INCREASING DATA LITERACY OF GIRLS IN INDONESIA: WHAT HAVE WE LEARNED?

LESSONS LEARNED PAPER

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1. Background

Indonesia is not only one of the largest and most populous countries in the world, it is also one of the most dynamic in terms of internet use (The Jakarta Post, 2017). However, accessing, using, and benefitting from the web is not a privilege of everyone — women and marginalized groups are often left behind.

The World Wide Web Foundation's flagship report on Women's Rights Online (2016) found that Indonesia has a large digital gender gap. Only 20 percent of women in low-income communities in Jakarta have access to the internet, though this percentage increases in urban centers. Of those connected, only 26 percent express their views online and only 5 percent find information about their rights online. Young women and girls are disadvantaged by the fact that only 52 percent of the country's secondary schools are connected to the web.

Instead of supporting early ICT education for students, the Indonesian government removed IT from the school curricula (Lukman, 2014) — a move that divided stakeholders in the country and has left the task of digital education to uncoordinated campaigns, programs, and services (Azali, 2017). One research report into digital education in the country revealed that most of these activities are "voluntary, incidental, and sporadic", conducted mainly by universities, and benefit mostly teens and university students (Kurnia and Astuti, 2017).

A number of realities in Indonesia suggest its approach to digital skills building has to change. First, there is a large gap and strong demand for digital education that is not served by existing non-standardized and uncoordinated programs. Second, there is strong interest from young people in learning more about digital and information technology. Third, there is a need to address the digital gender gap — especially in IT education — in order to promote women's empowerment. This requires investing early on in their formative education.

2. What did we want to achieve?

In the Digital Gender Gap Audit report for Indonesia (Brudvig, 2016), five key recommendations were put forward to advance women's empowerment through the web:

1. **Integrate gender targets into national ICT plans**
2. **Create public access and digital empowerment programmes**
3. **Support women to access, use, and create internet technologies**
4. **Focus on relevant content and services for women**
5. **End online gender-based violence**

The Jakarta Lab and Goethe-Institut Indonesien wanted to respond to numbers 2, 3, and 4 of these recommendations by holding a discussion about women's access to digital benefits and showing how this is important in the empowerment of women and girls. Specifically, we wanted to focus on data literacy, which is the Lab's core strength.

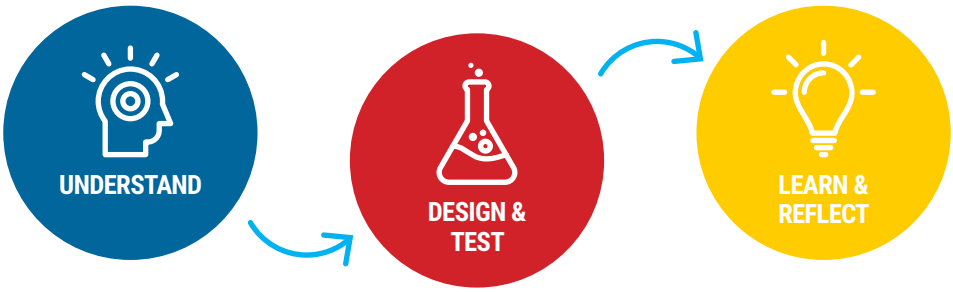
In partnership with Goethe-Institut Indonesien, the Jakarta Lab designed a project to build the capacity of young girls to understand data, design visualizations, and write data-based narratives, and create content on the web about women and girls and their rights.

The project did this by:

- **Working with partners to design a skills program** focused on using open data to create visualizations, data narratives, and other relevant products.
- **Identifying and building the capacity of high school students** to understand data and to create visualizations and narratives about data in an effort to generate more relevant online content about the rights of women and girls.
- **Provide a platform for gender advocates,** particularly girls, to discuss the future of digital literacy in Indonesia.

