

Knowledge Brief



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A Snapshot of Early Childhood Development in Indonesia



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Background

- The Ministry of National Education (MoNE) is supporting a community-based Early Childhood Education and Development (ECED) project aiming to reach 738,000 children.
- To understand the impact of its project, MoNE is conducting an evaluation that tracks over 6,400 children ages 1 and 4 for a period of three years.

Early childhood is widely recognized as a critical time for development since it lays the foundation for skills and aptitude which people carry into adulthood (Shonkoff 2000). This recognition stems from evidence demonstrating rapid brain development that occurs before a child is six, and how a maturing brain is affected by a child's environment, such as stimulation, nurturing and nutrition dispensed at home and beyond (McCain 2007). Services related to early childhood have proven to be highly cost-effective, with the returns manifesting in school readiness, school completion, health, cognitive ability, and general social and emotional skills (Heckman 2008).

One of the MoNE's initiatives in early childhood is to support an ECED project aiming to reach 738,000 children in 50 districts over five years. Financed by a loan from the World Bank and with International Development Assistance (IDA) credits and a grant from the Government of the Kingdom of the Netherlands, the project provides block grants to communities whose residents decide how best to deliver early childhood services. In addition, the program funds training of community-based teachers to promote child development, and facilitates cooperation with district and national

organizations that provide additional funding and quality control.

In an effort to understand whether the project improves children's development and readiness for primary school, and what factors contribute to effectiveness of ECED services, MoNE is undertaking an impact evaluation. This evaluation uses a randomized design that allows for comparison between similar communities that receive the project at different points in time.

Tracking children over time will help shape the project by providing information about the status of early childhood development of children it is targeting, and highlight areas that may require further project attention and focus. Moreover, the results can inform the development of local policies supported by local data, which has to date been limited. While there have been studies describing the landscape of ECED in Indonesia, the baseline results are the first to show relationships between parental education, nutrition, and stimulating learning environments and child developmental outcomes, as has been proven in other countries (Nores 2009, Engle et al 2007).

Also supported by a research grant from AusAID, the baseline survey covers approximately 6,400 boys and girls aged one and fourⁱ throughout nine districts that represent the projectⁱⁱ shown in Figure 1. Districts vary greatly in poverty, remoteness, population density and service access, with Ketapang in Kalimantan being the most remote district, and Lombok Tengah being the poorest.

Child Health

- The majority of Indonesian mothers consistently breastfed their babies for nearly two years though not exclusively for six months as is recommended.
- Compared to regional neighbors, Indonesia has high rates of malnutrition.

Here we highlight breastfeeding due to its relationship with child development.ⁱⁱⁱ Exclusive breastfeeding up to six months is recommended by the WHO and UNICEF because of the

comprehensive nutrients breast milk provides. Breastfeeding has been known to reduce the incidence of diarrhea and pneumonia

ⁱ The purpose of selecting children 1 or 4 years of age at baseline is to determine if the ECED program has a differential impact on children of different ages and stages. The study follows these children over the life of the evaluation, and they will be aged 4 and 7 by the endline survey.

ⁱⁱ Sample districts are Sarolangun, Rembang, Kulon Progo, Sidrap, Majalengka, Ketapang, North Bengkulu, Central Lombok and East Lampung.

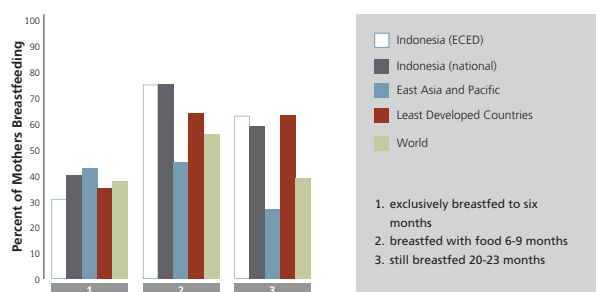
ⁱⁱⁱ For example, breast milk contains antibodies that can protect babies from illness and germs, such as diarrhea, respiratory infections, stomach viruses, diabetes, and leukemia; and breastfeeding supports sensory and cognitive development. WHO 2010, UNICEF 2009.

