



Strengthening Digital Learning across Indonesia:

A Study Brief





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INTRODUCTION

COVID-19 is widening Indonesia's education gaps. In 2020, the pandemic resulted in the immediate closure of 530,000 schools and a rapid shift to distance learning for 68 million students. The pandemic brought forward many digital learning innovations and investment in education technology (EdTech), but it also widened existing inequities in education for many children.

Many low-income students and teachers do not have digital devices or skills required for home-based learning.¹ In 2020, 67 per cent of teachers reported difficulties in operating devices and using online learning platforms.² Children with disabilities are worst affected as many have been unable to access services required for their personalized learning.³ It is estimated 4.4 million children and adolescents aged 7–18 years are still out of school and only 55 per cent of children from poor families are enrolled in secondary school.^{4,5} The World Bank estimates that the pandemic-induced income losses for families could lead to 91,000 children dropping out of school in Indonesia.⁶

Indonesia's vast archipelago results in infrastructural constraints and poor Internet connectivity for many students and teachers in rural and remote areas.⁷ Four out of five Internet users in Indonesia live in Java and Sumatra.⁸

1 Yarrow, Noah, and Riaz Bhardwaj, 'Indonesia's education technology during COVID-19 and beyond', World Bank, 19 May 2020, <<https://blogsworldbank.org/eastasiapacific/indonesias-education-technology-during-COVID-19-and-beyond>>

2 Yarrow, Noah; Masood, Eema; Afkar, Rythia, 'Estimated impacts of COVID-19 on learning and earning in Indonesia: How to turn the tide', World Bank, 2020, <<http://documents1.worldbank.org/curated/en/184651597383628008/pdf/Main-Report.pdf>>

3 Gupta, Deepali and Khairina, Noviandri N., 'COVID-19 and the learning inequities in Indonesia: Four ways to bridge the gap', World Bank, 21 August 2020, <<https://blogs.worldbank.org/eastasiapacific/COVID-19-and-learning-inequities-indonesia-four-ways-bridge-gap>>

4 UNICEF Indonesia, 'Education and adolescents', <www.unicef.org/indonesia/education-and-adolescents>

5 OXFAM International, 'Towards a more equal Indonesia', OXFAM Briefing Paper, Kilimani, February 2017.

6 Gupta, Deepali and Khairina, Noviandri N., 'COVID-19 and the learning inequities in Indonesia: Four ways to bridge the gap', World Bank, 21 August 2020, <<https://blogs.worldbank.org/eastasiapacific/COVID-19-and-learning-inequities-indonesia-four-ways-bridge-gap>>

7 Lee, Yen Nee, 'The pandemic's effect on education is not being discussed enough, says Indonesian minister', Singapore Summit, 2020. <<https://www.cnbc.com/2020/09/14/indonesias-education-minister-on-COVIDs-effect-on-students-learning.html>>

8 Ibid.

PURPOSE OF STUDY

To identify the bottlenecks that limit the equitable expansion and effectiveness of digital learning, UNICEF Indonesia commissioned an analysis of the digital learning landscape in Indonesia.⁹ The study investigated the availability, quality and use of digital learning platforms; digital skills gap for teachers and students; and Internet connectivity of school communities. Following a desk review and expert interviews, the findings were validated by conversations with students, teachers and parents from Papua, East Java, West Sulawesi, Central Palu, East Nusa Tenggara, Maluku and West Java.

This research brief presents the study's findings and practical recommendations for the following three actions:

- Strengthen digital learning content and platforms.
- Develop digital skills of students and teachers.
- Expand digital connectivity in schools across the country.

UNICEF's Reimagine Education global initiative aims to upgrade digital learning content and strengthen digital skills among students and teachers.¹⁰ Fostering partnerships across public and private sectors – and with young people themselves – is the only way to do this. UNICEF is calling for:



1. **The most vulnerable children and young people to be prioritised** in getting connected and gaining access to quality digital learning.



2. **Digital learning to be relevant to each individual child and young person**, including their level of education and language, and is accessible for children with disabilities.



