



Strengthening Digital Literacy of Al-Ittifaqiah Islamic Boarding School Students

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Abstract:

Al-Ittifaqiah Islamic Boarding School (Pondok Pesantren al-Ittifaqiah or PPI) is an example of a modern Islamic boarding school (pesantren) in Indonesia which adopts limited ICT. In fact, digital literacy is a prerequisite for students to participate in a wider social life. This community service activity aims to improve students' cognitive abilities regarding digital literacy. The digital literacy training at PPI involved 46 male and female senior high school students. The material presented in a dialogical manner includes the concept of digital literacy, communication ethics in social media, effective communication in the digital era, and motivation to learn in the online learning era. The results of the evaluation indicated that this service was successful in increasing the students' cognitive by 20.93 points significantly, $t(45) = 9.6457$, $p < 0.001$. The community service team recommended for the pesantren to provide internet access for students, at least in the boarding school's computer laboratory. Sriwijaya University needs to continue targeting the pesantren as a target group of community service because of their uniqueness (combines the traditional and modern education system)

Keywords: student, Islamic boarding school; digital literacy; South Sumatra; Sustainable Development Goals

Introduction

Internet users in Indonesia continue to increase from year to year. In 2016,¹ internet users in Indonesia reached 51.79 percent or 132.7 million of the total population of 256.2 million. This number increased to 54.68 percent in 2017², 64.80 percent in

¹ Asosiasi Penyelenggara Jasa Internet Indonesia, Penetrasi Dan Perilaku Pengguna Internet Di Indonesia Tahun 2016. (Jakarta, Indonesia: Asosiasi Penyelenggara Jasa Internet Indonesia, 2016).

² Asosiasi Penyelenggara Jasa Internet Indonesia, Penetrasi Dan Perilaku Pengguna Internet Di Indonesia Tahun 2017 (Jakarta, Indonesia: Asosiasi Penyelenggara Jasa Internet Indonesia, 2017).

2018³, and 73.7 percent in 2019-2020.⁴ This phenomenon indicates a digital gap that divides the Indonesian population into two groups: have internet access and have not internet access. Peoples who have internet access can utilize internet use in various sectors of life, ranging from e-government, e-learning, e-commerce, e-money, e-health, and so on. The opposite situation applies to citizens who do not have internet access. This condition confirms that digital divide is part of social inequality, social injustice, discriminatory actions, or social alienation processes in real social life.

The above logic that brings the global community agree that digital divide is a new social problem in the era of information society that must be intervened. The agreement was implicitly voiced by the concept of *Sustainable Development Goals* (SDGs) which confirmed that the concept of conventional literacy (*calistung* or *baca, tulis, hitung* or reading, writing, and counting) was no longer relevant to the development of contemporary society. Everyone needs to complete *calistung* competence with digital literacy competencies to participate in a variety of social, economic, political, and cultural activities in digital society.⁵

Digital literacy is one of the issues of global education, which is an integral part of the SDGs, especially the Goal 4 (quality education). In 2015, when the SDGs resolution was agreed upon by the UN General Assembly, digital literacy was not yet contained as one of the objectives of the Goal 4. However, there was already an indicator of 4.4 that could be used as entrance for developing digital literacy indicators. Referring to indicators 4.4, several developed countries in Europe develop indicators 4.4.1 and indicators 4.4.2 that focus on digital literacy (see Table 1).

Table 1. SDGs Indicator on Education

Goal 4	Ensure inclusive and equitable quality education and increase lifelong learning opportunities for all
Indicator 4.4	By 2030, significantly increase the number of youth and adults who have the relevant skills, including technical and vocational skills, for employment, decent work, and entrepreneurship
Sub-indicator 4.4.1	Proportion of youth and adults with information and communication technology (ICT) skills, by skill type
Sub-indicator 4.4.2	Percentage of youth and adults achieving a minimum level of proficiency in digital literacy skills.

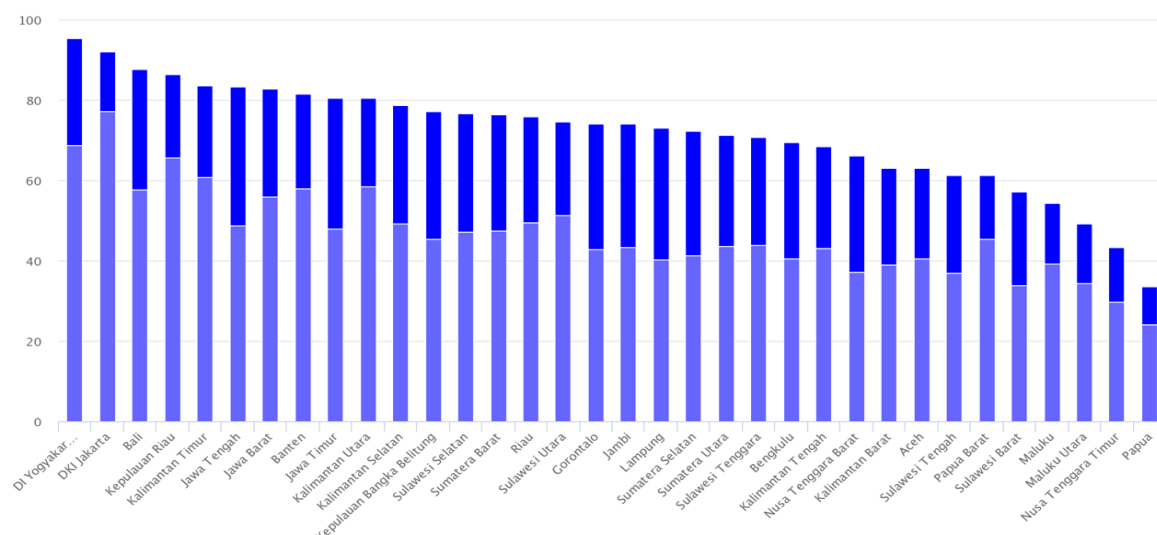
³ Asosiasi Penyelenggara Jasa Internet Indonesia, Penetrasi Pengguna Internet Di Indonesia Tahun 2018 (Jakarta, Indonesia: Asosiasi Penyelenggara Jasa Internet Indonesia (APJII), 2018).