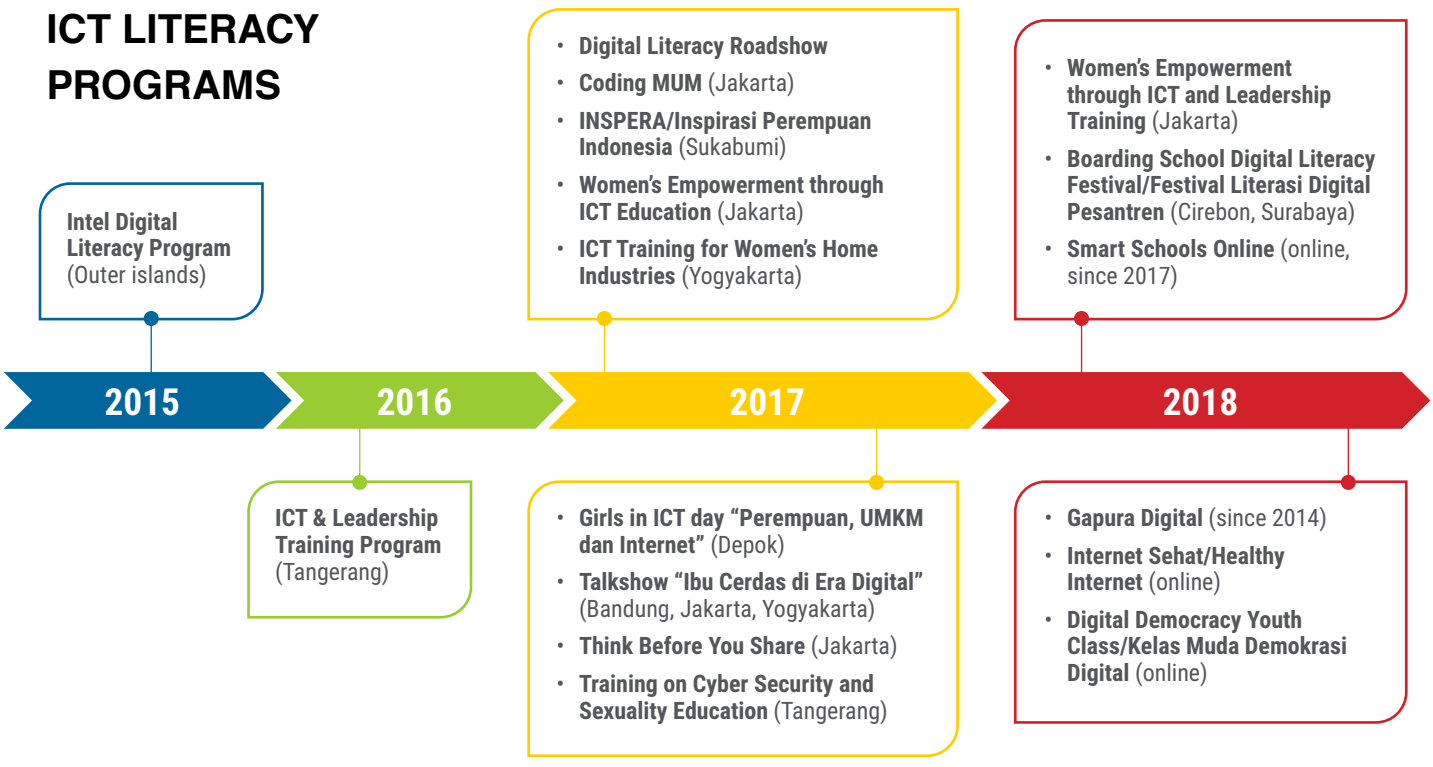
3. What did we do? What did we find out?

The project was implemented in three phases based on the Lab's innovation framework — understand, design and test, learn and reflect.



The **Understand Phase** gave us a grounded understanding of the relevant issues, actors, and activities in the data literacy space. We conducted an exercise to map the existing digital literacy interventions in Indonesia and, in a workshop with stakeholders, we presented the results and discussed the lack of initiatives focusing on data literacy, especially for girls. The results of this first phase of the project were integral to designing our own data literacy interventions.

Figure 1. Timeline of ICT Literacy Programs in Indonesia from 2015 - 2018



3. What did we do? What did we find out?

Together with Goethe-Institut Indonesien, we decided to implement a data literacy program for girls from schools within the PASCH[1] network (Schulen: Partner der Zukunft), working closely with the network on the selection of participants and design of the program.

