4) Their suggestions to the government / minister of education and the Ministry of Religion in particular and also for other sectors related to education and 4.0 (ICT).**

The government as regulator and facilitator must be concerned with the world of Islamic boarding schools and changes in 4.0. (ICT). Because so far the government has not paid too much attention to pesantren. So the pesantren seems to live alone. There are efforts to help and equalize from the government but not yet significant. Because so far maybe only data collection. So the point of advice for the government is to be more optimal

in caring for Islamic boarding schools. However, on the other hand, there are respondents who have a different opinion, namely that it is not the government's problem but that we, the people, have not maximized the use of funds from the government. In this case, he stated that there is such a thing as a structural system, in this case the government and a social system which is none other than the community (the people), the students and the students. He also gave an example if there are students who are technologically illiterate, there is no need to blame the government but the social system, namely our factors that need to be corrected. So if the government has been committed to developing ICT literacy, for example computers and so on have been provided, but the community doesn't participate/match, the food won't be optimal.

## **B. Discussion**

Based on the findings described above, four major points can be drawn, namely: 1) Like it or not, institutions must adapt to ICT because students are also world citizens. So the materials are still traditional but the techniques are more up-to-date, that is, they have started to touch ICT. 2) the process of adaptation to ICT in selected Islamic boarding schools has started in the form of an administrative system such as payment of student fees, data on students and lessons, procurement of trainings and workshops and the establishment of a separate ICT development unit although there are still obstacles, especially in resources man. 3) the use of ICT does not change the material that becomes the identity of Islamic boarding schools, while the media can adjust it. Meanwhile, what needs to be maintained is yellow as a medium with sorogan, bandongan, and deliberation as methods and Islamic values. 4) suggestions for the government are to be more optimal in caring for Islamic boarding schools such as in the form of providing training, funding etc.

Related to the first point, that all respondents agree that Islamic boarding schools must make learning adjustments to ICT on the grounds that they are not inferior to the neighboring group (namely the Wahhabis) who have advanced their scientific studies in cyberspace such as on the You Tube channel and

because students are the same community. their contribution is required in the eyes of the world, in line with the study conducted by Mustas<sup>24</sup>. In his findings it was stated that the Abdullah Faqih Islamic Institute (INKAFA) continues to organize a salaf education system and also adopts a modern education system which in its implementation also uses a digitalization system. Unfortunately, this study did not mention in detail why it is also necessary to adopt a digitalization system in learning in Islamic boarding schools. It's just that in Mustas's research<sup>25</sup> it is alluded to that adopting a modern learning system is important because of the principles of Al-muhafadhotu 'ala qodimis sholih wal akhdzu bil Jadidil ashlah" (preserving good old traditions while adopting new, better traditions). Apart from the findings of Mustas<sup>26</sup>, two previous studies, namely studies belonging to Abidin<sup>27</sup> and Hapsari<sup>28</sup> are in line with the first point - namely that Islamic boarding schools must also adapt to ICT. Abidin's reasoning is because the students of the modern Darussalam Gontor 12 Islamic Boarding School need to do learning in order to integrate religious harmony in society and national unity in the digital era. This is different from a study conducted by Hapsari<sup>29</sup> which did not mention the reasons why there is a need for an ICT-related Islamic boarding school education system.

Related to the second point, namely the process of adaptation to ICT in selected Islamic boarding schools has started in the form of administrative systems such as payment of student fees, data on students and lessons, procurement of trainings and workshops as well as the establishment of a separate ICT development unit, although there are still obstacles. especially in human resources, is somewhat different from the findings of previous

---

<sup>24</sup> Chusaini Mustas, "Information Behavior of Santri in the Digital Era: From Literacy to Multiliteracy," *Library Philosophy and Practice (e-journal)*, (June 25, 2021): 1

<sup>25</sup> ibid

<sup>26</sup> ibid

<sup>27</sup> Zaenal Abidin, "Educational Management of Pesantren in Digital Era 4.0," *Jurnal Pendidikan Agama Islam* 17, no. 2 (December 2020): 203.