⁴ Asosiasi Penyelenggara Jasa Internet Indonesia, Laporan Survei Internet Apjii 2019-2020 (Q2) (Jakarta, Indonesia: Asosiasi Penyelenggara Jasa Internet Indonesia, 2019).

⁵ United Nations, Transforming Our World: The 2030 Agenda for Sustainable Development (New York, USA: United Nations, 2015).

Source: Law et al.,⁶

Today, Indonesia only has data regarding population internet access based on age groups (15-24 years and 15-59 years) or Indicator 4.4.1.(a).⁷ Indicator 4.4.1 and indicator 4.4.2 itself is still in the development stage. As shown in Figure 1, the age group 15-24 years old represented by the dark blue color and the age group 15-59 years old was represented by the light blue. The population of 15-24 years old in Jogjakarta, DKI Jakarta, and Bali has the highest proportion in ICT skills. Whereas in the age group 15-59 years old, DKI Jakarta, Jogjakarta, and Islands have the highest proportion compared to other provinces in Indonesia. South Sumatra Province itself only has 72.4 percent (age group 15-24 years old) and 41.33 percent (age group 15-59 years old) skilled population using ICT.⁸



Source: <http://sdgs.bappenas.go.id/dashboard/#!/layouts/layout3.html>, accessed on 25 September 2020

Figure 1. Proportion of young and adult with ICT skill

However, the spirit of the global community to fight digital divide is not always congruence with conditions at the local level. In Ogan Ilir Regency, especially in the context of PPI, the boarding school manager is very careful in addressing the presence of

⁶ Nancy Law et al., A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2 (Quebec, Canada: UNESCO Institute for Statistics, 2018).

⁷ Badan Perencanaan Pembangunan Nasional, Metadata Indikator Tujuan Pembangunan Berkelanjutan: Pilar Pembangunan Sosial, 2 ed. (Jakarta, Indonesia: Badan Perencanaan Pembangunan Nasional, 2020).

⁸ Badan Pusat Statistik, Potret Awal Tujuan Pembangunan Berkelanjutan Di Indonesia (Jakarta, Indonesia: Badan Pusat Statistik, 2016).

the internet. The PPI managers only use the internet for school administration purposes. Until now, the boarding school manager does not provide internet access within school area. The learning process in the PPI still relies on conventional patterns. As a result, teachers and students have not been able to utilize scientific information resources on the internet to support the teaching and learning process.

The attitude of the PPI manager is not much different from the Islamic boarding school (*pesantren*) in Java, both modern *pesantren* and traditional *pesantren* (*salaf*). Based on empirical research, Setiawan⁹ classifies three *pesantren* policies on internet access: (a) *pesantren* manager utilize the internet fully to support school activities, both administrative and teaching-learning needs; (b) *pesantren* manager use the internet in part, which is only for administrative purposes, while students are generally not allowed to use the internet for some reason. If students want to use the internet, it must be with a strict licensing process; and (c) *pesantren* manager do not provide internet facilities and do not use the internet at all in all operational activities, both administrative and for learning activities. This typology supports the argumentation of Asep¹⁰ who argue that *pesantren* are neither well-adapted to the digital environment nor hesitant to accept the internet.

The case at the Rakyat Al-Amin Islamic Boarding School in Sumber Pucung Village, Malang Regency, East Java, represented the first category. The leader of this school has a strong commitment to use ICT in the teaching and learning process. ICT adoption is realized by creating media and varied learning contexts (text, images, audio, video, animation, and simulation) so that the learning process is more dynamic. The students are also trained to create positive content to share through the internet.¹¹ The second category was represented by Arafah Cililin Islamic Boarding School, West Bandung, West Java. In this boarding school, many *santri* (Indonesian terminology for Islamic boarding school student) are familiar with the ways how to trace and use the digital information. However, access to information through the internet at this school is very limited. *Santri* can only access the internet through computers in a computer laboratory. While the third category was represented by most of the *pesantren salaf* in many places in Indonesia.¹²

The diverse response of Islamic boarding school to the internet has produce a gap

⁹ Ahmad Budi Setiawan, "Penanggulangan Dampak Negatif Akses Internet Di Pondok Pesantren Melalui Program Internet Sehat," Jurnal Penelitian Komunikasi 15, no. 1 (2012), <http://dx.doi.org/10.20422/jpk.v15i1.706>.

¹⁰ Asep Muizudin Muhamad Darmini, "Internet and the Public Sphere in the Indonesian Islamic Boarding Schools (Pondok Pesantren): Power, Piety, and the Popular" (University of Warwick, 2021), <http://wrap.warwick.ac.uk/164141>.

¹¹ Oos M. Anwas, "Pemanfaatan Teknologi Informasi Dan Komunikasi Pada Pesantren Rakyat Sumber Pucung Malang," Jurnal Pendidikan dan Kebudayaan 21, no. 3 (2015), <http://dx.doi.org/10.24832/jpnk.v21i3.187>.

¹² Rully Khairul Anwar, Neneng Komariah, and M. Taufiq Rahman, "Pengembangan Konsep Literasi Informasi Santri: Kajian Di Pesantren Arafah Cililin Bandung Barat," Wawasan: Jurnal Ilmiah Agama dan Sosial Budaya 2, no. 1 (2017), <http://dx.doi.org/10.15575/jw.v2i1.964>.

in utilizing the Internet to support the learning process at *pesantren*. Some scholars argues that *pesantren* community (*ustadz/ustadzah* and *santri*) has limited literacy and not fully utilized ICT.¹³ Other argue that they had a high level of digital information literacy.¹⁴ Many scholars from university in Indonesia has attempted to intervene this situation using various approach, such as enhancing digital literacy for *pesantren* teacher¹⁵ (*ustadz* or male teacher; *ustadzah* or female teacher), interactive learning media,¹⁶ creating remote laboratory¹⁷ and personal website,¹⁸ and social media usage¹⁹. Other scholars still focused on to increase *calistung* skill, for example, reading skill²⁰.