3. **Education funding to be protected** and for the needs of the most vulnerable children and young people to be prioritised.



4. **Decision-makers to maximise innovation, impetus and investment** through cross-community collaborations involving governments, businesses, community groups, industry pioneers and more.

⁹ This research brief was based on the UNICEF-commissioned report 'Situational Analysis on Digital Learning Landscape in Indonesia', compiled by Quicksand Design Studio in 2020.

¹⁰ UNICEF Reimagine Education Initiative, <<https://www.unicef.org/reimagine/education>>

ACTION 1

STRENGTHEN DIGITAL LEARNING CONTENT AND PLATFORMS

Key findings

There is limited uptake of online education platforms by students and teachers due to lack of awareness and perceptions of low quality. The pandemic has led to an upsurge in the number and use of education platforms. However, many teachers have not integrated these platforms into their teaching. In a survey, 57 per cent of students are unaware of government-provided Rumah Belajar platform, while both students and teachers complain about the quality of the platform compared to private EdTech platforms.¹¹

Social media platforms and conferencing applications are more popular than EdTech for digital learning. Facebook, WhatsApp, and LINE; and conferencing applications Google-meet and Zoom are the most popular choices for communication and sharing teaching assignments. They are easier to use, affordable and do not require high Internet speed.



"I use WhatsApp and messenger only because those apps don't require a strong internet connection, and many of my students live in rural and mountainous areas with bad internet connection."

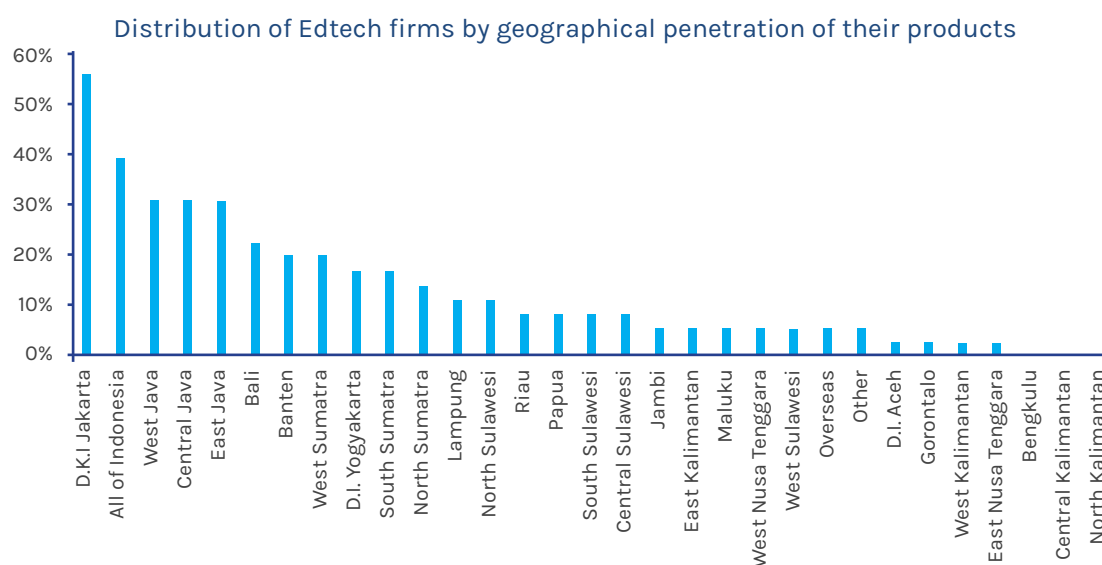
- Teacher, aged 25, Mamuju District, West Sulawesi

Private EdTech platforms typically target university or final-year school students and private schools. One in four EdTech firms were found to be exclusively targeting private sector education providers.¹² The EdTech market is concentrated in Jakarta.



"I have four school going children, and I have never heard of any EdTech platform. Anything related to purchasing a mobile and paying for an internet voucher must be expensive."

- Parent, Alor Kecil District, East Nusa Tenggara



Source: World Bank, 2020.