<sup>28</sup> Noerma Hapsari, "Digital Skills pada Santriwati di Pondok Pesantren Modern Islam Assalam Surakarta (Studi Deskriptif Penggunaan Media Digital oleh Santriwati SMA PPMI Assalaam Surakarta)." Muhammadiyah University Surakarta. (2019). Unpublished Thesis.

<sup>29</sup> Noerma Hapsari, "Digital Skills pada Santriwati di Pondok Pesantren Modern Islam Assalam Surakarta (Studi Deskriptif Penggunaan Media Digital oleh Santriwati SMA PPMI Assalaam Surakarta)." Muhammadiyah University Surakarta. (2019). Unpublished Thesis.

researchers namely Mustas<sup>30</sup>, Abidin<sup>31</sup>, and Hapsari<sup>32</sup>. In Mustas' research (2021) it was found that there are many forms of implementing ICT in learning at INKAFA, namely; there are computer literacy programs, internet literacy, web 2.0 literacy, social media literacy, press management, advertising communication skills, broadcasting and students are required to preach through social media, communities and digital forums.

Meanwhile, related to the obstacle of finding from research is the lack of adequate human resources. This is different from the findings of Mustas<sup>33</sup> which is the obstacle at INKAFA (1) Whenever santri accesses information for assignments, there are still santri who are not skillful in English and Arabic nonetheless INKAFA has been able to speak Arabic and English in daily basis. (2) ICT illiteracy becomes a barrier to information retrieval. (3) Santri lack of time to employ ICT due to their participation in pesantren activities. In addition, santri completed group assignments yet the results is unsatisfactory so they have to revise again. Additionally, the last factor is less internet network given by internet service provider, that often hampers access to information whenever santri has class assignments as well as Learning resources which are so limited.

Meanwhile, when compared to the findings of Abidin<sup>34</sup>, this finding is also inadequate because in his study it was found that the Darussalam Gontor Modern Islamic Boarding School uses -e-learning, along with yadan-biyadin (information from hand to hand) as the method whereby It means the process to transfer items by e-learning by intensive guidance. More specifically the teacher must select some santri who has potency to understand items straightforwardly.

However, the drawback is that it is not explained how technically the use of e learning is like as well as the constraints. Meanwhile, when compared with

---

<sup>30</sup> Chusaini Mustas, "Information Behavior of Santri in the Digital Era: From Literacy to Multiliteracy," *Library Philosophy and Practice (e-journal)*, (June 25, 2021): 1

<sup>31</sup> Zaenal Abidin, "Educational Management of Pesantren in Digital Era 4.0," *Jurnal Pendidikan Agama Islam* 17, no. 2 (December 2020): 203.

<sup>32</sup> Noerma Hapsari, "*Digital Skills pada Santriwati di Pondok Pesantren Modern Islam Assalam Surakarta (Studi Deskriptif Penggunaan Media Digital oleh Santriwati SMA PPMI Assalaam Surakarta)*." Muhammadiyah University Surakarta. (2019). Unpublished Thesis.

<sup>33</sup> Chusaini Mustas, "Information Behavior of Santri in the Digital Era: From Literacy to Multiliteracy," *Library Philosophy and Practice (e-journal)*, (June 25, 2021): 1

<sup>34</sup> Zaenal Abidin, "Educational Management of Pesantren in Digital Era 4.0," *Jurnal Pendidikan Agama Islam* 17, no. 2 (December 2020): 203.

