INOVASI
Innovation for Indonesia's School Children
Australia Indonesia Partnership

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Australian Government

# Bounce Back Stronger: Learning Recovery After the Pandemic

## A Case Study of INOVASI Partner Schools

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**Keywords**: Learning loss and learning gap, learning recovery, COVID-19 pandemic

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INOVASI is an Australia-Indonesia Government Partnership – Managed by Palladium.

Innovation for Indonesian School Children (INOVASI) (2016-2023) is a partnership program between the Australian and Indonesian governments. Implementing partners include the Ministry of Education, Culture, Research, and Technology (MoECRT), the Ministry of Religion (MoRA), and the Ministry of National Development Planning/National Development Planning Agency (Bappenas), as well as regional partners in the provinces of West Nusa Tenggara, East Nusa Tenggara, North Kalimantan, and East Java.

The INOVASI program aims to identify and support changes in educational practices, systems, and policies that can significantly accelerate students' learning outcomes in literacy, numeracy, and 21st-century skills.

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July 2023

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# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ACER | Australian Council for Educational Research |
| BGP | *Balai Guru Penggerak* (Teacher Training Agency) |
| Blended Learning | An approach to education combining traditional in-person teaching with online learning methods |
| BOP | *Bantuan Operasional Pendidikan* (Educational Operational Assistance Funds) |
| BOS | *Bantuan Operasional Sekolah* (School Operational Assistance Funds) |
| DAK | *Dana Alokasi Khusus* (Special Allocation Fund) |
| *Daring* | Online learning |
| Expert judgement | Vital input provided by experts |
| IKK | *Indeks Kemahalan Konstruksi* (*Construction Cost/Price Index*) |
| IKM | *Implementasi Kurikulum Merdeka* (Implementation of Kurikulum Merdeka) |
| INOVASI | Innovation for Indonesia's School Children |
| JP | *Jumlah Jam Pelajaran* (Number of Lesson Hours) |
| MoECRT | Ministry of Education, Culture, Research, and Technology |
| KKKS | *Kelompok Kerja Kepala Sekolah* (Principal Working Group) |
| LAS | *Lembar Aktivitas Siswa* (Student Worksheet) |
| Learning gap | A disparity between students' actual learning performance and the expected learning standards and targets |
| Learning loss | Loss of knowledge or skills resulting in a decline in learning outcomes |
| Learning recovery | The process of helping students bridge the learning gap or loss |
| MGMP | *Musyawarah Guru Mata Pelajaran* (Subject Teacher Consultations) |
| Mindset | A person's established way of thinking, beliefs, attitudes, and perceptions that shape their behaviour |
| Hybrid learning | Combination of learning methods |
| PJJ | *Pembelajaran jarak jauh* (Distance Learning) |
| PKG | *Pusat Kegiatan Guru* (Teacher Activity Centre) |
| PMM | *Platform Merdeka Mengajar* (Merdeka Mengajar Platform) |
| PPKM | *Pemberlakuan Pembatasan Kegiatan Masyarakat* (Community Activities Restrictions Enforcement) |
| PSKP | *Pusat Standar dan Kebijakan Pendidikan* (Centre for Education Standard and Policy) |
| PUSMENDIK | *Pusat Asesmen Pendidikan* (Centre for Education Assessment) |
| RELASI | *Relawan Literasi* (Literacy Volunteers) |
| RPP | *Rencana Pelaksanaan Pembelajaran* (Lesson Plans) |
| SD | Standard deviation |
| SDGs | Sustainable Development Goals |
| SIPLah | *Sistem Informasi Pengadaan Sekolah* (Procurement Information System for Schools) |

| | |
|---|---|
| SKB | *Surat Keputusan Bersama* (Joint Decree) |
| SLA | Student Learning Assessment |
| STKIP | *Sekolah Tinggi Keguruan dan Ilmu Pendidikan* (College of Teacher Training and Education) |
| AY | Academic Year |

# EXECUTIVE SUMMARY

**Research[1] conducted by INOVASI at the beginning of the COVID-19 pandemic revealed that school closures significantly led to less effective learning and decreased the overall quality of education**. The decline in the quality of education can be observed through the decrease in student achievement and a widening gap between students' skills and the expected standards between the expected standards and students' skills. On the one hand, these findings are essential for describing the emerging impact of the COVID-19 pandemic. However, these data are unable to predict the further impact and contribution of government policies in mitigating the impact of the COVID-19 pandemic.

**The current learning recovery study by INOVASI was conducted to analyse student's academic performance two years after the COVID-19 pandemic.** The data collection involved 4,103 early-grade students, 69 school principals, and 360 teachers in 69 schools across seven districts in four INOVASI partner provinces. Prior to this data collection, data was gathered in the same schools before and one year after the COVID-19 pandemic. A Student Learning Assessment (SLA) instrument was used to measure students' learning performance in literacy and numeracy. Similar to previous studies, the learning performance was evaluated through two key indicators: learning loss and learning gap. The learning loss phenomenon was generally observed through two results: First, loss of competencies that were previously mastered, and second, the decline in students' ability to learn more complex materials. Meanwhile, the learning gap refers to the gap between the expected learning standards and targets and students' actual learning performance.

**Although learning loss and learning gaps remain undetermined, the latest study found some indications of learning recovery.** First, learning outcomes in the 2021/2022 academic year (two years after the pandemic) showed a better result compared to those in the previous academic year. The increase in learning outcomes amounted to 0.16 standard deviation (SD) for literacy and 0.12 SD for numeracy, equivalent to approximately two months of learning progress. Second, in the 2021/2022 academic year, we identified more first graders (38%) who had successfully met the targets of *Kurikulum Khusus* (Emergency Curriculum), in the 2021/2022 AY compared to 22% of students in the previous year. This data indicates a reduction in the learning gap two years after the COVID-19 pandemic.

**In addition to revealing indications of learning recovery two years after the COVID-19 pandemic, the study also identified learning practices that may facilitate a more rapid recovery of students' learning performance in schools. These practices align with the features of *Kurikulum Merdeka* (Emancipated Curriculum), with an emphasis on student-centred learning approaches.** Specifically, *Kurikulum Merdeka* includes curriculum adjustments, learning adaptations according to students' abilities and needs, as well as periodic learning assessments. Schools identified as having adopted a student-centric approach, even before being officially registered as implementing the *Kurikulum Merdeka*, tended to show better learning outcomes than schools that had not. Along with student-centred learning practices, the study identified other factors contributing to learning recovery, including

[1] Arsendy, S., Sukoco, G. A., & Purba, R. E. (2020). *Riset dampak COVID-19: Potret gap akses online "Belajar dari Rumah" dari 4 provinsi.* The Conversation. http://theconversation.com/riset-dampak-covid-19-potret-gap-akses-online-belajar-dari-rumah-dari-4-provinsi-136534

teachers who had proactively pursued professional development, principals who had actively engaged in mentorship, and local governments that had provided continuous support.

**The findings of this INOVASI study suggest several critical steps that can be followed up by national and subnational governments**:

1. creating training programs through the Teaching Training Institutes (TTIs) for pre-service teachers to develop the mindset and competencies relevant to the requirements of learning transformation;
2. activating learning communities and other learning forums for teachers, such as the Teacher Working Groups (*Kelompok Kerja Guru*, or KKG). These will foster the capacity of teachers, on an ongoing basis, to implement student-centred teaching and learning strategies;
3. encouraging effective school leadership to support the development of school resources, the utilisation of *Platform Merdeka Mengajar* (PMM), and the adjustment of PMM materials to suit schools' needs. In addition, effective school leadership will value the implementation of student-centred learning along with the use of *Rapor Pendidikan (National School Reports)* and other student assessment data to encourage learning transformation.
4. ensuring the perspectives of social and gender inclusion are integrated into all educational policies, systems, strategies, and practices to drive the implementation of more just, equitable, and inclusive education; this point is particularly dedicated and not limited to schools in remote areas, schools where only a few students are proficient in *Bahasa Indonesia*, schools accommodating students with disabilities, schools that lack teachers, and small schools with a limited number of students;
5. building the technical capacity of local governments to establish a synergy between early childhood and primary education; and
6. providing the monitoring, evaluation, and research systems to measure the effectiveness of educational transformation policies.

The focus on strengthening the education ecosystem outlined above is expected to promote an education environment that leads to school independence, particularly at the local level. In addition, the intention is to increase the capability of local governments to plan, develop and fulfill human resource capacity, reinforce the function of technical agencies, and establish collaborations to support learning transformation.

# 1. INTRODUCTION

## 1.1. The COVID-19 Pandemic and Learning Outcomes

The COVID-19 pandemic disrupted the learning process in nearly 200 countries. In March 2020, the Indonesian Government adopted a school closure policy to prevent the spread of COVID-19 in the school environment. Implicit in the instruction to close schools was the need to adapt to alternative forms of the teaching and learning process, including distance learning. In Indonesia, approximately 70 million students were affected by the COVID-19 school closure policy(Afkar & Yarrow, 2021; Arsendy, Gunawan, et al., 2020).