11 Ministry of Education, Culture, Research and Technology, 'KPAI survey on teachers and students', Indonesia, 3-8 April 2020.

12 World Bank Group, 'EdTech in Indonesia- Ready for take-off?', World Bank Group and Australian Government, May 2020, <<http://documents1.worldbank.org/curated/en/535881589465343528/pdf/EdTech-in-Indonesia-Ready-for-Take-off.pdf>>

Children with disabilities are worse affected as digital platforms are rarely adapted to meet their needs. Private EdTech platforms do not have any adaptations for students with disabilities. There is limited outreach and support for their specialized digital learning needs.

The shift of education outside the classroom has led to challenges for monitoring teaching and learning performances. Difficulties in monitoring children when learning from home has resulted in a fall in learning outcomes, and students dropping out of school. In 2020, many students and parents said that they did not receive feedback from teachers on assignments or exams.¹³ With limited digital skills, teachers are unable to monitor students' learning or communicate effectively.¹⁴ Students reported putting less effort into assignments, not being able to understand learning materials and 'cheating' by using Google or asking family to complete assignments.¹⁵

Distance learning reduces social interaction, student well-being and engagement between students and teachers, particularly in rural areas with poor Internet connectivity. Children reported feeling anxious due to the sudden shift to digital learning. Online education is also a potential risk to students' safety and well-being by exposing them to inappropriate content, cyberbullying and sexual grooming. There is low awareness and knowledge of digital safety, increasing vulnerability to cybercrimes.¹⁶



"Some teachers give too many assignments during online learning, it is hard to manage all the work together, also we have no support for all the work, it is difficult to manage it all alone."

- Student, aged 14, Jember City, East Java



Recommendations

Encourage greater community awareness and uptake of digital learning and EdTech platforms.

- ▶ Create social media campaigns on how digital learning platforms can improve learning outcomes, in partnership with social media companies.
- ▶ Raise awareness on how families can access Internet plans, quotas and hardware through public infrastructure and funding schemes. Create a centralized, open database listing all EdTech services, including product specifications and prices.
- ▶ Encourage the adoption of digital learning tools for younger students.

Adapt teaching methods based on students' needs and not use a 'one-size-fits-all' approach for students with disabilities and remote or underserved communities.

- ▶ Ensure digital learning platforms are optimized for mobile phone use. Most students only have access to mobile phones.
- ▶ Create tools to assess the learning needs of students and ensure these assessment tools are integrated in EdTech platforms.
- ▶ Provide financial incentives to private sector EdTech to provide services to students with disabilities, remote students and other disadvantaged communities. Mandate minimum requirements on EdTech platforms for students with disabilities.
- ▶ Form partnerships with civil society organizations that work with children with disabilities or serve remote communities to enhance outreach.
- ▶ Work with youth committees to understand their learning needs to design effective learning plans.

13 Ibid.

14 Ministry of Education, Culture, Research and Technology, SD survey, Indonesia, 3-8 April 2020.

15 Empatika, Remote Insights Gathering study into people's experiences of the COVID-19 pandemic across Indonesia, Indonesia, 2020.

16 Elok Sari, Eisyah A., 'Indonesian Internet users hit 196 million, still concentrated in Java: APJII survey', The Jakarta Post, 11 November 2020, <<https://www.thejakartapost.com/news/2020/11/11/indonesian-Internet-users-hit-196-million-still-concentrated-in-java-apjii-survey.html>>

Develop digital learning content that increases student engagement and active learning.

- › Encourage social interaction through group-based interdisciplinary online projects.
- › Promote active learning with a daily online question hour with teachers. Organize online monthly seminars with local entrepreneurs on critical thinking and problem-solving skills. These skills will prepare young people for the future workforce.
- › Schedule online challenges and hackathons to develop and practice digital skills.
- › Create private-public partnerships to build more interactive learning modules such as game-based apps.

Build assessment mechanisms in Edtech platforms that monitor and evaluate teacher and student performances.