the findings of Hapsari<sup>35</sup>, the findings of this study can be said that the digitization system applied to selected Islamic boarding schools is still more effective because in his study Hapsari<sup>36</sup> found that students at modern pesantren of Assalaam Surakarta sharpens digitalization skills but only on social media. As well as this institutions namely 1) Islamic boarding schools only facilitate one computer for each class and two computers in student room. (2) Computers can only be used during breaks school and during evening study hours. (3) Use of computers in student rooms must be licensed and supervised. (4) Islamic boarding schools also provide four computers in the laboratory that can be used by students during lessons certain amount, but the number of computers provided is not proportional to the amount students in one class so students have to use the computer alternately. (5) Lots of wifi available in the cottage area but accompanied with a password so that the students are not easy to connect directly with internet. Furthermore, regarding the last two points, namely limitations on the use of ICT in selected Islamic boarding schools and suggestions for the government regarding ICT in Islamic boarding schools, this study is well explained. Meanwhile, in the studies of Mustas<sup>37</sup>, Abidin<sup>38</sup> and Hapsari<sup>39</sup>. - [ ] The pesantren in this study and the pesantren owned by the three previous researchers mentioned above are both making efforts so that their students can adapt to the industrial revolution 4.0. which derivative is ICT. This fact has several implications. One of them is that all these pesantren need to improve the use of ICT in all aspects while of course preserving the values of the pesantren and not shifting them at all and the most important thing is to place ICT only as a medium which of course does not change the substance of Islamic boarding schools at all. As for the students, guardians of students, and the community, it

---

<sup>35</sup> Noerma Hapsari, "Digital Skills pada Santriwati di Pondok Pesantren Modern Islam Assalam Surakarta (Studi Deskriptif Penggunaan Media Digital oleh Santriwati SMA PPMI Assalaam Surakarta)." Muhammadiyah University Surakarta. (2019). Unpublished Thesis.

<sup>36</sup> ibid

<sup>37</sup> Chusaini Mustas, "Information Behavior of Santri in the Digital Era: From Literacy to Multiliteracy," *Library Philosophy and Practice (e-journal)*, (June 25, 2021): 1

<sup>38</sup> Zaenal Abidin, "Educational Management of Pesantren in Digital Era 4.0," *Jurnal Pendidikan Agama Islam* 17, no. 2 (December 2020): 203.

<sup>39</sup> Noerma Hapsari, "Digital Skills pada Santriwati di Pondok Pesantren Modern Islam Assalam Surakarta (Studi Deskriptif Penggunaan Media Digital oleh Santriwati SMA PPMI Assalaam Surakarta)." Muhammadiyah University Surakarta. (2019). Unpublished Thesis.

is necessary to support the use of ICT in Islamic boarding schools in accordance with their respective portions. Meanwhile, the government, especially the Minister of Religion of the Republic of Indonesia, needs to take care of Islamic boarding schools as much as possible to care for other educational institutions because after all students are also future world leaders, especially the Unitary State of the Republic of Indonesia.

## CONCLUSION

Pesantren Institution of Mifthul Ulum and Al-Bukhori Gondanglegi Malang agree with the notion that students must adapt to ICT with the material still being traditional but the technique being more up to date. This Islamic boarding school has already carried out an adaptation process with ICT in the form of an administrative system such as payment of student fees, student data and lessons, procurement of training and workshops and the establishment of a separate ICT development unit, although there are still obstacles, especially in human resources. Meanwhile, what needs to be maintained is yellow as a medium with *sorogan*, *bandongan*, and deliberation as Islamic methods and values.

## REFERENCES

- Abidin, Zaenal. "Educational Management of Pesantren in Digital Era 4.0." *Jurnal Pendidikan Agama Islam* 17. no. 2 (December 2020): 203-216.
- Amin, Syed Noor-Ul. "An effective use of ICT for education and learning by drawing on worldwide knowledge, research and experience: ICT as a change agent for education (A Literature review)." *Scholarly Journal of Education* 2. no. 4 (March 19, 2013): 38-45.
- Darmaji, Agus. "Role of Santri Middle Class in Democratization Process in Indonesia." *Ilmu Ushuluddin* 6. no. 2 (July 2019): 108-124.
- Fu, Jo Shan. "ICT in Education: A Critical Literature Review and Its Implications." *International Journal of Education and Development using Information and Communication Technology (IJEDICT)* 9. no.1 (2013): 112-125.