While the implementation of the policy varied widely across regions, multiple studies have indicated that, in general, learning is likely to be negatively affected during a pandemic. The preliminary research conducted by INOVASI in early 2020 across 18 partner districts/cities revealed that only 28% of students participated in online learning, while the remaining students continued with face-to-face learning outside of school or, in some cases, did not study at all (Arsendy, Sukoco, et al., 2020). Another study carried out in Probolinggo found disruptions caused by the pandemic also hindered the continuity of literacy and multigrade programs (Raihani & Sari, 2022). Further factors inhibiting learning during the pandemic were limited infrastructure, a lack preparation for teachers to teach blended learning, and insufficient support from local stakeholders.

Ineffective learning is a case in point. As in Indonesia, ineffective distance learning during the COVID-19 pandemic resulted in the loss of access to education for thousands of students (Arsendy et al., 2023). For example, baseline data collected in early 2021 indicated a consistent decline in enrolment rates in both early and upper grades Specifically for Grade 1 students, enrolments were 3% lower for the 2020/2021 academic year than for 2019/2020. Likewise, in upper classes, a downward trend was identified with the average dropout rate for grades 2-6 reaching 0.78%. These findings are consistent with those of studies conducted in other developing countries (Asian Development Bank, 2021).

In addition to the decline in school enrolment rates, school closures during the COVID-19 pandemic also contributed to learning loss. which is recognised as either a delay in achieving the expected level of learning ability or the loss of previously mastered competencies. (Betthäuser et al., 2022). As shown in Figure 1, compared to the performance before the pandemic, one year after the pandemic, early-grade students under investigation in the study indicated learning loss equivalent to 0.47 sd or which equates to approximately 6 months of learning in literacy, and 0.44 sd in numeracy, corresponding to closely five months of learning. As well as the assessment of learning loss, the study evaluated student learning performance against learning standards and expectations, referred to as the learning gap. The data gathered revealed approximately 1 in 10 students in grades 2 and 3 suggested a literacy skill equivalent to the pre-primary level, while for numeracy, the proportion was roughly 2 in 10 students (Spink et al., 2022).

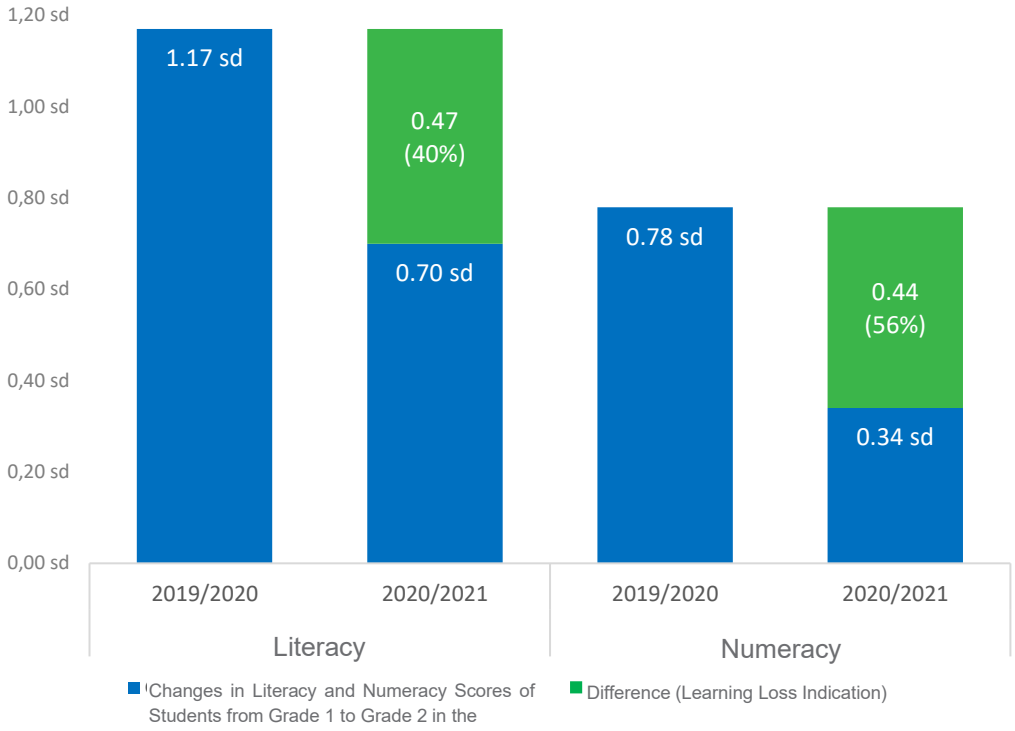



**Figure 1. Changes in Literacy and Numeracy Scores of Students from Grade 1 to Grade 2 in the 2019/2020 and 2020/2021 academic years (z-score)**

According to comparative data, learning loss in Indonesia was more significant than in other countries. For instance, in the United States, studies conducted by Contini et al. (2023) indicated that the decline in students' learning performance for literacy and numeracy reached approximately 0.40 sd. Another study conducted in the Netherlands found that students' learning performance only decreased by around 0.30 sd (Engzell et al., 2021; Maldonado & De Witte, 2022). These differences may be attributed to the shorter length of school closures in other countries than in Indonesia and the level of support provided for online learning.

The COVID-19 pandemic and school closures impacted all students in Indonesia, but students considered particularly vulnerable were the most affected. The intersectional analysis conducted by INOVASI revealed that comparatively, students most at risk were those living in remote areas, students with disabilities, and students with low proficiency in *Bahasa Indonesia* (Pascoe et al., 2022). In line with findings from a study conducted prior to the pandemic (Arsendy & Sukoco, 2020), performance by male students was weaker than that of female students. The vulnerabilities experienced by students in Indonesia that resulted in heightened learning loss were also observed among students in other countries. Several studies identified shared characteristics that tended to increase vulnerability, including students with low innate ability (Contini et al., 2023), students with less educated parents (Engzell et al., 2021), and students from disadvantaged households (Betthäuser et al., 2022). The severity of the impact on vulnerable students has the potential to further widen inequality now and in the future (Psacharopoulos et al., 2020).

Although the data presented establishes the impact of the COVID-19 pandemic on the learning process, some limitations must be outlined. First, the foregoing data only describes the immediate effects of the COVID-19 pandemic. Second, the data does not comprehensively

explain the extent to which the policies implemented during the pandemic contributed to student performance. In Indonesia, central and local governments implemented several significant measures to promote quality learning during the pandemic. Furthermore, the presented data is deemed insufficient to describe how government policies have contributed to a recovery in student performance. Lastly, the concept of learning loss focused solely on the decline in learning outcomes students experienced without considering their potential for continued growth.

The aim of this new study by INOVASI is to gain a deeper understanding of learning recovery and the ways in which national education policies contribute to retrieving the learning process. The data on learning recovery offer genuine hope for the future of quality education in Indonesia. The following section elaborates on the study conducted on learning recovery.

## 1.2. Study on Learning Recovery

### 1.2.1. Objectives

INOVASI conducted the study on learning recovery to identify learning outcomes for students in 69 INOVASI partner schools two years after the pandemic. The study was carried out as a follow up to a study done in 2021, one year after the pandemic with data collected suggesting learning loss in both literacy and numeracy skills. The aim of this latest study on learning recovery is to examine whether the indications of learning loss remained or whether there was evidence of skill recovery. In addition, this study aims to identify diverse factors, including national education policies, that have contributed to student learning outcomes in the past year. The findings are expected to make a valuable contribution to key stakeholders, at government and school levels, in calibrating pedagogy, curriculum, assessment, and professional development needed to accelerate learning recovery.

### 1.2.2. Scope of the Study and Methods

**Respondents of the Study**

This study assessed learning outcomes in literacy and numeracy[2] of students in grades 1, 2, 3, and 4[3] across seven districts in four partner provinces of INOVASI[4]. The data collection was conducted in three periods: before the pandemic (January 2020), one year after the pandemic (May 2021), and two years after the pandemic (August 2022). This study involved 4,103 students as respondents, consisting of 2,057 female students and 2,046 male students from 69 schools. The selection of school samples in each district employed a purposive sampling technique, only involving INOVASI partner schools whose learning outcomes were assessed at the beginning of 2020 (before the pandemic) using the same assessment tool. Interviews were also conducted with school principals and teachers to collect contextual data associated

[2] This study employed INOVASI's Student Learning Assessment (SLA) to assess students' literacy and numeracy skills. This instrument has passed the psychometric testing by the Australian Council for Educational Research (ACER) and was considered to have sufficient psychometric qualities satisfying the purposes of the study. Additionally, the SLA instrument includes several items designed to assess student proficiency levels based on the Sustainable Development Goals (SDGs) indicators.

[3] Due to the majority of students being early-grade students, the student test used a one-on-one approach.

[4] The Districts of Probolinggo, Sumenep, Bima, West Sumba, Southwest Sumba, Bulungan, and Malinau

with student learning experiences. In total, 69 (31F and 38M) school principals participated, along with 360 (267F and 93M) teachers, who were actively involved in the study.

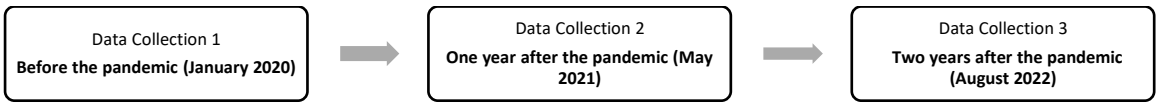



**Figure 2. Data collection timeline**

## Analysis Method

Student assessment results were calibrated, analysed, and aligned by applying Item Response Theory[5] and Population Model[6] methods. These methods generate linear estimates from latent constructs and are reliable in mitigating bias arising from missing data. These methodologies were employed to obtain a final estimate of students' literacy and numeracy skills, represented as plausible values.