- › To assess students, use time-based activities and critical thinking techniques (as opposed to rote memorization), such that students cannot cheat by searching for answers online. These activities can take the form of short quizzes or exercises. Prepare guidelines for teachers on how to conduct assessments using a combination of digital tools complemented by conversations with students. Incentives must be provided to private sector partners.
- › Organize periodic assessments with district education agencies and schools to troubleshoot access issues and maintain student engagement.
- › Create peer to peer reviews among teachers and encourage student committees to give feedback on digital learning processes.

Periodically assess and improve the quality of digital learning materials.

- › Define minimum standards for curriculum content and interactivity as a checklist for content creators. Partner with private sector EdTech companies and education experts to establish standards for student performance, cost-effectiveness and evaluation mechanisms.
- › Create education authority review panels to periodically monitor and improve the quality of content on both public and private platforms.
- › Ensure there are mechanisms for public digital education platforms to allow students and teachers to provide feedback on content and performance.
- › Define and comply with minimum standards for digital learning infrastructure in schools and at home (e.g., number of computers per school, connectivity speed, teacher qualifications).

Build awareness and create safeguarding mechanisms to improve online safety.

- › Empower young people with information and skills to stay safe online by including cybersecurity in curriculums.
- › Use social media channels and influencers to raise awareness and promote the child safety helpline.
- › Set standards for data privacy and security for all EdTech products, including in-built referral mechanisms for reporting abuse or other risks. Detection and reporting of child sexual abuse material on educational platforms should be mandatory.
- › Build the capacity of teachers and law enforcement officers to monitor, identify and address online abuse. Provide evidence-based teaching approaches for online safety to teachers, social workers and parents.
- › Encourage social media companies to make adolescent profiles private by default. Consider parental consent mechanisms for children less than 17 years joining social media channels.

ACTION 2

DEVELOP THE DIGITAL SKILLS OF STUDENTS AND TEACHERS

Despite the launch of many education initiatives by the government and private sector to increase the digital skills of students and teachers, digital literacy in Indonesia lags behind other countries in Southeast Asia.¹⁷ Teacher attitudes, age, digital skills and Internet connectivity are crucial success factors for students' digital learning experiences.

Key findings

Students have a strong potential for digital learning but lack skills needed for the digital economy workforce. There is a significant gap between the digital skills young people possess versus the skills they need to enter the workplace. Indonesians are among the world's most active citizens on social media but there is low capacity and readiness to adopt digital technologies for the workplace.¹⁸ Young people's active social media usage is not translating into high levels of digital literacy.

Many students struggle to adjust to digital learning, and parents lack capacity to support them. The transition to digital learning has been overwhelming for many, especially younger students, or those from marginalized communities. Parents need more guidance on how to manage home-based learning, particularly families in rural areas or from lower socioeconomic backgrounds. Less student-teacher interaction have shifted much of the burden of teaching from teachers to students and their parents.

There is a slight gender imbalance in digital skills of men and women, especially in rural areas. Girls and women have less access to digital devices or social media limiting their opportunities to join online communities.¹⁹ This is further reinforced by societal perceptions that claim women are technophobic, lack interest and technological capabilities.

Many teachers do not have the digital skills required for online education and have received limited training. Most private sector EdTech initiatives prioritize building the digital capacities and skills of students, not teachers. Schools have provided limited support to customize online learning plans, or create a curriculum that includes content across multiple platforms, resulting in challenging teacher workloads. The lack of guidelines has resulted in irregular class frequencies, sudden assignment of tasks or switching between multiple online platforms.

Growing up as social media 'natives' but not digital-literate



Jakarta is considered the Twitter capital of the world and, in 2020, up to 59 per cent of the total population of Indonesia are active social media users.^{20, 21} Many young people in Indonesia are growing up as 'digital natives' but this is not translating into high levels of digital literacy. Studies show that only 19 per cent of Indonesia's workforce in 2020 applied digital skills and 6 per cent had advanced digital skills.²² Even within the education sector, the most commonly applied digital skill was the ability to communicate online.