- Ghavifekr, Simin & Wan Athirah Wan Rosdy. "Teaching and Learning with Technology: Effectiveness of ICT Integration in Schools." *International Journal of Research in Education and Science* 1. no. 2 (Summer 2015):175-191.
- Gunadi, Gunadi. et al. "The Analysis of 21st Century Learning Implementation and Competency Achievement of Junior High School Students in 3T Regions." *Innovative Journal of Curriculum and Educational Technology* 11. no. 1 (2022): 10-18.
- Hapsari, Noerma. "Digital Skills pada Santriwati di Pondok Pesantren Modern Islam Assalam Surakarta (Studi Deskriptif Penggunaan Media Digital oleh Santriwati SMA PPMI Assalaam Surakarta)." Muhammadiyah University Surakarta. (2019). Unpublished Thesis.
- Idham. "Empowerment of Santri in Reality and Recollection: Study in Pesantren Hubulo, Gorontalo." *Jurnal Pendidikan Islam* 5. no. 2 (December 2016): 235-259.
- Josua, Lukas Matati. "Chronicle of Basic Education Curriculum Transformations in Pre- and Post-Independent Namibia: A Responsiveness Perspective." *Creative Education*. no.13. (April 8, 2022):1154-1169.
- Lase, Delipiter. "Education and Industrial Revolution 4.0." STT Banua Niha Keriso Protestan Sunderman Nias. (August 2019): 1-15
- Lubis, M. Syukri Azwar. "Understanding Curriculum Transformation towards Educational Innovation in the Era of All-Digital Technology." *Nazhruna: Jurnal Pendidikan Islam* 5. no. 2. (2022): 526-542.
- Mendy, John. & Maria Madiope. "Curriculum transformation: A case in South Africa." *Journal of UFS: University of The Free State* 38. no. 2. (December 04, 2020):1-11.
- Mustas, Chusaini. "Information Behavior of Santri in the Digital Era: From Literacy to Multiliteracy." *Library Philosophy and Practice (e-journal)*. (June 25, 2021): 1-12.
- Muyassaroh. Properties of Conversational Implicature on Iran Nuclear Deal Interview. *Jurnal Penelitian Ilmiah INTAJ* 4. no.1 (2020): 57-83.
- Nuryani, Lilis Kholisoh et al. "Independence of Santri in Commemoration of Industrial Era Revolution 4.0." *Advances in Social Science, Education and Humanities Research (ASSEHR)*. no. 258. (2019): 102-105.



- Ramonyai, Ikanyeng Prince et al. "Challenges of Transformation in Higher Education Curriculum Development in South Africa during Time of Decolonisation." *Jurnal Penelitian dan Pengkajian Ilmu Pendidikan: e-Saintika* 6. no. 3 (November 2022): 157-172.
- Rosdiana, Mustika. "Implementation of 21st Century Learning Through Lesson Study." *Advances in Social Science, Education and Humanities Research*. no. 421 (2020): 346-353.
- Shah, Swarali Sanjay. "Teaching and Learning with Technology: Effectiveness of ICT Integration in Schools." *Indonesian Journal of Educational Research and Technology* 2. no. 2 (September 2022):133-140.
- Siraj, Saedah & Muhammad Helmi Norman. "M-learning curriculum transformation." *IETC Journal*. (April 2010): 958-957.
- Stehle, Stephanie M. & Burton, Erin E. Peters. "Developing student 21st Century skills in selected exemplary inclusive STEM high schools." *International Journal of STEM Education* 6. no. 39 (2019): 1-15.
- Tamam, Badrud & Ahmad Farihin. "Management of Leadership Education of Santri in Pondok Pesantren." *International Journal on Education, Management and Innovation (IJEMI)* 1. no. 3 (September 2020): 210-215.
- Werdiningsih, Dyah et al. "Curriculum Transformation and the Impact to the Implementation in Learning: Lecturers' Perspective." *International Journal of Multicultural and Multireligious Understanding (IJMMU)* 9, no.1 (January 2022): 545-555.