In the **Design and Test Phase**, we came up with a 2.5-day data literacy training for 22 students. The students came from seven schools selected by Goethe Institut-Indonesien from its PASCH network: SMAN 7 Bandung, SMA PGII 1 Bandung, SMA Santa Ursula Jakarta, SMA Negeri 31 Jakarta, Saint John's Catholic School, BSD, SMA Santa Ursula, BSD, and Madania School, Parung, Bogor.

To make sure the training matched the needs of participants, the students completed a pre-training questionnaire. The findings showed us that data literacy, privacy, and the creation of online content were some of the most relevant knowledge and skills that students wanted to learn and we were able to tailor the training to match their interests and knowledge gaps.

We enlisted experts with experience delivering training on data skills for beginners. Melly Frederika from Pulse Lab Jakarta focused on digital content, Widuri from ICT Watch shared information about data privacy and protection online, Dwi Febri from the provincial government of Aceh trained students on data skills, while Moerat of Tempo covered data visualization. We also invited a representative from Open Government Indonesia to talk about the data priorities of the Indonesian government.

Picture 1. *Students working on their data exercises during the training*

1 PASCH stands for the "School: Partners for the Future" initiative. It is a global network of some 1,800 schools that place a high value on German culture.

3. What did we do? What did we find out?

Pictures 2 to 8. Posters created by students after the training

The training was designed to give students the skills to produce posters tackling an issue of their choice using data available through online portals and from their own research. The topics selected were mental health, the use of libraries, the history of female empowerment in Indonesia, electronic government, violence against women, child labour, and unemployment among graduates. Working in groups based on school affiliation, the participants crafted their core message, sourced the necessary data, and created a visual infographic to communicate their issues to a general audience.

The process of creating the narrative and visualisation of data was divided into two phases. In the first phase, students created a draft visualisation for feedback from mentors. Based on comments, the students then revised their initial outputs. During this second phase, mentors coached and offered direct input to participants.

A public forum on Data Literacy for Girls was held at the Goethe-Institut Indonesien on the afternoon of the third day, giving students the opportunity to showcase their outputs to a wider public while at the same time discuss the future of data education for girls in Indonesia. Almost a hundred participants attended and key officials from the education department, the ICT department of the Indonesian government, and a university professor spoke. The forum emphasised the need for concrete actions to improve the public school curricula to support digital literacy in Indonesia.

For the **Learn and Reflect Phase**, we conducted interviews and focus groups with our implementation partners, surveyed participants, and conducted an analysis of the documentation of the project to help us learn lessons from the implementation.

4. What did we learn?

Over the course of project implementation, we learned three important things that can help guide the direction of data and digital literacy trainings in Indonesia.

Firstly, the lack of knowledge and skills on data and digital literacy, including data protection and privacy, is pervasive, even among girls who are studying in expensive private high schools. There were few data skills among participants and little knowledge about data and the benefits it can deliver. Students were not aware of data protection and privacy issues, despite high social media engagement and the corresponding exposure to privacy risks. However, the girls were very eager to learn about these issues during the training, which for many participants was the first time hearing about the issues and the first opportunity they had had to learn data literacy and online content creation skills. This eagerness of the girls to learn and apply skills was evident in the high quality of the work they produced after the workshop.

Secondly, despite substantial demand, there has been no systematic, strategic effort to address the needs of young women to become more data and digitally literate[2]. While current educational guidelines task schools with incorporating digital literacy into mainstream subjects like math and science (Lukman, 2014), due to a lack of resources many schools have not done so. Digital literacy requires investments in infrastructure as well as skills of mentors or teachers.

When young girls are able to acquire data skills, they are exposed to opportunities they may not have thought about and can learn more about issues important to them. Before the training, we interviewed participants about their future aspirations. Most pointed to occupations that are often culturally seen as female roles — teaching, pharmacy, nursing — or occupations they hear about from peers — for example, accounting, business, and human resources. After taking the training, and meeting women trainers with careers in technology fields, they began to consider work in data science, software engineering, and computer programming.