**The indications of learning loss or learning recovery** were estimated by comparing control data at *t* to data on the increase in student learning outcomes (i.e., changes in student learning outcomes from *t* to $t_{+1}$). As an illustration, the difference in learning outcomes of first and second graders in 2020 (before the pandemic) served as control data. These differences indicated the estimates of the increase in scores from grade 1 to grade 2 before the pandemic. Subsequently, this control data was compared to data relating to changes in learning outcomes of first grader panel students as they progressed to grade 2 in 2021.

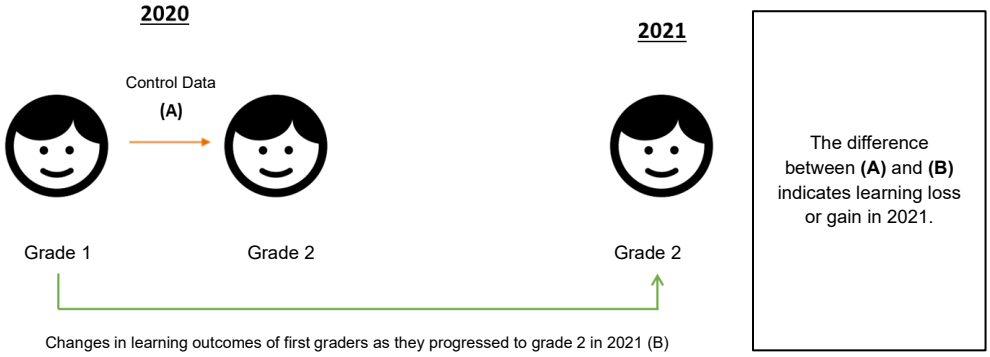



**Figure 3. Illustration of Estimated Learning Loss/Learning Recovery**

In order to **estimate an indication of learning gaps, precisely** the gap between expected standards and students' current skills, the following steps were executed:

[5] Item Response Theory (IRT) is a widely used psychometric method in educational research for predicting scores.

[6] Contextual data is incorporated into a latent regression model (population model) to ensure that the results of the disaggregation analysis concerning significant factors relevant to student learning yield estimates with minimised errors.

*Firstly*, the items were arranged from the easiest to the most challenging questions using a psychometric process. Each 'blue circle' in the illustration below represents the difficulty level of each question.

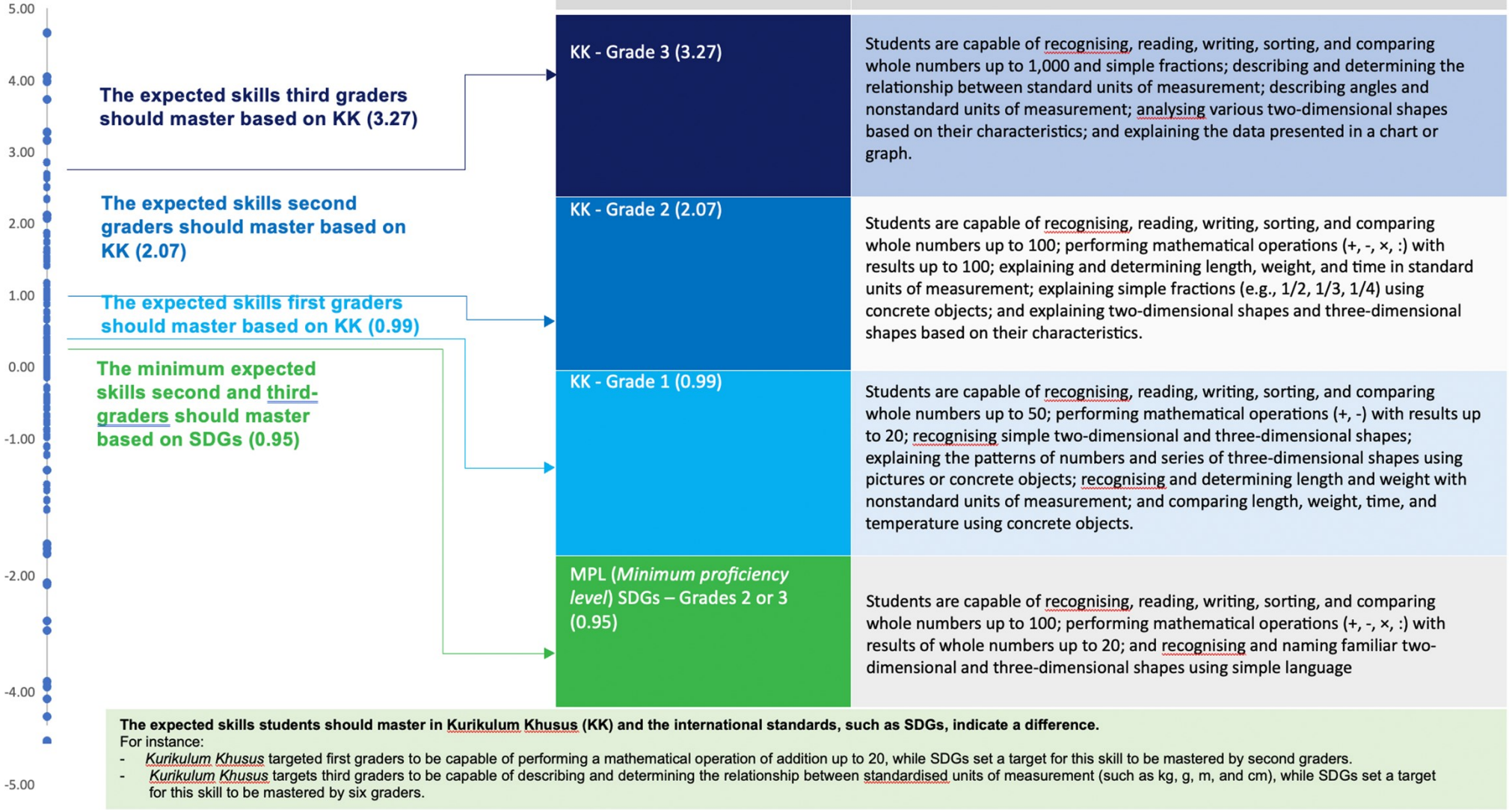
*Secondly*, based on the psychometric test results, literacy and numeracy experts from INOVASI and ACER determined cut-off points or thresholds students should fulfill to be regarded as satisfying/meeting particular standards (for example, the curriculum or SDGs minimum proficiency standards). For instance, as per expert judgment, first graders are considered to have met the standards of *Kurikulum Khusus (KK)* or *Kurikulum Darurat* if they can solve problems with an average difficulty level of 0.99.[7]

*Thirdly*, the estimation results of student learning outcomes were compared to the cut-off points to determine the learning gap rate. This study presents the gaps in standard deviations, months of learning progress, and the proportion of students who achieve specific standards.[8]

[7] *Kurikulum Khusus* (commonly referred to as *Kurikulum Darurat*) is a curriculum issued by the Ministry of Education, Culture, Research, and Technology (MoECRT) which provides flexibility for educational units to determine the curriculum according to the learning needs of students during the pandemic. This curriculum is a simplified form of *Kurikulum 2013* and places emphasis on essential basic competencies, ensuring a seamless progression of learning to the next level. https://kurikulum.kemdikbud.go.id/kurikulum-darurat.

[8] The conversion of the difference between the standard deviation and months of learning progress was projected using the UK Endowment Fund for Education meta-analysis study as a reference. educationendowmentfoundation.org.uk/evidence-summaries/about-the-toolkits/attainment.

**Difficulty Level**




| Competence Benchmark | Basic Competence |
|---|---|
| KK - Grade 3 (3.27) | Students are capable of recognising, reading, writing, sorting, and comparing whole numbers up to 1,000 and simple fractions; describing and determining the relationship between standard units of measurement; describing angles and nonstandard units of measurement; analysing various two-dimensional shapes based on their characteristics; and explaining the data presented in a chart or graph. |
| KK - Grade 2 (2.07) | Students are capable of recognising, reading, writing, sorting, and comparing whole numbers up to 100; performing mathematical operations (+, -, ×, :) with results up to 100; explaining and determining length, weight, and time in standard units of measurement; explaining simple fractions (e.g., 1/2, 1/3, 1/4) using concrete objects; and explaining two-dimensional shapes and three-dimensional shapes based on their characteristics. |
| KK - Grade 1 (0.99) | Students are capable of recognising, reading, writing, sorting, and comparing whole numbers up to 50; performing mathematical operations (+, -) with results up to 20; recognising simple two-dimensional and three-dimensional shapes; explaining the patterns of numbers and series of three-dimensional shapes using pictures or concrete objects; recognising and determining length and weight with nonstandard units of measurement; and comparing length, weight, time, and temperature using concrete objects. |
| MPL (*Minimum proficiency level*) SDGs – Grades 2 or 3 (0.95) | Students are capable of recognising, reading, writing, sorting, and comparing whole numbers up to 100; performing mathematical operations (+, -, ×, :) with results of whole numbers up to 20; and recognising and naming familiar two-dimensional and three-dimensional shapes using simple language |

**The expected skills students should master in Kurikulum Khusus (KK) and the international standards, such as SDGs, indicate a difference.**
For instance:
- *Kurikulum Khusus* targeted first graders to be capable of performing a mathematical operation of addition up to 20, while SDGs set a target for this skill to be mastered by second graders.
- *Kurikulum Khusus* targets third graders to be capable of describing and determining the relationship between standardised units of measurement (such as kg, g, m, and cm), while SDGs set a target for this skill to be mastered by six graders.