17 Rumata, Vience Mutiara, and A. S. Sastrosubroto, 'The paradox of Indonesian digital economy development', in E-Business edited by Dr. Robert Wu and Prof. Marinela Mircea, IntechOpen, 2019. <<https://www.intechopen.com/online-first/the-paradox-of-indonesian-digital-economy-development>>

18 IMD World Competitiveness Center, 'IMD World Digital Competitiveness Ranking 2020'. <<https://www.imd.org/wcc/world-competitiveness-center-rankings/world-digital-competitiveness-rankings-2020/>>

19 McLean, 'Special report on digital literacy for women and girls', Alliance for Women in Media Foundation, 2011. <<https://www.itu.int/en/ITU-D/Digital-Inclusion/Women-and-Girls/Documents/ReportsModules/Special%20report%20on%20digital%20literacy%20for%20Women%20Girls.pdf>>

20 Das, Kaushik, Michael Gryseels, Priyanka Sudhir et al., 'Unlocking Indonesia's digital opportunity', McKinsey Indonesia Office, pp 1-28, 2016.

21 Kemp, Simon, 'Digital 2020: Indonesia - Data Reportal - Global Digital Insights', 18 February 2020. Retrieved from <<https://d>atareportal.com/reports/digital-2020-indonesia?rq=indonesia>>

22 'Unlocking APAC's Digital Potential: Changing Digital Skills Needs and Policy Approaches', AlphaBeta, pp. 1-100, 2021.



Recommendations

Develop training sessions to improve digital skills of younger students, especially girls and students from rural areas.

- ▶ Invest in programmes that focus exclusively on building the digital skills of young girls, with emphasis on online safety. These should be accessible and affordable for girls in rural and urban settings.
- ▶ Build partnerships with private sector partners to provide free training for vulnerable students through schools and community centres. Promote training opportunities using TV, radio or in schools.
- ▶ Engage young people in activities that increase their exposure to digital technology benefits, using video-based immersive experiences such as virtual or augmented reality. Encourage young people to explore careers in information and communication technology (data management, coding, media and artificial intelligence).



"Previously it was dictate, dictate, dictate, but now children nowadays are more creative and interested in different approaches of learning."

- Teacher, Merauke City, Papua

Create a parental guide to digital learning.

- ▶ Develop an audio, written or visual guide for parents to understand how they can support their children's digital learning, including the use of devices, conferencing applications, Internet quota management, EdTech platform use, and online safety.²³ Create a centralized portal for parents to seek assistance regarding online learning.
- ▶ Create a programme for schools to hold regular meetings (in-person or virtually) with parents regarding online learning. Define clear roles and responsibilities for teachers, students and parents for digital learning at home and in school.

Local community support for teachers



There is an opportunity for the government to work closely with local teacher communities who are working in unique ways to support teachers with digital teaching. The 'Learning Teacher Community' is active in multiple regions and has created the 'School Against Corona' movement. This movement helps teachers by providing training on how to use digital tablets for teaching, preparing online quizzes and other teaching activities.

23 eSafety Commissioner, 'COVID-19 global online safety advice for parents and carers', 2020, <www.europol.europa.eu/publications-documents/COVID-19-global-online-safety-advice-for-parents-and-carers>



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Equip teachers with skills to conduct digital learning programmes.

- ▶ Provide trained staff in each school who can provide teachers guidance on how to manage digital and distance learning. Create a school-based roster to ensure all teachers are receiving adequate digital training and resources.
- ▶ Consider creating an incentive programme to encourage teachers to better engage with students using digital technologies. Encourage younger or more skilled teachers to be ‘champions’ for digital skills and learning.
- ▶ Create teacher peer groups in schools to discuss ways to improve digital learning. Provide an online space for teachers’ constructive feedback, sharing of good practices and collective learning. Help teachers engage with students to develop achievable learning plans in the home environment and seek student feedback to improve learning methods.
- ▶ Teachers should be more involved in identifying and co-creating teaching material and training programmes, particularly in rural and remote areas. One good example is the ‘Learning Teacher Community’ who created the ‘School Against Corona’ movement to help teachers with distance learning challenges.²⁴
- ▶ Prioritize and invest in digital teaching skills in teacher training programmes. Distance and digital learning should be integrated in the long-term teacher education programme - *Program Pendidikan Profesi Guru*.
- ▶ Ensure digital skills enable teachers to go beyond distributing assignments to students. They should be able to use digital technologies to promote inquiry-based learning, collaboration and problem-solving skills.