This effort is based on previous research that recommend *pesantren* teacher to adopts digital tools in teaching process so that learning process more effective and creative²¹. Also, the previous research has shown that the Internet give opportunity for the *ustadz/ustadzah* and *santri* (Indonesian terminology for Islamic boarding school student) to get knowledge and promoting Islamic message (*dakwah*) activity freely,²²

¹³ Rahmawati Ulfah and Fifi Nofiaturrehman, "Model Literasi Digital Dalam Upaya Mengurangi Kesenjangan Digital Untuk Santri Menuju Indonesia Emas 2045," *HUMANIS: Jurnal Ilmu-Ilmu Sosial dan Humaniora* 14, no. 1 (2022), <http://dx.doi.org/10.52166/humanis.v14i1.2772>; Rosa Sinensis Arini, Thoha Firdaus, and Uli Riski, "Peningkatan Literasi Digital Guru Melalui Pkm Workshop Pembuatan Media Interaktif Berbasis Android Di Yayasan Pondok Pesantren Nurul Huda Oku Timur," *Jurnal Abdi Insani* 10, no. 4 (2023), <http://dx.doi.org/10.29303/abdiinsani.v10i4.1138>.

¹⁴ Lutfi Saksono et al., "Profiling the Digital Literacy of Senior High School Students in an Islamic Boarding School in East Java," *Jurnal Education and Development* 10, no. 1 (2021), <http://dx.doi.org/10.37081/ed.v10i1.3369>.

¹⁵ Yuyu Heryatun and Tri Ilma Septiana, "Enhancing Digital Literacy for Ustadz/Ustadzah in Modern Islamic Boarding Schools at Banten Province through Sustainable Media Integration," *Engagement: Jurnal Pengabdian Kepada Masyarakat* 7, no. 1 (2023), <http://dx.doi.org/10.29062/engagement.v7i1.1164>.

¹⁶ Arini, Firdaus, and Riski; Rasdi Rasdi et al., "Peningkatan Literasi Digital Dan Kemanusiaan Melalui Powerpoint Sebagai Media Pembelajaran Bagi Santri Pondok Pesantren Asshodihiyah," *AJAD : Jurnal Pengabdian kepada Masyarakat* 3, no. 3 (2023), <http://dx.doi.org/10.59431/ajad.v3i3.214>.

¹⁷ Siska Desy Fatmaryanti et al., "Pemanfaatan Remote Laboratory Dalam Pembelajaran Untuk Meningkatkan Literasi Digital Santri Di Pondok Pesantren," *Surya Abdimas* 7, no. 4 (2023), <http://dx.doi.org/10.37729/abdimas.v7i4.3665>.

¹⁸ Ika Safitri Windiarti, Miftahurriqzi, and Dwi Haryanto, "Peningkatan Literasi Digital Melalui Pelatihan Pengelolaan Website Di Pondok Pesantren Salafiyah Iqro Palangkaraya," *Jurnal Pengabdian UntukMu Negeri* 6, no. 2 (2022), <http://dx.doi.org/10.37859/jpumri.v6i2.3947>.

¹⁹ Hayati Mardiah, Fitriyah Lailatul, and Pratami Fisnia, "Upaya Meningkatkan Literasi Digital Santri Pondok Pesantren Nurul Huda Sukaraja Unit Al Umami," *J-ABDI: Jurnal Pengabdian kepada Masyarakat* 2, no. 6 (2022), <http://dx.doi.org/10.53625/jabdi.v2i6.3870>.

²⁰ Julianto Julianto et al., "Increasing Reading Literacy in Al-Barokah Islamic Boarding School Students in Sungai Asam Village through Gerakan Literasi Sekolah (GLS)," *Engagement: Jurnal Pengabdian Kepada Masyarakat* 7, no. 1 (2023), <http://dx.doi.org/10.29062/engagement.v7i1.1494>; Muhamad Abdul Manan and Mahmudi Bajuri, "Budaya Literasi Di Pesantren Salafiyah Syafi'iyah Sukorejo," *Jurnal Pendidikan Islam Indonesia* 4, no. 2 (2020), <http://dx.doi.org/10.35316/jpii.v4i2.194>.

²¹ Lutfi Saksono et al., "Profiling the Digital Literacy of Senior High School Students in an Islamic Boarding School in East Java,"; Siti Badi'ah, Luthfi Salim, and Muhammad Candra Syahputra, "Pesantren Dan Perubahan Sosial Pada Era Digital," *Analisis: Jurnal Studi Keislaman* 21, no. 2 (2021), <http://dx.doi.org/10.24042/ajsk.v21i2.10244>; Moh Naufal Zabidi and Abd Bassith Tamami, "Keefektifan Upaya Meningkatkan Literasi Digital Pada Pesantren Rakyat Di Al-Amin Sumber Pucung Malang," *Jurnal Pendidikan Indonesia* 2, no. 1 (2021), <http://dx.doi.org/10.36418/japendi.v2i1.44>.

²² Ali Ja'far, "Literasi Digital Pesantren: Perubahan Dan Kontestasi," *Islamic Review: Jurnal Riset dan Kajian Keislaman* 8, no. 1 (2019), <http://dx.doi.org/10.35878/islamicreview.v8i1.156>.

upgrading technology literacy and religious literacy.²³ *Pesantren* community as a subculture could adapted with ICT²⁴ even though it is shaped by many factors.²⁵ During the COVID-19, for example, many *pesantren* adopt various ICT to support the yellow book (*kitab kuning*) online learning.²⁶

Based on this narrative, this community service activity aims to: (a) mapping the level of digital literacy of PPI students; (b) increasing the knowledge of the PPI student about digital literacy; (c) evaluating the effect of community service activities with a quantitative approach. The goal of intervention on digital literacy is to realize the use of healthy internet (physical and mental), safe (digital theft, digital verbal violence), and wise (productive, strengthen social cohesion, and encourage positive social change at the community level).