**Figure 4. An illustrative example of determining cut-off points for Kurikulum Khusus -KK**

# 2. Efforts for Learning Recovery

## 2.1. Learning Recovery Policies and Initiatives

As explored in the preceding sections, school closures have disrupted the learning process for nearly 70 million students in Indonesia, including first graders who have not yet mastered basic literacy and numeracy skills. The adverse effects of the pandemic prompted the Ministry of Education, Culture, Research, and Technology (MoECRT) to expedite the transformation of education, which was initiated in 2019. The experiences of dealing with educational crises due to the pandemic have yielded valuable lessons not only for short-term solutions but also for comprehensive improvements in the quality of education. This especially includes addressing issues of poor educational quality and outcomes, which existed before the pandemic. Consequently, the learning recovery efforts in the aftermath of COVID-19 are integral to the ongoing endeavors to transform education.

In the context of learning recovery, education transformation policies encompass six domains referred to in the learning recovery framework of Dabrowski et al. (2022).

**Table 1. Learning recovery framework of Dabrowski et al. (2022)**

| Domain | Education Policy in Indonesia |
|---|---|
| **Supporting the reopening of schools** | • The Joint Ministerial Decree (SKB) of Four Ministers on Guidelines for Organising Learning During the COVID-19 Pandemic[2] outlined a gradual reopening of schools.[9] The decree also allowed schools to employ a blended learning approach, combining in-person learning in the classroom, at other designated locations and teachers' visits to students' houses.<br>• The reopening of schools was supported by a simplified curriculum and the provision of literacy and numeracy modules for teachers, parents, and students. |
| **Prioritising students' safety** | • Ensuring students' safety was a paramount consideration in the decision to reopen schools. The percentage of face-to-face learning at schools was linked to vaccination coverage and the level of Community Activities Restrictions Enforcement (PPKM), ranging from 50% to 100% capacity. Additionally, the number of lessons (Jam Pembelajaran/JP) varied between a maximum of six and a given number according to the provision of the curriculum.[10] |

[9] Joint Ministerial Decree of Four Ministers No. 05/KB/2021; No. 1347 of 2021; No. HK.01.08/MENKES/2021; No. 443.5847 of 2021, dated December 21, 2021, - Guidelines for Organising Learning during the COVID-19 Pandemic.

[10] Joint Ministerial Decree of Four Ministers No. 01/KB/2022; No. 408/2022; No. HK.01.08/MENKES/1140.2022; No. 420-1026 of 2022, dated April 22, 2022, on Learning Guidelines during the COVID-19 Pandemic.

| | |
|---|---|
| | • Stringent health protocols remained in place, with reclosing of schools possible if COVID-19 cases surged.[11]<br>• Besides focusing on physical health aspects, the government also paid attention to welfare and psychosocial needs.<br>• The swift cancellation of the National Examination in 2020 alleviated the pressure on both teachers and students. Additionally, modifying lesson plans (RPP) to make them more streamlined and functional reduced the administrative burden on teachers. |
| **Protecting vulnerable groups of students** | • The government modified the Performance BOS and Affirmation BOS schemes to target and allocate funds to more schools in need.[12] The intention of the funds was to facilitate remote learning and ensure adherence to health protocols during face-to-face learning sessions.<br>• The regular BOS scheme was also modified in terms of local contextual factors.[13]<br>• Additionally, the government provided internet data support to teachers and students.[14] |
| **Promoting equal access to education** | • The central government facilitated learning through TV and radio broadcasts to reach a wider audience of students.<br>• In INOVASI partner provinces, local governments developed teaching tools and learning resources to assist teachers, parents, and students in learning, such Student Activity Sheets (LAS), with reference to *Kurikulum Darurat*. Additionally, local governments mobilised student teachers and volunteers to provide learning support for students experiencing difficulties. |
| **Mitigating the impact of learning loss** | • A simpler curriculum focusing on literacy and numeracy was implemented.[15]<br>• Teachers were encouraged to conduct formative assessments to identify students' competencies before developing learning strategies according to students' individual needs. |

[11] On December 30, 2022, the President officially revoked the Community Activities Restrictions Enforcement, thereby permitting all schools to resume face-to-face learning.

[12] This included schools situated in Indonesia's Disadvantaged, Frontier, and Outermost (3T) regions, schools with a number of students from economically disadvantaged backgrounds, schools with a relatively high number of contract teachers, and schools with a small student population and limited regular BOS funds.

[13] As a result of the adjustments made to this scheme in 2021, regions in Papua Province received three times the amount of BOS funds compared to the previous year. Similarly, remote areas such as the Natuna and Talaud Islands received more than 50% of their BOS fund allocations.

[14] At the local level, governments organised initiatives to reach vulnerable groups of students. For example, in Tana Tidung District, North Kalimantan, the local government recorded information regarding students' participation and created a specific program to reach students who did not attend classes for various reasons. Funding was also allocated for teachers to reach these students. The Tana Tidung government strictly monitored its progress, including monitoring student learning outcomes, to detect increase in participation. These measures demonstrated that decision-making at both central and regional levels, in line with Afkar and Noah's (2021) description of a shift from centralised decision making to decentralisation in addressing the impact of the pandemic on learning.

[15] Decree of the Minister of Education, Culture, Research, and Technology No. 719/P/2020 on Guidelines for Curriculum Implementation in Schools in Special Conditions.

It is crucial to acknowledge the inevitability of a gap between policy objectives and the implementation thereof. Although the decentralisation of education encourages local governments to play a significant role in policy implementation (Bjork, 2004), limited resources and capacity can challenge local authorities even with genuine interest in improving the quality of education.. For instance, data collected early in the pandemic revealed that while the government initiated the distribution of free *Kurikulum Darurat* modules, only a small portion of teachers made use of these modules (Handayani & Sukoco, 2020). Further to this, the preliminary findings from the data indicated that teachers who used the disseminated literacy and numeracy modules were in a strong position to mitigate learning loss. This example highlights that whilst policy implementation may face challenges, not only in the case of *Kurikulum Darurat*, when the policy can be implemented adequately it has the potential to alleviate the adverse impact of the COVID-19 pandemic. To this end extensive consultation with local stakeholders is imperative when central government is formulating education policies and initiatives.

## 2.2. Implementation of *Kurikulum Merdeka*

Among all the *Merdeka Belajar* policies, *Kurikulum Merdeka* holds relevance for learning recovery. This curriculum reform encourages teachers to adopt a more student-centred approach to learning, better enabling students to recover effectively from the impact of school closures. *Kurikulum Merdeka*, which also prioritises the development of basic literacy and numeracy skills, as well as character education, encompasses three key features: a focus on essential competencies, flexibility to cater to individual needs of students, and the integration of project-based learning to support character development and provide practical learning opportunities related to real-life issues they encounter daily (Anggraena et al., 2022; Randall et al., 2022). To foster the implementation of *Kurikulum Merdeka*, the government not only introduced changes to the curriculum but also adjusted the learning and assessment processes. This section delves further into the support provided by the MoECRT and INOVASI to encourage the implementation of *Kurikulum Merdeka*, including in INOVASI partner areas.

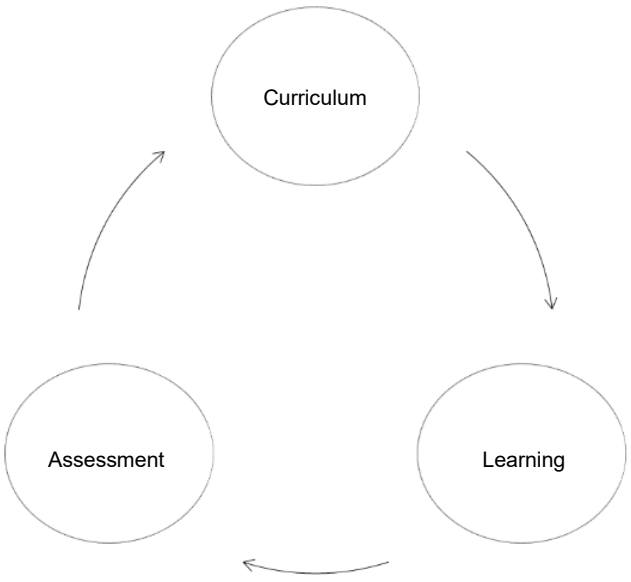



**Figure 5. Three main components in education (PUSMENDIK, 2021)**

### 2.2.1. Learning

To support the implementation of *Kurikulum Merdeka*, the MoECRT offers a diverse range of teaching tools, learning resources, and independent training, particularly for teachers and principals, through the *Merdeka Mengajar* platform (PMM); this platform was launched simultaneously with *Kurikulum Merdeka* (PSKP, 2022). Teachers and principals can access this platform independently. In developing PMM materials, the MoECRT collaborated with various development partners, including INOVASI. Aside from teaching tools, the platform incorporates several additional features. Among them is a student assessment feature designed to assist teachers in conducting diagnostic assessments in the classroom. Furthermore, there are videos intended to inspire and serve as references for teachers to understand and implement *Kurikulum Merdeka* effectively. PMM also facilitates teachers to connect with and learn from other teachers in different regions of Indonesia through the features of *Bukti Karya Saya* (Proof of My Works) and community (MoECRT, 2022).