Improve alignment of EdTech content with digital economy job skills for young people.

- ▶ Encourage EdTech platforms to include a career development section for young people to explore the future of work, providing information on training courses and skills required.
- ▶ Collaborate with private sector and young people to build online vocational training programmes and soft skills development platforms. Work with employers to organize student projects, seminars and field visits.

²⁴ Expert interview with a representative from Zenius Education on 9 December 2020.

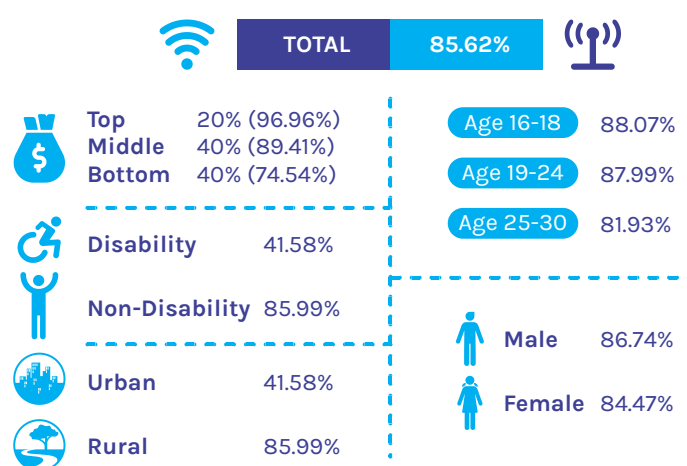
ACTION 3

EXPAND DIGITAL CONNECTIVITY IN SCHOOLS

Key findings

Despite government's efforts to boost Internet connectivity, many students do not have adequate connectivity to learn online. The high cost of Internet and lack of reliable 4G connectivity also makes digital learning inaccessible for most students and their families. Up to 62 per cent of teachers use their personal budget to pay for Internet access and teacher credit spending has increased by 69 per cent per month.²⁵

Proportion of youth who have accessed the Internet in the last three months (2020)



Source: BPS. Statistics of Indonesian Youth, 2020

Limited access to affordable Internet and appropriate digital devices makes learning from home difficult for most students - especially those in remote and rural areas. Less than 15 per cent of children in rural areas and 25 per cent of urban children have computers for home-based learning. Many children share smartphones with their siblings or parents or rely on friends to share school assignments.



"I spend more time now learning at night using mobile because I must wait for my older sister to get back home from working. I must see when my sister does not use her mobile. Sometimes I could use it for a half an hour, sometime less, sometimes more than 1 hour. It just depends upon my sister's mobile availability."

- Student, aged 14, Jember City, East Java

Government's efforts to provide free Internet packages have faced challenges in distribution and implementation, reducing uptake. Limited coordination amongst government ministries has made it difficult to efficiently map school connectivity and work closely with private sector EdTech companies. Quota systems for Internet access have not been taken up effectively as they do not adequately cover the main social media platforms being used by students and teachers.