This community service is related with two scientific concepts: digital literacy and healthy internet. Like many other terms in social science, every scientist has its own definition on digital literacy. The terms used by scientists to represent digital literacy are also very diverse, ranging from media literacy, technology literacy, and information literacy.²⁷ According to Ilomäki et al.,²⁸ all of these terms refer to the term digital competency that contains technical skills, the ability to use digital technology to support daily work, learning, the ability to evaluate digital technology critically, as well as motivation to participate in digital culture.

The authors borrow the definition of digital literacy adopted by UNESCO which interprets digital literacy as: the ability to access, manage, understand, integrate, communicate, evaluate, and create information safely and precisely through digital technology to support a variety of daily life activities. This competency includes what is called computer literacy, ICT literacy, information literacy and media literacy.²⁹ Based on this definition, the European Union (EU) has released a Digicomp 2.0 (Digital Competence Framework for Citizens) which can be used to measure and map the level of digital literacy in various sectors of life, such as agriculture, trade, education, social activities

²³ Ach Sya'roni and Dewi Chairun Nisa, "Peran Pesantren Dalam Mengembangkan Literasi Digital Santri Di Forum Lingkar Pena (Flp) Darul Ulum Banyuanyar," *Al-Ulum Jurnal Pemikiran dan Penelitian ke Islam* 10, no. 2 (2023), <http://dx.doi.org/10.31102/alulum.10.2.2023.105-119>.

²⁴ Bina Adi Prakosa, Triana Rejekiningsih, and Akhmad Arif Musadad, "The Lived Experience of Pesantren Community Using Technology for Education," *International Journal of Social Science And Human Research* 06, no. 01 (2023), <http://dx.doi.org/10.47191/ijsshr/v6-i1-83>.

²⁵ Louise Limberg, Olof Sundin, and Sanna Talja, "Three Theoretical Perspectives on Information Literacy," *HUMAN IT* 11, no. 2 (2012), <https://humanit.hb.se/article/view/69>.

²⁶ Supriyono Supriyono, "Pesantren, the Covid-19 Pandemic and Digital Transformation: A Global Development Perspective," *Muslim Education Review* 1, no. 1 (2022), <http://dx.doi.org/10.56529/mer.v1i1.10>.

²⁷ Tibor Koltay, "The Media and the Literacies: Media Literacy, Information Literacy, Digital Literacy," *Media, Culture & Society* 33, no. 2 (2011), <http://dx.doi.org/10.1177/0163443710393382>.

²⁸ Liisa Ilomäki et al., "Digital Competence – an Emergent Boundary Concept for Policy and Educational Research," *Education and Information Technologies* 21, no. 3 (2014), <http://dx.doi.org/10.1007/s10639-014-9346-4>.

²⁹ Nancy Law et al., A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2

(non-profit), etc. As shown in Table 2, DigiComp 2.0 consists of several competencies: data and information literacy, collaboration and communication, digital content creations, security, and problem solving. DigiCom 2.0 framework does not rule out the possibility to be developed according to the local context.

Table 2. DigiComp 2.0 framework on digital competency

Component of competency	Sub-component of competency
Information and data literacy	Browse, search and filter digital information and digital content. Evaluate data, information, and digital content. Managing data, information, and digital content
Collaboration and communication	Making interaction using digital technology. Sharing using digital technology. Participate in community activities through digital technology. Collaborate through digital technology. Internet ethics (Netiquette) Managing digital identity
Digital content creation	Create and develop digital content. Integrate and elaborate digital content. Copyright and license Programming
Security	Protecting hardware. Protecting personal data and privacy Protecting health and quality of personal life Protecting the environment
Problem solving	Solve technical problems. Identify technology needs and responses. Using technology creatively Identify digital competency gaps

Source: Law et al.,³⁰

Method

This service activity was carried out on November 21, 2020, using the method of counseling, tutorial lecture, and discussion, and involved 46 (forty-six) senior high school students of the PPI who were grade in Class X, Class XI, and Class XII. To ensure gender equality, no difference between the number of men and women involved as participants

³⁰ Nancy Law et al., A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2

of the activity. Participants' recruitment was recruited and selected by the school manager of PPI. Evaluation of activities is carried out two times. First, pre-test carry out to mapping the initial knowledge of the santri's toward digital literacy. Second, post-test was conducted to get information the effect of community service activities on increasing students' knowledge about digital literacy. Evaluation data were analyzed using the *t test* and processed with STATA 15.³¹ Pre-test/post-test consists of twenty questions consisting of two types of questions: multiple choice (14 questions) and cause-effect (7 questions). If the *santri* answered correctly, the *santri* would get a score of 4. If the *santri* answered wrong, the *santri* would get a score of 0. Thus, the minimum total score was 0, while the maximum total score was 84 (21 items x 4 point). This service activity involved 5 Sriwijaya University lecturers and 11 students of Sriwijaya University, especially from the Faculty of Social and Political Science.

Result

Preparation phase

In the preparation phase, the community service team conducted an initial communication with the teachers in the PPI. This communication discusses the idea of carrying out digital literacy training for the *santri* by involving the Sriwijaya University team. This idea was welcomed by the teacher of PPI as evidenced by the willingness of the PPI to issue a letter of request for digital literacy training for the *santri* addressed to the Chief of the Sriwijaya University Research and Service Institute. The discussion then continued to consider the technical implementation of activities (for example, days/date, location of activities, forms of activities, equipment needed, and manual events).

Implementing phase

Counseling activities at the Ibnu Rusyd Hall, Campus A of the PPI. This activity was attended by forty-six participants who came from *santri* of grades 10th, grade 11th, and grade 12th. Of this number, both male and female participant are fifty percent. In terms of age, 23.91 percent participant aged 14 years old, 69.57 percent aged 15 years old, and 6.52 percent aged 16 years old. The activity began with the opening ceremony attended by Deputy I of the PPI, Drs. H. Muhyidin, S. Pd.I. After the opening ceremony, participants were given time to answer the pre-test questions that had been prepared previously.