**During the dissemination of PMM, INOVASI undertook several activities in partner areas as follows[16, 17]:**

- INOVASI, and Teacher Training Centres or *Balai Guru Penggerak* (BGP) in East Nusa Tenggara (NTT), facilitated training and workshops on the Implementation of *Kurikulum Merdeka* organised by the Education Office, with selected focus on understanding and using PMM.
- INOVASI conducted Dissemination for Early Grade Teachers on Literacy Strengthening in Sumenep District on the Implementation of Kurikulum Merdeka, including guidelines for using PMM. Learning communities or *Komunitas belajar* for teachers in Sumenep were formed during the dessemination.
- INOVASI prepared teachers to document their works in PMM through the '*Bukti Karya*' feature. This activity was attended by teacher representatives and district facilitators from four INOVASI partner provinces, East Java, West Nusa Tenggara (NTB), East Nusa Tenggara (NTT), and North Kalimantan.
- INOVASI has developed a catalogue containing guidelines for accessing PMM and the platform materials. This catalogue allows all teachers to gain the maximum benefit from PMM as a learning resource.

During the dissemination and implementation of PMM and *Kurikulum Merdeka*, the role of the Teacher Working Group (KKG) was reinforced, and learning communities were established. The learning communities play a role in facilitating teachers and education personnel to learn about *Kurikulum Merdeka together.* They have the opportunity to discuss issues related to the implementation of *Kurikulum Merdeka*, share good practices in the implementation of Kurikulum Merdeka, and reflect on peer learning. The learning communities include intra-school learning communities, inter-school learning communities (which can be in the form of

[16] INOVASI Monitoring Data (2022)

[17] INOVASI Monitoring Data (2023)

pre-existing learning communities, such as PKG, KKG, and KKKS), and online learning communities (Direktorat Sekolah Dasar, 2022).

**The following activities in the INOVASI work area have strengthened the KKG and the formation of Learning Communities[18]:**

- Festival Lokal belajar.id formed the belajar.id community, uniting 145 teachers in West Sumba District. This community was initiated by several *Guru Penggerak*, Google Master Trainers, and other teachers in West Sumba District.
- INOVASI East Java, together with *Balai Besar Guru Penggerak* (BBGP), held a webinar for teachers entitled "*Penguatan Kelompok Kerja Guru (KKG)/Musyawarah Guru Mata Pelajaran (MGMP) melalui Komunitas Belajar*" (Strengthening KKG/MGMP through Learning Communities). In this webinar, the speakers explained how to form an active learning community and how to share good practices in PMM.

PMM also facilitates continuous professional development through the '*Pelatihan Mandiri*' feature. Teachers receive a certificate on completion of training in each topic. INOVASI has also produced self-development training material covering a number of topics. With this self-development training, teachers can develop their skills anytime, anywhere, and according to their needs. This will enhance their knowledge of *Kurikulum Merdeka* and encourage best practice in their classes.

### 2.2.2. Assessment

In 2021, the Minister of Education, Culture, Research, and Technology (MoECRT) issued Circular Letter No. 1 of 2021 on the Cancellation of the National Examination (UN) and School Equivalency Examinations as well as the Implementation of School Examinations during the COVID-19 Emergency Period. Following this circular letter, the National Examination was replaced by a National Assessment, in accordance with the objectives of *Kurikulum Merdeka*. The National Assessment consists of Minimum Competency Assessments (*Asesmen Kompetensi Minimum* or AKM) of Literacy and Numeracy, a Character Survey (Pancasila Student Profile or *Profil Pelajar Pancasila*), and a Learning Environment Survey. The results of this assessment will be summarised on *Rapor Pendidikan*. *Rapor Pendidikan* will integrate various educational data to assist education units and the government (both national and subnational) to map outcomes, identify root causes, reflect, and design effective improvement plans. The factor that most distinguishes the national assessment from the national exam is that the national assessment does not measure individual student learning outcomes. Instead, it is used to measure the outcomes of the education system as a whole, and assessment has no consequences for students during the selection process for progression to a higher school level (MoECRT, 2021a).

In addition, the government has introduced the principle of assessment that recognises the importance of conducting assessment in classrooms at each stage of learning: (1) diagnostic

[18] INOVASI Monitoring Data (2022)

assessment at the beginning of learning to determine students' needs; (2) formative assessment to determine the extent to which students have achieved learning objectives; and (3) summative assessment to ensure overall achievement at the end of learning (Anggraena, et al., 2022).

**The following are activities related to assessment in INOVASI partner areas[19]:**

- Development partners and INOVASI disseminated how to use and interpret the results of the National Assessment (*Rapor Pendidikan*) in NTB. This activity supported the development of stakeholder knowledge of *Rapor Pendidikan* and how to use it to develop follow-up steps in finding solutions for future improvements.
- The Education and Culture Office of Sumbawa District, the Ministry of Religious Affairs of Sumbawa District, and STKIP Paracendekia NW Sumbawa, with the support of INOVASI, organised training for District Facilitators of *Merdeka Belajar*. Training materials included a guide to conducting a *Rapor Pendidikan* Review.
- INOVASI held an initial assessment (diagnostic assessment) and differentiated learning workshop to support IKM in East Java. A focal objective of this workshop was to equip district facilitators with the understanding and skills to conduct initial literacy and numeracy assessments. Participants included teachers, school/*madrasah* principals, primary school and Islamic primary school (MI) supervisors, and staff from the education offices and the Ministry of Religious Affairs.

### 2.2.3. Funding

Furthermore, to support the implementation of all the policies, BOS fund distribution has been adjusted to better target and adapt to individual school contexts. From the start of the pandemic, flexibility in BOS funding increased and schools were given authority to use the funds to support learning activities. BOS funds were also distributed directly to school bank accounts (Secretariat of Teachers and Education Personnel (GTK), 2020). Furthermore, in 2021, the MoECRT issued policies in relation to BOS and Physical Special Allocation Funds (DAK). These policies have had a positive impact on regions that genuinely needed this support, specifically in 3T regions, where the affirmative budget policy mechanism was consciously designed to meet the needs of each region (MoECRT, 2021b). For instance, extra funds are sent to regions with a high need or Construction Cost Index[20] . In 2023, the government will provide additional BOS and Bantuan Operasional Pendidikan (BOP) Kesetaraan Kinerja Berkemajuan Terbaik funding to 15% of schools with the best performance in the national assessment across education units. The schools will be judged on results or increases in *Rapor Pendidikan* scores indicating the quality of learning and learning outcomes, along with the school's socioeconomic status index (Ditjen PAUD Dikdasmen, 2022).

[19] INOVASI Monitoring Data (2022).

[20] Construction Cost Index is used as a proxy to measure the level of geographic constraints of an area. The more remote an area is, the higher the cost to develop that area.

# 3. OVERVIEW OF LEARNING RECOVERY

## 3.1. Global Learning Recovery Situation

It is clear that many countries, along with Indonesia are striving to recover from the disruption to teaching and learning caused by the COVID-19 pandemic. This effort is crucial because the impact the pandemic had, is not only important in the short term but also for the long term. A study conducted by Psacharopoulos et al. (2020) provides evidence that learning loss experienced during the pandemic may not only reduce the level of future income for students as they reach a working age but also the country's overall income. These findings align with analysis conducted by Hanushek & Woessmann (2020), suggesting that learning loss also has the potential to reduce the GDP of G20 countries. In Indonesia, learning loss could potentially decrease state GDP by 24 to 34 percent (Afkar & Yarrow, 2021). In an attempt to prevent widening inequality, many countries across the world, as well as global education organisations, have collaborated to promote learning recovery. This initiative aims to recover students' academic performance and their mental and psychological well-being before returning to learning.

Studies on post-pandemic learning recovery are relatively limited. Some of the existing studies indicate tentative results. A meta-analysis conducted by Betthäuser et al. (2022) using 42 research results from 15 countries points to efforts made for learning recovery having successfully mitigated the worsening of learning loss. In other words, learning loss experienced by students was halted. However, there was also little evidence of learning recovery. Conversely, a longitudinal study undertaken in India signalled learning recovery following the reopening of schools (Singh et al., 2022). Students had improved learning outcomes in numeracy and the local language, with respective standard deviations of 0.17 and 0.09, according to the data collected before the pandemic, during school closure, and after school reopening. It was also noted in the findings that remedial program interventions that targeted the most disadvantaged students were considered to have contributed to learning recovery.