Finally, an intentionally-designed program geared towards producing a specific output is an effective strategy to improve digital literacy for girls. Training needs to be well tailored to the skill level of participants. Programs must also be geared to producing a specific product on which students can apply the skills they learn. Training should also include incentives so that learning skills is fun and productive. In this case, because the posters were shown publicly, the girls had an extra incentive to produce high-quality work. The choice of mentors is also critical — they should not only be experts in their field, but also competent and passionate about teaching young students.

2 This is supported by findings in the Economist Intelligence Unit's 2018 Inclusive Internet Index. The study found out, among other things, that Indonesia does not have a plan or strategy to provide digital skills training for women, or promote STEM education (science, technology, engineering and mathematics) for females. For more details, see https://theinclusiveinternet.eiu.com/explore/countries/ID/performance/indicators/readiness/literacy/support-for-digital-literacy

5. What are our key takeaways?

While the project has been considered widely successful — not only in terms of building skills of young girls but also in producing quality content on women, women's issues, and rights — it faced problems of sustainability. While the government has recognised the need to build data literacy skills among young women and men, it has yet to develop a comprehensive strategy to do so.

Our experience in this project highlighted key learnings that are important in designing and implementing a strategy to enhance digital and data literacy for girls in Indonesia.

Lesson 1

Firstly, while one-off trainings are good for increasing awareness, knowledge, and skills, post-training support is critical to ensure that the girls are able to continuously apply and improve upon what they learned.

When we conducted a survey two months later, we found the participants had difficulty carrying out their plans post-training, including sharing their knowledge with peers and continuing to improve their digital literacy skills, particularly in the area of digital security. Unfortunately, our capacity to provide post-training support within this project was limited.

Future projects should be designed with the provision of post-training support in mind. This could include regular check-ins, follow-up training, additional projects, and creating a community of practice among the girls and their peers. This additional follow-up could help the girls more effectively promote and support digital literacy with other students in their own schools.

Lesson 2

Schools could also play a more active role in building data and digital literacy among girls.

The lack of support from schools, the absence of knowledgeable and skilled IT teachers, and the lack of equipment hinders girls from developing their interest and skills in the field. Without more support from schools, it is likely the girls will forget the knowledge and skills they learned during the project.

In the design of future projects, it would be constructive to more actively consider how schools can better support girls to develop these data skills. Activities may include orientation of school principals and leaders, capacity building for subject matter experts, and the provision of IT equipment whenever possible. School projects can then be designed by teachers and students together and capacity building can be passed on to those who were not able to attend the activities.

5. What are our key takeaways?

Picture 9. Students taking notes during the data literacy training

Lesson

3

Finally, a strong education policy is critical to ensure that girls can build the digital skills they need to meet the demands and challenges of an information society.

Ensuring the sustainability of digital education for girls and boys demands reforms to the country's education policy. While the Ministry of Information and Communication Technology recognises digital literacy as a core pillar in Indonesia's ambition to be a digital nation — and researchers[3] have pointed out the need for changes — the reforms required have yet to take place. And while the government agencies we interacted with in this program appreciate civil society organisations' efforts to meet digital literacy goals, various stakeholders understand this is not a task CSOs can do on their own. The job demands collaboration across stakeholders that support digital literacy.

3 http://theconversation.com/researchers-find-indonesia-needs-more-digital-literacy-education-84570

6. Areas for future research

This project points to areas for more research to help define future digital literacy interventions for girls in Indonesia. Future programs should aim to support a revised educational policy that promotes female inclusion in digital and STEM subjects and more digital and data literacy capacity building programs for women.

The following questions are proposed for future research:

- **How have female and male students performed in data and digital literacy** since the school curriculum was revised to include IT education?
- **What is the state of digital and data literacy education in public schools in Indonesia?** Does it create the environment necessary for digital education to thrive?
- **What factors can influence Indonesia's digital education policy** to ensure that girls have access to quality digital education?

For more information on this project, visit our website at labs.webfoundation.org or get in touch with us directly at info@labs.webfoundation.org. Other resources, such as our How-to Guide for this project and presentations talking about this project are also available in the resources section of our website.

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