After filling in the pre-test, the activity continued with the delivery of learning material from the Sriwijaya University Community Service Team. The material delivered by the Sriwijaya University Service Team includes several aspects, ranging from the introduction of digital literacy concepts, effective communication through social media,

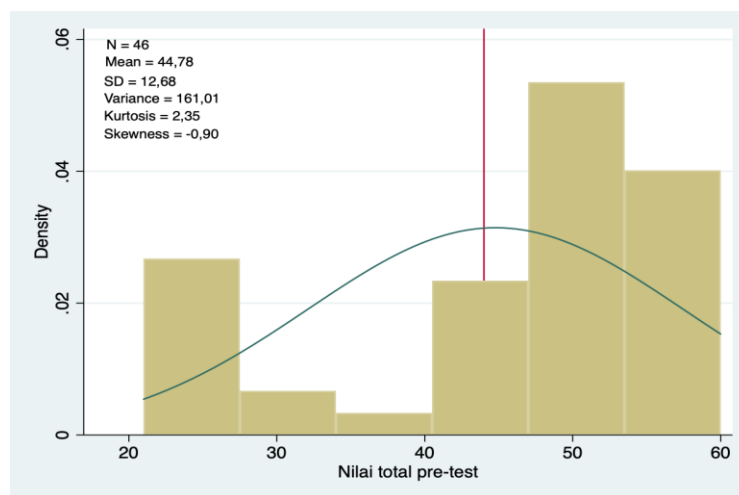
³¹ Alan C Acock, A Gentle Introduction to Stata, 4 ed. (Texas, USA: STATA Corporation, 2014).

communication ethics in the digital era, and learning motivation in the era of online learning. Four materials are expected to trigger changes in insight among students when connected to a variety of technologies and digital information. Before the closing ceremony, the participants were asked to fill in the post-test and give their impressions and messages to digital literacy training. In this session, the participants hoped that next year, similar activities with different materials could be held again at the PPI.

Evaluation phase

To evaluate digital literacy training activities in the form of tutorial lectures and questions and answers, the service team uses pre-test and post-test. The difference in the average pre-test and post-test scores will be used as a starting point: (a) whether the digital literacy training provided contributes to increasing the knowledge of *santri* or not; (b) whether this average difference is statistically significant or not. To answer these questions, researchers utilize the t test, especially the repeated-measures T test/ dependent-sample T test/ paired-sample T test technique.³²

As shown in Figure 4, the average pre-test of students participating in digital literacy training is 44.78 with a standard deviation of 12.68. The value of kurtosis (2.35) which does not exceed 3 indicates that pre-test data is normally distributed. The Skewness rate of -0.90 shows that the data has negative skewness, although this feedback is not too extreme so that it can still be considered to meet normal distribution. The smallest pre-test score of *santri* is 21 points, while the biggest pre-test score reaches 60 points. The pre-test score also illustrates the initial map of digital literacy understanding among students in the PPI that needs to be intervened.

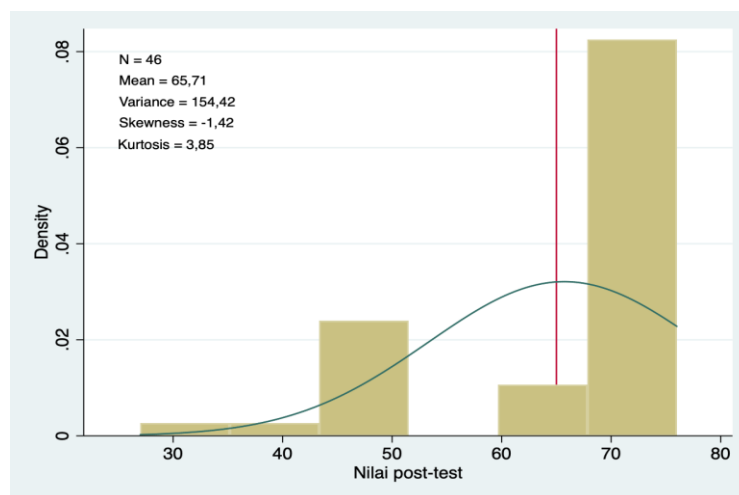


Source: primary data analysis

Figure 2. Histogram of pre-test scores

³² Alan C Acock, A Gentle Introduction to STATA, 4th ed. (Texas, USA: STATA Corporation, 2014).

Meanwhile, the post-test results were shown in Figure 5. The average post-test score reached 65.71 with a standard deviation of 12.42. Post -test data can be considered normally distributed because the kurtosis score is 3.85 and the skewness score is -1.42. The minimum score of post-tests *santri* reached 27 (up 6 points from the pre-test score) and the maximum post-test score changed to 76 (up 16 points from the pre-test score).



Source: primary data analysis

Figure 3. Histogram of pre-test scores

At first glance, there is a difference in value between pre-test and post-test. The question is, is this difference quite convincing statistically so that the contribution of digital literacy training to digital *santri* literacy is scientific? To answer this question, the author conducted a t-test on the pre-test and post-test scores. As shown in Figure 6, the t-test results show that there is a difference of 20.93 between the mean post-test and pre-test. That is, the digital literacy training carried out by the Sriwijaya University service team succeeded in increasing the digital literacy score of the students who participated in the training.

This result is the basis for: (a) rejecting the zero hypothesis: “there is no difference between the mean pre-test and post-test scores”, H_0 : mean (diff) = 0; (b) receiving an alternative hypothesis: “there is a difference in the mean pre-test and post-test scores”, H_a : mean (diff) $\neq$ 0. The difference in mean between the pre-test and post-test scores is statistically significant, $t(45) = 9,6457$, $p < 0.001$. In other words, digital literacy training carried out by the Sriwijaya University service team succeeded in increasing *santri* cognition about digital literacy.