This difference in results demonstrates the importance of conducting a similar analysis in Indonesia to better understand learning recovery after school reopening. In addition to obtaining a general overview regarding learning recovery, which is useful for encouraging appropriate interventions for students, a similar analysis could ascertain the extent to which government policies have contributed to learning recovery. As discussed, INOVASI has collected data multiple times, including those related to student learning outcomes in INOVASI partner schools. This data describes the scope of learning recovery occurring in Indonesia. In the next section an overview of learning recovery in Indonesia will be discussed along with an analysis of the factors that have led to these outcomes.

## 3.2. Learning Recovery in Indonesia

Similar with the case in India (Singh et al., 2022), the impact of the pandemic is still apparent on Indonesian students' learning abilities two years on. Nevertheless, the findings imply an indicative of learning recovery. This is seen in two indicators, namely (1) reduced learning losses and (2) reduced learning gaps. This section discusses learning recovery from these two indicators.

### 3.2.1. Learning Loss

Figure 6 illustrates the change in literacy and numeracy scores of students from Grade 1 to Grade 2. One year after the COVID-19 pandemic, our study discovered that students experienced learning loss equivalent to six months of learning (or 0.47 sd) for literacy and five months of learning (or 0.44 sd) for numeracy. In other words, a year after the pandemic, students' learning progress from grade 1 to grade 2 was slower by five to six months compared to the pre-pandemic context. However, two years post pandemic, compared to the learning outcomes of the previous academic year, learning outcomes from the 2021/2022 academic year indicated learning recovery, equivalent to two months of learning (or 0.16 sd for literacy and 0.12 sd for numeracy). In other words, students' development was only three to four months slower compared to the situation before the pandemic. Although these findings signalled learning recovery, the learning outcomes were still lower than pre-pandemic levels.

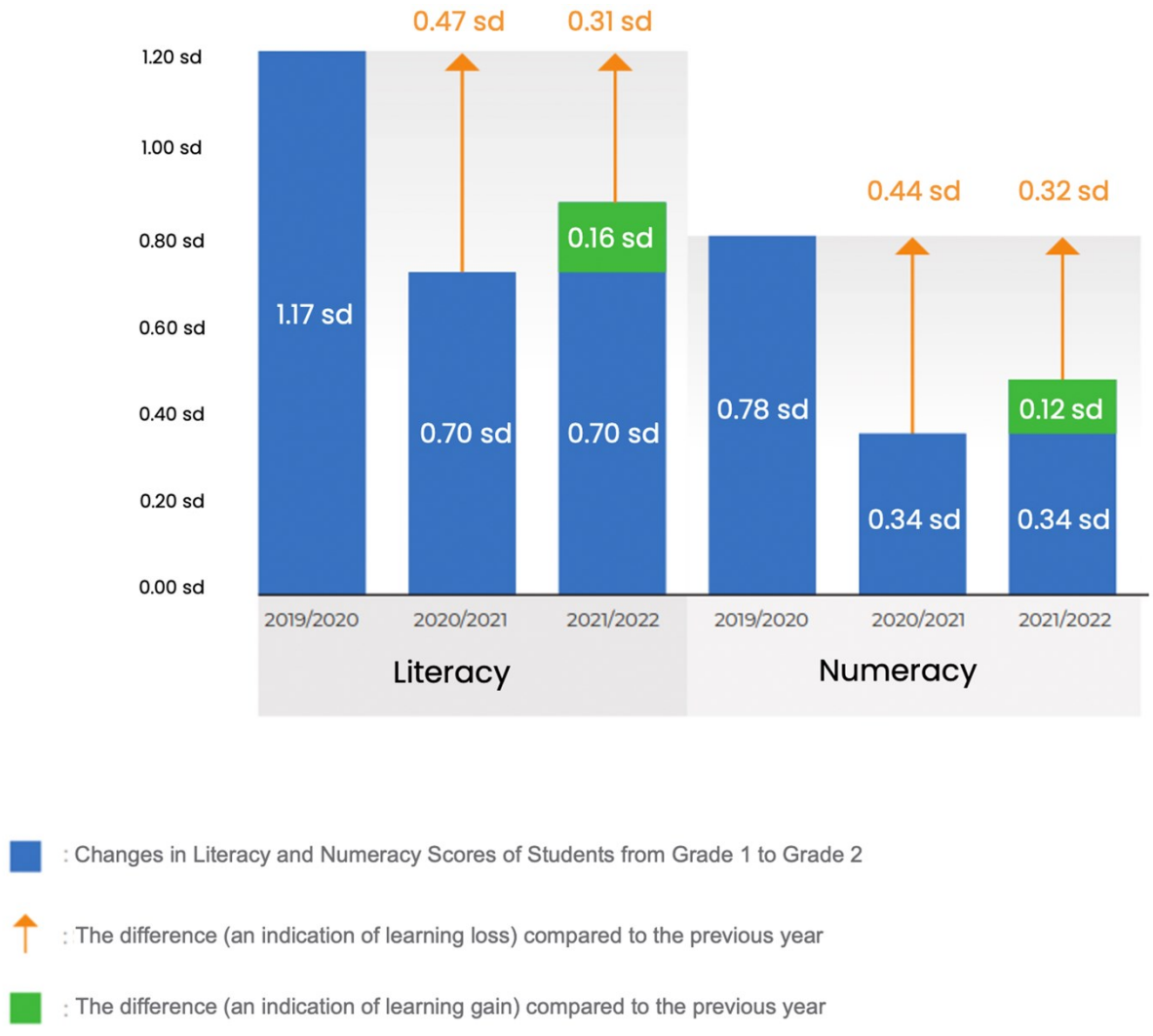



**Figure 6. Changes in literacy and numeracy scores of students from Grade 1 to Grade 2**

### 3.2.2. Learning Gap

Figure 7 illustrates an example of a learning gap case in terms of numeracy. In general, Grade 1 students are expected to work on questions with an average difficulty level of 0.99 (z-score), but in reality most Grade 1 students had an ability level of -0.22 (z-score) in the 2020/2021 academic year (one year after the pandemic). This study indicated a gap equivalent to 1.21 sd or 14 months of learning progress. It means, at that time, with their learning curve and skills, Grade 1 students require 14 months of learning to achieve the desired competency level. The pie chart in Figure 7 shows that around 4 out of 5 students (78%) in Grade 1 in the 2020/2021 academic year did not meet the expected standards, and only 22% of students met the *Kurikulum Khusus* standards. This gap will significantly influence children's learning in the future since the learning gap continues to grow exponentially over time, as evidenced by the low percentage of students who pass the expected standard in the following grade level.

On the other hand, two years after the pandemic in the 2021/2022 academic year, student learning outcomes had shown quite significant progress in catching up with their learning. The gap between the expectations set and the achievement in mastering those skills was reduced. As an illustration, more Grade 1 students achieved Kurikulum Khusus standards compared to the previous year. In the 2020/2021 academic year, only 22% of students could meet the Kurikulum Khusus standards. However, this rate increased to 38% in the 2021/2022 academic year. Furthermore, the gap in learning outcomes decreased from 1.21 sd to 0.38 sd, signalling a positive indication in their learning recovery. However, it should be noted that many students were identified as not yet meeting the expected standards.

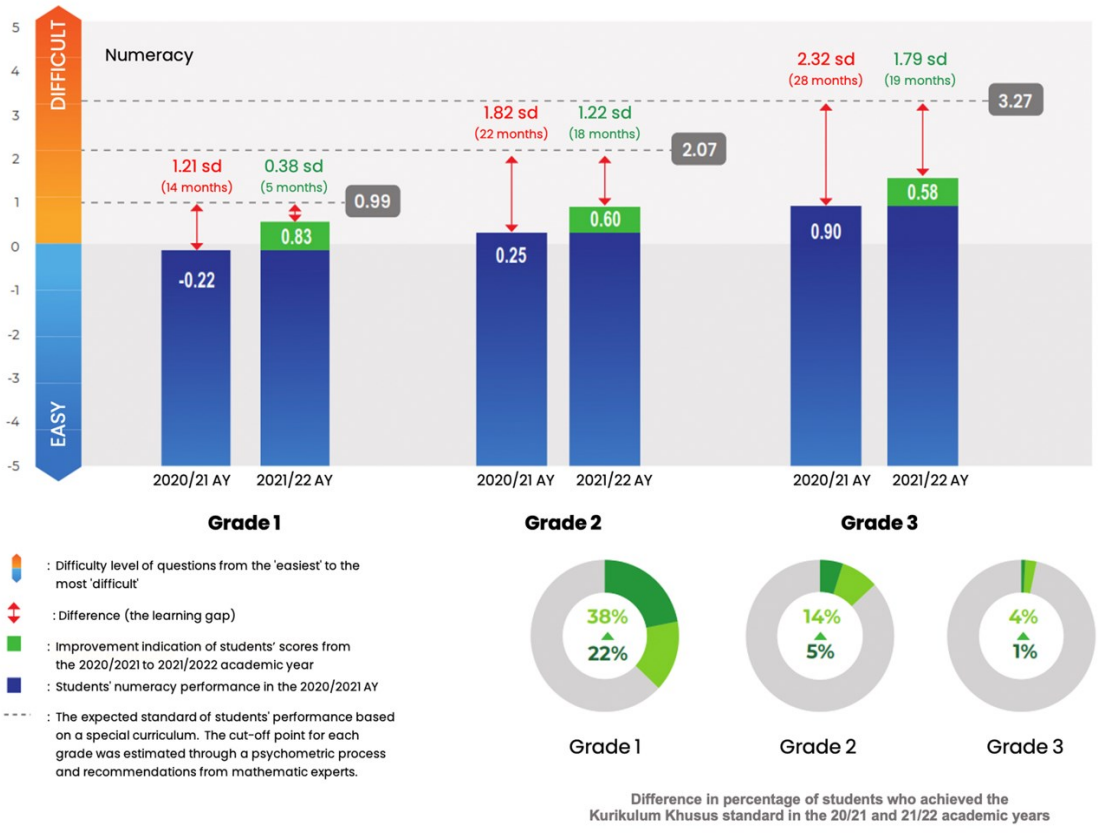



**Figure 7. An illustrative example of learning gaps for a numeracy subjectImplementasi Kurikulum Merdeka dan Pemulihan Pembelajaran**

## 3.3. Implementation of *Kurikulum Merdeka* and Learning Recovery

This study found a number of schools where students showed faster learning recovery rates than others. Analysis undertaken for this limited study identified several factors that contributed to accelerated learning recovery. This section describes the correlation between these factors and features of *Kurikulum Merdeka* that foster learning recovery. As previously explained, elements in *Kurikulum Merdeka* encourage teachers to adapt the curriculum, adjust learning according to the abilities and needs of students, and conduct regular assessments.