Figure 1: ECED Study Locations



in infants not only because breast milk is unadulterated but also because it provides customized immunological protection (WHO 2010, UNICEF 2009). In the ECED sample, as shown in Figure 2, fewer mothers breastfeed exclusively for six months than in

Figure 2: Breastfeeding Practices



All data other than ECED from UNICEF *State of the World's Children 2009*

Indonesia as a whole, and compared to averages across countries in the region and around the world. On the positive side, over sixty percent of sample mothers continue breastfeeding until nearly two years of age, suggesting that breastfeeding is persistent, albeit mixed with other substances earlier than optimal.

As children move from breast milk to food, we look to measures of height and weight for age to determine whether they are receiving adequate nutrition to allow them to become healthy, mature and school-ready. Poor nutrition can affect brain development and later cognitive ability in older children and adults, leading to fewer years of schooling and reduced productivity.

Indonesia is confronted with a high rate of stunting (37%)^{iv}, which represents height-for-age or chronic malnutrition—the same rate is also seen in the nine-district Indonesia sample. As shown in Figure 3 below, in regional comparisons, Indonesia has higher stunting rates than would be expected for its GDP per capita.

Child Development

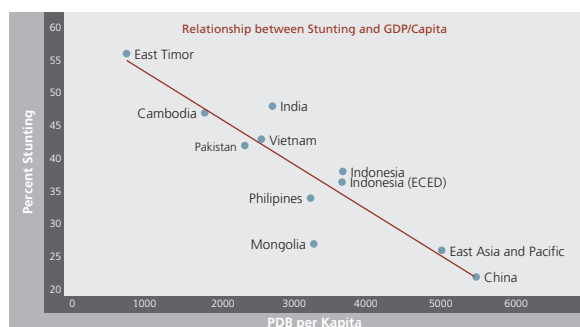
- In international comparison on a cognitive test, sample Indonesian children perform similarly to Jordan and better than the Philippines.
- Using an international measure of school readiness, Indonesian children excel in communication and general knowledge, and also in social competence, but show higher rates of vulnerability in literacy-related skills and cognitive development.

Child development is measured by a variety of factors that determine school readiness and ultimately growth and potential in later life, such as gross and fine motor skills, cognitive development, social competence, emotional maturity, and communication and literacy skills. It is these skills upon school entry that determine how a child performs in school and beyond (Lloyd 2009, Wylie 2006, Le 2006). In the baseline survey, we capture these domains and more

(some shown in Table 1 below) by observing children and consulting their caregivers.

In looking at children's social and emotional development, and behavioral patterns, such as emotional expression, tendency toward hyperactivity/inattention, peer relationships and conduct problems, and positive social behavior,^v we find that Indonesian children do

Figure 3: Stunting and GDP/Capita



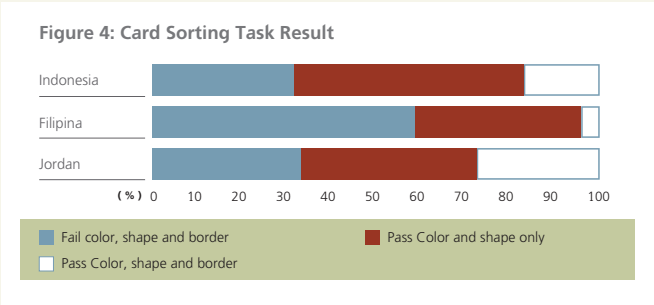
2005 International \$ Constant
Source: World Development Indicators Database

Tabel 1: Five Key Domains of Child Development

Area of Child Development	Characterized by
Language and cognitive development.	Child is interested in reading and writing, can count and recognize numbers and shapes. Child has the ability to understand similarities and differences, and recite back information from memory.
Physical health and well-being.	Child is healthy, independent, and has good fine and gross motor skills.
Social competence.	Child is able to control own behavior, has appropriate respect for authority, has the ability to play and work with other children, and is self-confident.
Emotional maturity.	Child is not too fearful or reactive, is patient, and not aggressive or angry.
Communication skills and general knowledge.	Child can tell a story, employs symbolic use of language, and has age-appropriate knowledge about life and the world around. Child can communicate with adults and children, and articulate needs and wants in socially appropriate ways.

well when compared to children in other countries. These traits are noteworthy not only because they are components of well-adjusted adults, but also lead to a child’s success in school.