Paired t test						
Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
tot_post	46	65.71739	1.832256	12.42697	62.02704	69.40774
tot_pre	46	44.78261	1.870935	12.6893	41.01435	48.55087
diff	46	20.93478	2.170376	14.72021	16.56342	25.30614

mean(diff) = mean(**tot_post** - **tot_pre**) t = **9.6457**
 Ho: mean(diff) = 0 degrees of freedom = **45**

Ha: mean(diff) < 0 Ha: mean(diff) != 0 Ha: mean(diff) > 0
 Pr(T < t) = **1.0000** Pr(|T| > |t|) = **0.0000** Pr(T > t) = **0.0000**

Source: primary data analysis

Figure 4. T test output

Discussion

This service activity reinforces the phenomena of digital divide in Indonesia identified by previous research, both in society³³ and *pesantren* community³⁴. Although the issue of digital literacy has become a global and national issue, this issue is still not familiar among *pesantren* institutions in Indonesia, including the PPI. The attitude of the PPI who adopted the Internet in a limited manner support the typology of Islamic boarding school responses in Indonesia toward the Internet.³⁵ This attituded is similar with many the management of *pesantren* around the Indonesian region who restrict internet access for the *santri*, for example, *Pesantren Arafah Cililin*, West Java;³⁶ *Pesantren Misbahul Quran*, East Java;³⁷ *Pesantren Darul Ulum*, East Java; *Pesantren*.³⁸ Conversely, this attituded has different with many *pesantren* that have a strong commitment to adopt ICT and provide internet access for their students and support learning process, for example, *Pesantren Rakyat Al-Amin Sumber Pucung*, Malang, East Java;³⁹ *Pesantren Al-*

³³ Asosiasi Penyelenggara Jasa Internet Indonesia (APJII), Penetrasi Dan Perilaku Pengguna Internet Di Indonesia Tahun 2017; Asosiasi Penyelenggara Jasa Internet Indonesia, Penetrasi Pengguna Internet Di Indonesia Tahun 2018; Asosiasi Penyelenggara Jasa Internet Indonesia (APJII), Penetrasi Dan Perilaku Pengguna Internet Di Indonesia Tahun 2016; Badan Pusat Statistik, Potret Awal Tujuan Pembangunan Berkelanjutan Di Indonesia.

³⁴ Rully Khairul Anwar, Neneng Komariah, and M. Taufiq Rahman, "Pengembangan Konsep Literasi Informasi Santri: Kajian Di Pesantren Arafah Cililin Bandung Barat,"; Oos M. Anwas, "Pemanfaatan Teknologi Informasi Dan Komunikasi Pada Pesantren Rakyat Sumber Pucung Malang."

³⁵ Ahmad Budi Setiawan, "Penanggulangan Dampak Negatif Akses Internet Di Pondok Pesantren Melalui Program Internet Sehat," *Jurnal Penelitian Komunikasi* 15, no. 1 (2012): 93-108.

³⁶ Rully Khairul Anwar, Neneng Komariah, and M. Taufiq Rahman, "Pengembangan Konsep Literasi Informasi Santri: Kajian Di Pesantren Arafah Cililin Bandung Barat,"

³⁷ Rahmawati Ulfah and Fifi Nofiaturrehman, "Model Literasi Digital Dalam Upaya Mengurangi Kesenjangan Digital Untuk Santri Menuju Indonesia Emas 2045,"

³⁸ Ach Sya'roni and Dewi Chairun Nisa, "Peran Pesantren Dalam Mengembangkan Literasi Digital Santri Di Forum Lingkar Pena (Flp) Darul Ulum Banyuanyar,"

³⁹ Moh Naufal Zabidi and Abd Bassith Tamami, "Keefektifan Upaya Meningkatkan Literasi Digital Pada Pesantren Rakyat Di Al-Amin Sumber Pucung Malang,."; Oos M. Anwas, "Pemanfaatan Teknologi

Ismailiyun, South Lampung, Lampung;⁴⁰ and Pesantren Kulni, Banten⁴¹.

Following the DigiComp 2.0 framework, the output of the pre-test score of the PPI's santri indicate that level of *santri* digital competencies is at the level of data literacy/information, collaboration, and digital communication. This finding is not different with the previous research on this topic. Many *santri* in East Java, for example, used the ICT only for entertainment activity and not for academic purpose.⁴² In *Pesantren Al-Anwar 3, Sarang-Rembang, Central Java*, *santri* has practicing "reading, filtering, and re-checking" during consuming digital information.⁴³ However, this praxis is a part of information and data literacy within DigiComp 2.0 framework. This evidence is a warning for the PPI and all pesantren in Indonesia to work more seriously to increased student digital literacy at the level of digital content creation, security, and problem solving.

This community service has increased cognitive understanding of the PPI's students on digital literacy. This increasing knowledge is statistically significant, $t(45) = 9.6457, p < 0.001$. The author does not measure the effect of this event qualitatively due to restricted policy adopted by the PPI according to the Internet access for the *santri*. However, this evidence equivalence with the previous conclusion from numerous community service implemented by many Indonesian scholars at various places.⁴⁴ It means that community service as an integral part of Indonesian higher education function should be continue in the future. We recommend Indonesian scholars who has interest with digital literacy to make networking and build a unique framework to measuring digital literacy for *pesantren* community.

Conclusion

The community service activities in the PPI had implemented smoothly, successfully, and significantly contributes to improving the cognitive aspects of *santri* on digital literacy. The lack of internet access in the PPI and uneven ownership of laptops/desktops among santri becomes a serious obstacle to implement a kinetic approach in this service activity. Starting from the findings above, the author recommended the PPI to provide internet access for santri, at least in the computer laboratory. In addition, the University of Sriwijaya needs to continue to become a

Informasi Dan Komunikasi Pada Pesantren Rakyat Sumber Pucung Malang,"

⁴⁰ Siti Badi'ah, Luthfi Salim, and Muhammad Candra Syahputra, "Pesantren Dan Perubahan Sosial Pada Era Digital,".