The table below illustrates how these features contribute to students' learning recovery. The pandemic was a challenge for teachers and students in terms of fulfilling the competencies expected by the national curriculum (*Kurikulum 2013*/Education Unit Level Curriculum or *Kurikulum Tingkat Satuan Pendidikan*), especially in view of the challenges faced with the unavoidable distance learning process. This study found that teachers who made curriculum adjustments during the pandemic (such as concentrating on essential competencies which were prerequisites for the next level of learning and providing support materials for parents to use) indicated a higher increase in student learning outcomes of 0.31 sd (or equivalent to 4 months of learning) compared to teachers who had not adopted this practice. In addition, teaching practices that considered students' different abilities, such as diagnostic assessment and differentiated learning, also had a positive influence on the rate of learning recovery.

**Table 2. The adjustment of curriculum and teaching practices by teachers**

| Factor | Variable | Delta |
|---|---|---|
| Adjustment of Teaching Practices by Teachers | Teachers adopt an adaptive curriculum – emergency curriculum, independently adapted curriculum, or prototype curriculum. | 0.31 sd (4 months) |
| | Teachers give assignments according to the students' ability. | 0.19 sd (3 months) |
| | Teachers perform a diagnostic assessment at the beginning of the 2021/2022 academic year or before introducing new teaching/learning material. | 0.14 sd (2 months) |
| Teacher Intrinsic Motivation | Teachers actively participate in KKG activities: preparing lesson plans aligned to the COVID-19 pandemic context. | 0.23 (3 months) |
| | Teachers with high intrinsic motivation are sympathetic to students, and they feel the need to make an extra effort to help students.<br>*"I've been living in this village for quite a long time. I consider my students just like my younger brothers/sisters. I feel sorry for them for experiencing learning loss. That is why I have to assist them effectively, even without being paid. What matters the most to me is my students continue learning."*<br>(a first-grade teacher from West Sumba) | |

These findings align with the results collected by INOVASI in the previous study, indicating that curriculum adaptation and learning adjustment made by teachers in conjunction with regular assessment can potentially mitigate learning loss in students (Randall et al., 2022). These features are relevant to *Kurikulum Merdeka*, highlighting the essential skills for students to master. Pritchett & Beatty (2012) noted that curriculums in developing countries tend to set ambitious targets. Indonesia is no exception, with curriculum objectives, including the

*Kurikulum 2013*, more numerous and ambitious than international targets (Anggraena et al., 2022; Randall et al., 2022). A teacher's initiatives to implement the curriculum according to the pandemic situation or set more realistic learning expectations, whether through the Special Curriculum, Merdeka Curriculum, or a simplified curriculum by the school, not only legitimised their efforts to adjust curriculum targets but also motivated them to provide teaching that met the needs of the students. The data indicated that this initiative successfully contributed to a more rapid learning recovery.

Despite the decline in teacher participation in Teacher Working Group (KKG) events during the pandemic due to school closures (Raihani & Sari, 2022), teachers continued to actively participate in self-development activities., Teachers that chose endeavours correlated with learning strategy adjustment, were able to achieve a higher improvement in students' learning outcomes compared to those rarely participating. The improvement difference in students' learning outcomes between these two groups was equivalent to 0.23 sd or three months of learning. In addition to skills and practices, a teaching mindset focused on students' needs is also necessary to support the implementation of Kurikulum Merdeka and accelerate the learning recovery process (Randall et al., 2022). When teachers understand the reasons underlying curriculum changes, the corresponding mindset is the necessary motivation to support curriculum reform.

## 3.4. Other Supporting Factors Contributing to Learning Recovery

Apart from the features of Kurikulum Merdeka, the study identified other factors that can contribute to learning recovery contingent upon implementation through systemic and collaborative effort. These factors are considered internal (i.e., principals) and external (i.e., support from other parties).

Firstly, in terms of internal factors, this study found that school principals play a key role in students' learning recovery. The analysis revealed a more rapid learning recovery in schools was achieved when principals: (1) actively and periodically monitored teachers and utilised the obtained data; (2) offered an exclusive program to encourage students absent during the COVID-19 pandemic to return to school; and (3) readjusted the budget allocation to prioritise students' learning recovery. For example, schools, where principals routinely and actively monitored learning activities and students' learning progress, could improve learning outcomes by 0.39 sd or equivalent to 5 months of learning, compared to schools in which principals did not implement this practice.

**Table 3. School Principal Leadership**

| Factor | Variable | Delta |
|---|---|---|
| School Principal Leadership | School principals periodically monitor teachers(observing the learning activities and students' learning outcomes) and utilize the obtained data. | 0.39 sd (5 months) |
| | Schools have implemented a program to encourage absent students during the pandemic to return to school. | 0.21 sd (3 months) |
| | Schools make adjustments to the budget allocations focusing on students' learning recovery. | 0.13 sd (2 months) |

In consideration of external factors, government support was also vital in promoting learning recovery. For example, this study revealed that schools assisted by national and sub-national governments through the provision of supporting kits for distance learning showed a more significant improvement in students' learning outcomes compared to schools that were not aided in this way. The estimated learning outcome difference between these two groups reached 0.21 sd, equivalent to 3 months of learning.

**Table 4. Support from other parties**

| | | | |
|---|---|---|---|
|  **Support from Others (Government, Other Teachers, NGOs, and Parents)** |  | Schools receive support from the central/local governments in the form of equipment for remote learning. | **0.21 (3 months)** |
| |  | Assistance or support from other teachers and Non-Governmental Organisations (NGOs) | *"Senior teachers at my school fully support me. We always work together. They advised me to focus more on the students struggling with literacy and numeracy." (a first-grade teacher from Bima)* |
| |  | Support from students' parents/families | *"During the COVID-19 pandemic, some students did not actively learn at home since teachers did not provide optimum assistance. Those whose parents and older siblings had mastered reading skills could assist them to actively learn at home." (a school principal from West Sumba)* |

# 4. CLOSING

## 4.1. Conclusions

This study aims to identify whether learning recovery occured two years after the COVID-19 pandemic. The analysis in this study provides a significant contribution since it examined more than just the short-term impacts of the pandemic. It also analysed how respective government policies contributed to mitigating the impact of learning loss found in the early period of the pandemic. To identify these issues, INOVASI collected data from 69 schools in seven districts in four of INOVASI's partner provinces. The data complements the INOVASI series of data collected from before and one year after the COVID-19 pandemic.

While learning loss and learning gaps are still evident, this study found an indication of learning recovery. First, this series of studies reports a lower rate of learning loss compared to the previous series of studies. This study found that learning outcomes for the 2021/2022 academic year, when compared with the previous year, signalled learning recovery. . An improvement was found in learning outcomes by 0.16 sd for literacy and 0.12 sd for numeracy, equivalent to 2 months of learning. Secondly, a drop in the learning gap was identified. The data collected, suggests that more Grade 1 student in the 2021/2022 academic year met the standard of the *Kurikulum Khusus* than in the previous academic year. In the 2020/2021 academic year, only 22% of the students met the *Kurikulum Khusus* standards. In the 2021/2022 academic year, the percentage increased to 38%. Furthermore, a decrease in the gap in learning outcomes from 1.21 sd to 0.38 sd, is a positive indication of learning recovery.

Among several factors contributing to learning recovery, features of *Kurikulum Merdeka* were identified as potentially supporting schools to accelerate students' learning recovery. An analysis on schools employing an adjusted curriculum, including changes made by teachers, the implementation of differentiated teaching according to students' knowledge, the conducting of regular assessments and the application of the results to develop learning strategies, potentially provided higher learning recovery results, compared to schools that did not have these practices in place. These three practices that contributed to learning recovery are consistent with the essence of implementing Kurikulum Merdeka. Other factors also supported learning recovery, such as teachers actively participating in self-development activities, school principals routinely and actively monitoring programs, and local government consistently providing support. These data showed that learning recovery initiatives must be done collectively and comprehensively. It must be noted that implementing the features of Kurikulum Merdeka would be more effective with adequate support from schools and local stakeholders.