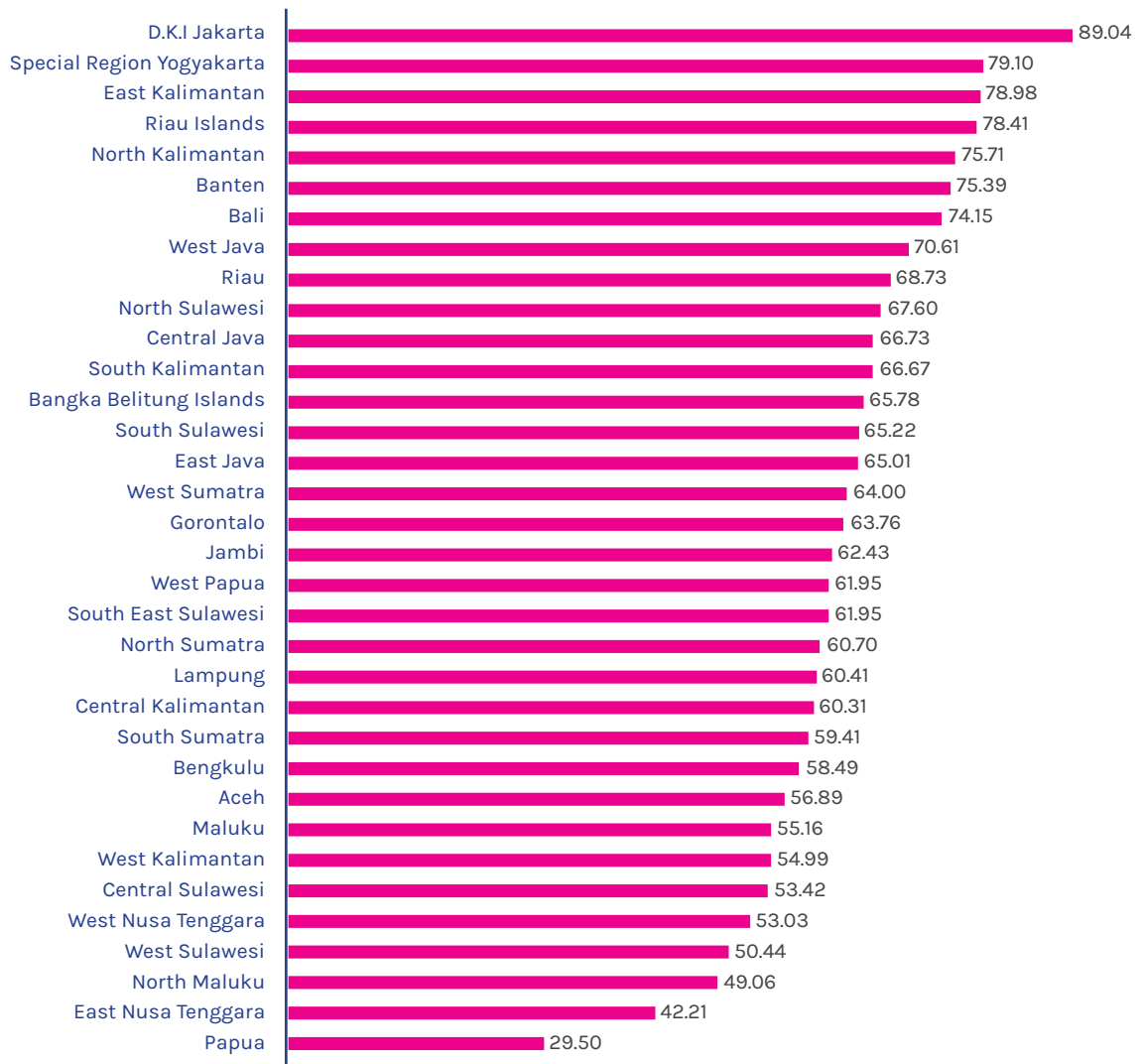


"The internet signal is so weak. I have not even been able to upload students' phone numbers to the central database to allow them to obtain quota."

- Teacher, Duren Sawit, East Jakarta

25 Survei Belajar dari Rumah Tahun Ajaran, Survey on learning from home, August 2020.

Percentage of households with access to Internet



Recommendations

Increase access to digital learning for students in remote areas and other marginalized communities.

- ▶ Create innovative financial initiatives to rent or buy computers, including computer sharing and rental services for students and teachers; payment by instalments; crowdfunding and charity initiatives that reward young people with computers.
- ▶ Promote TV/radio education programme schedules and increase the number of times programmes are broadcast. Widen the range of TV channels and radio stations broadcasting programmes.
- ▶ Map out Internet connectivity of non-government schools to ensure more equitable access to the Internet.
- ▶ With local government, identify and take action to support students with no access to any learning tools, including electricity, computers, Internet, or smartphones. For example, share how-to instructions for students and families to study from home without access to the Internet or TV, supported by teacher visits. Provide information on school reopening. Identify learning gaps and provide extra teaching support when schools re-open.
- ▶ Invest in research to understand the range of factors – from infrastructure barriers to lack of purchasing power – pushing families into digital poverty.