⁴¹ Yayu Heryatun and Tri Ilma Septiana, "Enhancing Digital Literacy for Ustadz/Ustadzah in Modern Islamic Boarding Schools at Banten Province through Sustainable Media Integration,".

⁴² Lutfi Saksono et al., "Profiling the Digital Literacy of Senior High School Students in an Islamic Boarding School in East Java,"; Rahmawati Ulfah and Fifi Nofiaturrehman, "Model Literasi Digital Dalam Upaya Mengurangi Kesenjangan Digital Untuk Santri Menuju Indonesia Emas 2045,"

⁴³ Ali Ja'far, "Literasi Digital Pesantren: Perubahan Dan Kontestasi,"

⁴⁴ Fatmaryanti et al; Mardiah, Lailatul, and Fisnia; Heryatun and Septiana; Julianto et al; Ulfah and Nofiaturrehman; Rasdi et al; Arini, Firdaus, and Riski; *ibid.*; Windiarti, Miftahurriszqi, and Haryanto.

pesantren institution as a target group of community service because of the uniqueness of *pesantren* who combine the traditional education system and modern education systems.

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Reference

- Acock, Alan C. *A Gentle Introduction to Stata*. 4 ed. Texas, USA: STATA Corporation, 2014.
- Anwar, Rully Khairul, Neneng Komariah, and M. Taufiq Rahman. "Pengembangan Konsep Literasi Informasi Santri: Kajian Di Pesantren Arafah Cililin Bandung Barat." *Wawasan: Jurnal Ilmiah Agama dan Sosial Budaya* 2, no. 1 (2017): 131-42. <http://dx.doi.org/10.15575/jw.v2i1.964>.
- Anwas, Oos M. "Pemanfaatan Teknologi Informasi Dan Komunikasi Pada Pesantren Rakyat Sumber Pucung Malang." *Jurnal Pendidikan dan Kebudayaan* 21, no. 3 (2015): 207-20. <http://dx.doi.org/10.24832/jpnk.v21i3.187>.
- Arini, Rosa Sinensis, Thoha Firdaus, and Uli Riski. "Peningkatan Literasi Digital Guru Melalui Pkm Workshop Pembuatan Media Interaktif Berbasis Android Di Yayasan Pondok Pesantren Nurul Huda Oku Timur." *Jurnal Abdi Insani* 10, no. 4 (2023): 2178-87. <http://dx.doi.org/10.29303/abdiinsani.v10i4.1138>.
- Asosiasi Penyelenggara Jasa Internet Indonesia. *Penetrasi Dan Perilaku Pengguna Internet Di Indonesia Tahun 2016*. Jakarta, Indonesia: Asosiasi Penyelenggara Jasa Internet Indonesia, 2016.
- Asosiasi Penyelenggara Jasa Internet Indonesia. *Penetrasi Dan Perilaku Pengguna Internet Di Indonesia Tahun 2017*. Jakarta, Indonesia: Asosiasi Penyelenggara Jasa Internet Indonesia, 2017.
- Asosiasi Penyelenggara Jasa Internet Indonesia. *Penetrasi Pengguna Internet Di Indonesia Tahun 2018*. Jakarta, Indonesia: Asosiasi Penyelenggara Jasa Internet Indonesia (APJII), 2018.
- Asosiasi Penyelenggara Jasa Internet Indonesia. *Laporan Survei Internet Apjii 2019-2020 (Q2)*. Jakarta, Indonesia: Asosiasi Penyelenggara Jasa Internet Indonesia, 2019.
- Badan Perencanaan Pembangunan Nasional. *Metadata Indikator Tujuan Pembangunan Berkelanjutan: Pilar Pembangunan Sosial*. 2 ed. Jakarta, Indonesia: Badan Perencanaan Pembangunan Nasional, 2020.
- Badan Pusat Statistik. *Potret Awal Tujuan Pembangunan Berkelanjutan Di Indonesia*. Jakarta, Indonesia: Badan Pusat Statistik, 2016.
- Badi'ah, Siti, Luthfi Salim, and Muhammad Candra Syahputra. "Pesantren Dan Perubahan