The study conducted by INOVASI is one of the few studies tracking students' performance before, during, and after the pandemic. This study lends support to the understanding of the short and mid-term impact of the pandemic. Apart from contributing to research on pandemics and learning processes at the national level, this study also enriches the knowledge on learning loss and learning recovery at the global level. However, limited longitudinal data regarding students' skills before and during the pandemic caused a relatively insufficient understanding of how students recovered from the pandemic (Betthäuser et al., 2022; Dabrowski et al., 2022).

It is important to note some limitations of this study. First, this study employed a relatively broad scope, particularly in comparison to other longitudinal studies conducted in India, which

concentrated on only one province. The target of this study includes INOVASI partners in four provinces, most of which are schools in the outermost, frontier, and disadvantaged regions (3T -Tertinggal, Terdepan, Terluar). On the one hand, on average, the quality of schools in these areas tends to be poorer than schools in more developed areas. On the other hand, compared to other schools in the 3T regions, INOVASI assisted schools may be regarded more favourably in terms of quality. In consideration of these facts, all data in this study should be interpreted more conscientiously.

Secondly, this study does not intend to assess the effectiveness of Kurikulum Merdeka implementation. However, our limited observations suggest that teachers and schools faced challenges in applying Kurikulum Merdeka. This is understandable as features of Kurikulum Merdeka require a substantial change in the mindset of teachers and schools in teacher delivery and student learning, as well as the acquisition of technical skills. These technical skills, require the capability to manage differentiated learning, conduct initial assessments, and utilise assessment results to develop learning strategies, including the preparation of appropriate learning resources and media. These two limitations may prevent schools from implementing Kurikulum Merdeka, and benefiting from the curriculum reform.

## 4.2. Recommendations

This study showed that the initiatives to address learning crises during the pandemic embedded principles/essences which are in line with agendas of transformation , aimed at improving education quality and learning outcomes. This study has also noted that efforts that support learning transformation must be comprehensive, systematic, and sustainable Learning transformation through curriculum reform will only contribute maximally to recover learning with teachers who are skilled in implementing and adapting Kurikulum Merdeka, school principals who are capable of consistently providing mentoring and encouraging continuous improvements, and local governments who will provide support. Overall, to continue and expand learning transformation, including support of inclusive education, it is critical to strengthen the education ecosystem at the national and sub-national levels.

In relation to the findings, this study proposes several key recommendations for national and sub-national governments as well as schools:

1. Develop or refine teacher training programs for prospective teachers and lecturers through Teacher Training Institutes (TTIs) aiming for the graduates to have the mindset and competencies relevant to learning transformation.
2. Activate learning communities and other learning forums for teachers, such as Teacher Working Groups (KKG), as forums for teachers to continuously develop their confidence and skills to implement student-centred learning.
3. Encourage school leadership that effectively supports development of school resources, the utilisation of the Merdeka Mengajar platform (PMM), the adjustment of PMM materials to particular school needs, and the implementation of transformative learning, concentrating on student-centred learning, and the use of Rapor Pendidikan and other student assessment data.
4. Ensure that the perspectives of social and gender inclusion are integrated into all educational policies, systems, strategies, and practices to endorse equity, equality, and inclusiveness in education; this is particularly dedicated to, but not limited to remote areas, schools where students are not skilled users of Bahasa Indonesia, schools

accommodating students with disabilities, schools with insufficient numbers of teachers,and small schools with a limited number of students;

5. Build the technical capacity of local governments to establish a synergy between early childhood and primary education; and
6. Provide monitoring, evaluation, and/or research systems to assess the effectiveness of policies in transforming education.

The focus on strengthening the education ecosystem outlined above is expected to enable an education ecosystem that can lead to school independence, particularly at the local level. In addition, it will increase the capability of local governments in planning, fulfilling, and developing human resource capacity, reinforce the capacity of technical agencies, and establish collaborations to support learning transformation.

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# ANNEXES

This study has a limitation in terms of its control data, where it does not offer ideal data. There may be differences in the diverse factors affecting student cohorts in years $y$ and $y_{+1}$ (such as innate abilities, policy changes, changes in social situations, etc.). The sudden emergence of the pandemic and the abolition of the high-stakes national examination (Ujian Nasional, or UN) in early 2020 led to the unavailability of ideally controlled data. However, stakeholders can adopt the estimation results formulated in this study as one of the alternative considerations in adapting the learning recovery strategies.

### The Merdeka Belajar Policy

| Elements of Reform | Episode | Aspects of Changes | Correlation with Learning Recovery |
|---|---|---|---|
| **Nationally standardised school examination, high-stakes national examination (UN), lesson plan simplification, and zoning-based system of new students' admission** | #1 | The nationally standardised school examinations and high-stakes national examinations (UN) were cancelled, and lesson plans were simplified to direct the focus on three key elements: learning objectives, learning activities, and assessment. | The cancellation of the high-stake national examination, which was initially scheduled to come into effect in 2021, was implemented earlier.<br>The simplification of lesson plans was expected to minimise the administrative workloads of teachers and assist teachers in developing functional lesson plans. |
| **Merdeka Belajar** | #2 | Kampus Mengajar, a program launched by the MoECRT and part of Merdeka Belajar, provides a channel for students to learn outside campuses and practice on-the-job training in schools to develop and implement quality learning. | This program involves students of higher education to actualise learning recovery. INOVASI has involved higher education students in the learning recovery agenda through the Relawan Literasi (RELASI) program. RELASI has carried out this activity through the Kampus Mengajar program. |
| **The use of School Operational Assistance (BOS) funds** | #3 | Funds are now being distributed directly to schools. The allocation of BOS funds has become flexible to support learning activities following school needs. The limitation on fund allocation for books and multimedia kits has been eliminated. | The flexibility is relevant to the needs of learning recovery, enabling greater opportunity for schools to adapt the use of BOS funds to their needs. |
| **Organisasi Penggerak Program** | #4 | Various organisations actively participate as the driving force (*penggerak*) of change in schools. | This program enhances education quality through capacity building for educators and education personnel. |
| **Guru Penggerak** | #5 | A capacity-building program that improves teachers' skills and prepares them for leadership roles | long-term educational transformation |
| **Sekolah Penggerak** | #7 | A program to improve learning outcomes, build a safe learning environment, and increase learning quality through collaboration between ministries and local | long-term educational transformation |

| | | | |
|---|---|---|---|
| | | governments to improve the quality of human resources in schools | |
| **SIPLah** | #12 | Sistem Informasi Pengadaan Sekolah (SIPLah) is an electronic system for the online procurement of goods and services with school operational assistance (BOS) funds released in 2019. This system can also be used for purchasing books. | This system supports the provision of reading books in schools, even in the context of the COVID-19 pandemic. |
| **Kurikulum Merdeka, Merdeka Mengajar Platform** | #15 | The MoECRT allows schools to choose the curriculum they wish to implement. Among the options available, Kurikulum Merdeka has gained popularity due to its essential features, which can be customised to cater to the unique needs of students and the local context. | This platform provides access to teaching and learning resources for teachers that are applicable to both learning recovery and long-term learning transformation. |
| **Funding acceleration and improvement for early childhood education and equality education** | #16 | Funding for early childhood education (PAUD) and equality education has been accelerated and improved, with increased flexibility to adjust to local characteristics. According to various references and INOVASI studies, primary school students who previously attended PAUD demonstrated higher learning outcomes compared to those who did not. | long-term educational transformation |
| **Rapor Pendidikan** | #19 | Rapor Pendidikan aims to support education units and offices in understanding the conditions at schools and local levels, thereby facilitating the establishment of improvement plans. This system focuses on measuring education quality and distributing learning outcomes. | The cancellation of the high-stake national examination, which was initially scheduled to come into effect in 2021, was implemented earlier.<br>The simplification of lesson plans was expected to minimise the administrative workloads of teachers and assist teachers in developing functional lesson plans. |
| **Quality reading books** | #23 | The provision of quality reading books aims to stimulate students' reading interest, creativity, and critical thinking. The book review process has been revamped to encourage the participation of various parties in offering high-quality books. | This program involves students of higher education to actualise learning recovery. INOVASI has involved higher education students in the learning recovery agenda through the Relawan Literasi (RELASI) program. RELASI has carried out this activity through the Kampus Mengajar program. |
| **A fun transition from early childhood education to primary school** | #24 | The new policies aim to reinforce effective and enjoyable learning in establishing fundamental skills. | The flexibility is relevant to the needs of learning recovery, enabling greater opportunity for schools to adapt the use of BOS funds to their needs. |

*Summarised from https://merdekabelajar.kemdikbud.go.id/

A series of education reform policies under the coordination of the Minister of Education, Culture, Research, and Technology, Nadiem Makarim, were issued through the Merdeka Belajar policy. The Merdeka Belajar policy aims to enhance education quality and learning outcomes while promoting fair and equitable education for all Indonesian children. Currently,

24 elements of policy reform are being disseminated to the public through a series of Merdeka Belajar episodes, each containing specific education reform policies. Out of these 24 elements, 12 policies directly or indirectly correlate to learning recovery and have the potential to bring about fundamental changes in improving education quality, especially at the primary school level.

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