Increase access to the Internet through private sector collaboration.

- ▶ Provide access to the Internet in public spaces by setting up cybercafes, e-commerce hubs, libraries and community centres in partnership with telecommunication providers.
- ▶ Combine private and public funding partnerships to pay for connectivity infrastructure and operational costs. For example, optimize use of the Palapa Ring Project with telecommunication and hardware providers to equip schools in underserved, rural and remote areas, with Internet, digital facilities and skill development programmes for teachers. Collaboration could include government guarantees on minimum mobile data uptake, bulk lease agreements for equipment and teacher training.²⁶
- ▶ Develop bottom-up targeted investment and business cost models that use school location and user profiles to determine school bandwidth needs. Explore cost sharing of network deployment to the extent possible for underserved populations to strengthen the business case.²⁷
- ▶ Encourage private venture capital to support local entrepreneurs and services, increasing consumer demand, markets and support for digital infrastructure. Support private sector EdTech startups to build users' trust in new learning and teaching tools and, as a result, their willingness to pay.

Enable local implementation of school infrastructure programmes to target investment and outreach.

- ▶ Empower school administrators and teachers to use school operational funds for digital learning or infrastructure costs.
- ▶ Work with local governments to provide support for digital learning initiatives. In conjunction with the Ministry of Education, Culture, Research and Technology (MoECRT), establish local taskforces to review schools' digital infrastructure and provide aid to those with the least resources. For example, local governments can provide subsidies for digital equipment through the Smart Indonesia Programme (*Program Indonesia Pintar*) which provides cash transfers to low-income students.

Support regions with limited Internet coverage with offline learning methods.

- ▶ Encourage TV/radio channels to include foundational and literacy skills education programmes for primary schools, drawing from experiences in Argentina and Fiji.²⁸
- ▶ Provide memory cards with learning materials for teachers and students to use in devices.
- ▶ Cooperate with postal services to help teachers distribute printed worksheets and coursework for students, drawing from experiences in France.²⁹
- ▶ Provide teachers with guidance on how to safely conduct student home visits. Governments should clarify that school operating funds can be used to pay for teacher transport.³⁰

Improve coordination among ministries for effective delivery of digital learning and quota delivery programmes.

- ▶ Clearly define financial and resource responsibilities and roles for every ministry involved in advancing digital education in Indonesia, including the Ministry of Finance, Ministry of Communication and Information Technology, and Ministry of Education, Culture, Research and Technology. Create spaces for collaborative working and knowledge sharing between ministries.
- ▶ Align the activities of the Ministry of Religious Affairs and Ministry of Education, Culture, Research and Technology to effectively map Internet connectivity of all schools across Indonesia.

26 CIPS Indonesia, 'Policy brief: Addressing distance learning barriers in Indonesia amid the COVID-19 pandemic', 22 November 2020. <www.cips-indonesia.org/post/addressing-distance-learning-barriers-inindonesia-amid-the-COVID-19-pandemic>

27 CIPS Indonesia, 'Policy brief: Addressing distance learning barriers in Indonesia amid the COVID-19 pandemic', 22 November 2020. <www.cips-indonesia.org/post/addressing-distance-learning-barriers-inindonesia-amid-the-COVID-19-pandemic>

28 CIPS Indonesia, 'Policy brief: Addressing distance learning barriers in Indonesia amid the COVID-19 pandemic', 22 November 2020, <www.cips-indonesia.org/post/addressing-distance-learning-barriers-inindonesia-amid-the-COVID-19-pandemic>

29 Ibid.

30 Yarrow, Noah, Eema Masood and Rythia Afkar, 'Estimated impacts of COVID-19 on learning and earning in Indonesia: How to turn the tide', World Bank, Jakarta, 2020. <documents1.worldbank.org/curated/en/184651597383628008/pdf/Main-Report.pdf>

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