- Sosial Pada Era Digital." *Analisis: Jurnal Studi Keislaman* 21, no. 2 (2021): 349-64. <http://dx.doi.org/10.24042/ajsk.v21i2.10244>.
- Fatmaryanti, Siska Desy, Eko Setyadi Kurniawan, Yusro Al Hakim, Eko Riyanto, and Ike Yunia Pasa. "Pemanfaatan Remote Laboratory Dalam Pembelajaran Untuk Meningkatkan Literasi Digital Santri Di Pondok Pesantren." *Surya Abdimas* 7, no. 4 (2023): 727-33. <http://dx.doi.org/10.37729/abdimas.v7i4.3665>.
- Heryatun, Yuyu and Tri Ilma Septiana. "Enhancing Digital Literacy for Ustadz/Ustadzah in Modern Islamic Boarding Schools at Banten Province through Sustainable Media Integration." *Engagement: Jurnal Pengabdian Kepada Masyarakat* 7, no. 1 (2023): 45-61. <http://dx.doi.org/10.29062/engagement.v7i1.1164>.
- Ilomäki, Liisa, Sami Paavola, Minna Lakkala, and Anna Kantosalo. "Digital Competence – an Emergent Boundary Concept for Policy and Educational Research." *Education and Information Technologies* 21, no. 3 (2014): 655-79. <http://dx.doi.org/10.1007/s10639-014-9346-4>.
- Ja'far, Ali. "Literasi Digital Pesantren: Perubahan Dan Kontestasi." *Islamic Review: Jurnal Riset dan Kajian Keislaman* 8, no. 1 (2019): 17-35. <http://dx.doi.org/10.35878/islamicreview.v8i1.156>.
- Julianto, Julianto, Aulia Azimi, Hani Meilita Purnama Subardi, Wulan Wahyu Ningrum, Pratiwi Kurniati, Dini Lestary, Muhammad Tezar, Dewa Ruci, Nur Atiqah, Reni Helvira, Monica Olivia, Ari Widiati, and Syamratun Nurjannah. "Increasing Reading Literacy in Al-Barokah Islamic Boarding School Students in Sungai Asam Village through Gerakan Literasi Sekolah (Gls)." *Engagement: Jurnal Pengabdian Kepada Masyarakat* 7, no. 1 (2023): 62-72. <http://dx.doi.org/10.29062/engagement.v7i1.1494>.
- Koltay, Tibor. "The Media and the Literacies: Media Literacy, Information Literacy, Digital Literacy." *Media, Culture & Society* 33, no. 2 (2011): 211-21. <http://dx.doi.org/10.1177/0163443710393382>.
- Law, Nancy, David Woo, Jimmy de la Torre, and Gary Wong. *A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2*. Quebec, Canada: UNESCO Institute for Statistics, 2018.
- Limberg, Louise, Olof Sundin, and Sanna Talja. "Three Theoretical Perspectives on Information Literacy." *HUMAN IT* 11, no. 2 (2012): 83-130. <https://humanit.hb.se/article/view/69>.
- Manan, Muhamad Abdul and Mahmudi Bajuri. "Budaya Literasi Di Pesantren Salafiyah Syafi'iyah Sukorejo." *Jurnal Pendidikan Islam Indonesia* 4, no. 2 (2020): 116-23. <http://dx.doi.org/10.35316/jpii.v4i2.194>.
- Mardiah, Hayati, Fitriyah Lailatul, and Pratami Fisnia. "Upaya Meningkatkan Literasi Digital Santri Pondok Pesantren Nurul Huda Sukaraja Unit Al Umami." *J-ABDI: Jurnal Pengabdian kepada Masyarakat* 2, no. 6 (2022): 5219-22. <http://dx.doi.org/10.53625/jabdi.v2i6.3870>.
- Muhamad Darmini, Asep Muizudin. "Internet and the Public Sphere in the Indonesian Islamic Boarding Schools (Pondok Pesantren): Power, Piety, and the Popular."

-
- University of Warwick, 2021. <http://wrap.warwick.ac.uk/164141>.
- Prakosa, Bina Adi, Triana Rejekiingsih, and Akhmad Arif Musadad. "The Lived Experience of Pesantren Community Using Technology for Education." *International Journal of Social Science And Human Research* 06, no. 01 (2023). <http://dx.doi.org/10.47191/ijsshr/v6-i1-83>.
- Rasdi, Rasdi, Ayup Suran Ningsih, Aprila Niravita, Muchammad Shidqon Prabowo, Nurul Fibrianti, Indung Wijayanto, Prita Fiorentina, and Maulida Nurul Komariyah. "Peningkatan Literasi Digital Dan Kemanusiaan Melalui Powerpoint Sebagai Media Pembelajaran Bagi Santri Pondok Pesantren Asshodihiyah." *AJAD : Jurnal Pengabdian kepada Masyarakat* 3, no. 3 (2023). <http://dx.doi.org/10.59431/ajad.v3i3.214>.
- Saksono, Lutfi, Syafi'ul Anam, Abdul Hafidz, Muhamad Sholeh, Nanin Verina Widya Putri, and Muhammad Farid Ilhamudin. "Profiling the Digital Literacy of Senior High School Students in an Islamic Boarding School in East Java." *Jurnal Education and Development* 10, no. 1 (2021): 178-85. <http://dx.doi.org/10.37081/ed.v10i1.3369>.
- Setiawan, Ahmad Budi. "Penanggulangan Dampak Negatif Akses Internet Di Pondok Pesantren Melalui Program Internet Sehat." *Jurnal Penelitian Komunikasi* 15, no. 1 (2012): 93-108. <http://dx.doi.org/10.20422/jpk.v15i1.706>.
- Supriyono, Supriyono. "Pesantren, the Covid-19 Pandemic and Digital Transformation: A Global Development Perspective." *Muslim Education Review* 1, no. 1 (2022): 37-58. <http://dx.doi.org/10.56529/mer.v1i1.10>.
- Sya'roni, Ach and Dewi Chairun Nisa. "Peran Pesantren Dalam Mengembangkan Literasi Digital Santri Di Forum Lingkar Pena (Flp) Darul Ulum Banyuwangi." *Al-Ulum Jurnal Pemikiran dan Penelitian ke Islam* 10, no. 2 (2023): 105-19. <http://dx.doi.org/10.31102/alulum.10.2.2023.105-119>.
- Ulfah, Rahmawati and Fifi Nofiaturrehman. "Model Literasi Digital Dalam Upaya Mengurangi Kesenjangan Digital Untuk Santri Menuju Indonesia Emas 2045." *HUMANIS: Jurnal Ilmu-Ilmu Sosial dan Humaniora* 14, no. 1 (2022): 1-7. <http://dx.doi.org/10.52166/humanis.v14i1.2772>.
- United Nations. *Transforming Our World: The 2030 Agenda for Sustainable Development*. New York, USA: United Nations, 2015.
- Windiarti, Ika Safitri, Miftahurrisqi, and Dwi Haryanto. "Peningkatan Literasi Digital Melalui Pelatihan Pengelolaan Website Di Pondok Pesantren Salafiyah Iqro Palangkaraya." *Jurnal Pengabdian UntukMu NegeRI* 6, no. 2 (2022): 123-30. <http://dx.doi.org/10.37859/jpumri.v6i2.3947>.
- Zabidi, Moh Naufal and Abd Bassith Tamami. "Keefektifan Upaya Meningkatkan Literasi Digital Pada Pesantren Rakyat Di Al-Amin Sumber Pucung Malang." *Jurnal Pendidikan Indonesia* 2, no. 1 (2021): 48-58. <http://dx.doi.org/10.36418/japendi.v2i1.44>.