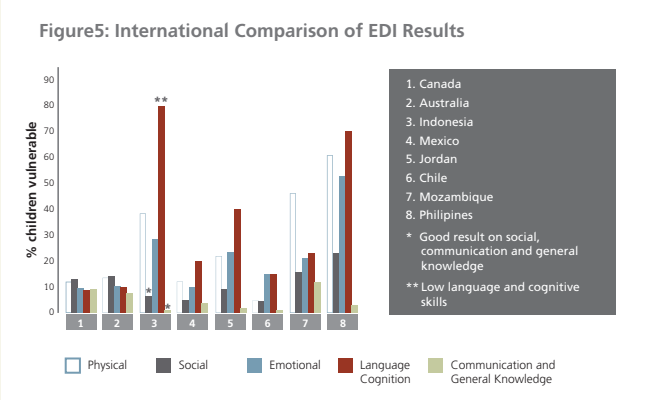
In the area of cognitive development, one tested measure of a child’s ‘executive function,’ or the way a child uses different strategies, focus and memory to accomplish something, is a game played with cards of different shapes (motorbike and cat) that are in different colors (red and blue), where some of the cards have borders and some do not.^{vi} In international comparison, as shown in Figure 4, Indonesian four-year olds perform similarly to those in



Household

- Reading and storytelling are uncommon at home, especially for younger children, while children engage in music, song and dance more frequently.
- Over half of sample households have no books in the home.

As mentioned above, the survey work focuses not only on children, but on other factors in a child’s sphere of influence that affect



Community

- Nearly all one-year olds and over half of four-year olds have never had exposure to early childhood services.

Beyond the household, a child’s development is influenced by how a community approaches caring for and nurturing children, often evidenced by the quantity and quality of services accessible by the child and household. Access can mean whether the service exists, how far the service is from the household, the cost of the service, and whether the service provides the kind of child development programs that the household values. One of the first steps in utilizing

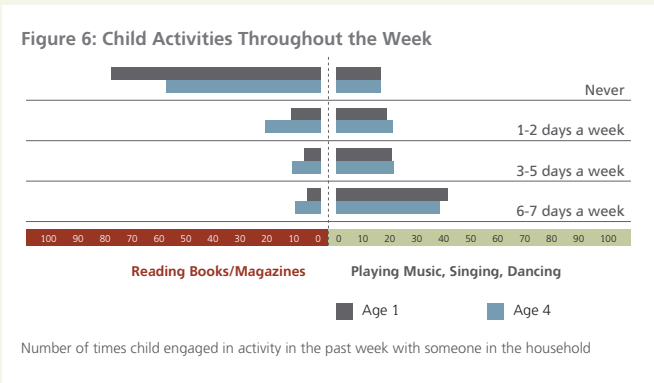
Jordan and better than those in the Philippines, with approximately 30 percent of children failing both the most basic color and shape games, over half of four-year olds passing both of those games, and less than 20 percent passing the hardest game—the border game. This result is encouraging for the cognitive potential of Indonesia’s children, but it is an area that needs further attention, as reinforced by other school readiness results below.

This study also utilizes one of the most well-known measures of school readiness—the Early Development Index (EDI)^{vii}. The EDI measures five developmental domains (see Table 1 above). The EDI is a relative indicator and can be used to compare groups of children across geographic areas. As shown in Figure 5, compared to children in other countries, we find that Indonesian children excel in communication and general knowledge, and also in social competence, but perform less well in literacy-related skills and cognitive development. This means that Indonesian children are in comparison independent, can communicate their needs, and act with patience and social appropriateness. However, they appear to need further support with skills that are the precursors to reading, writing, and computing, such as counting, number recognition and distinguishing between similarities and differences.

development, such as caregiving practices, parents’ education and employment, household poverty, and access to basic services and infrastructure by the household (for example, clean water, electricity, health care, schooling).

By caregiving practices we mean actions that household members take to stimulate child development, such as reading books, telling stories, drawing or scribbling, playing music, singing or dancing. Here we examine the frequency with which those practices take place. On average, over half of the households we surveyed have no books at home. Given this result, it may not be surprising that our results also show that children are rarely read to. These results are consistent with the deficiencies we see in the language and cognitive domain results in the EDI. As shown in Figure 6, nearly 80 percent of one-year olds and nearly 60 percent of four-year olds never spend time reading or looking at books, while less than ten percent of children in those age groups are exposed to books almost daily. On the positive side, we see that around 40 percent of children in both age groups are playing music, singing or dancing nearly daily—which covers many areas of child development—and less than 20 percent of children never do these activities.

a service is just knowing where it is (if one exists). We find that information remains a challenge for caregivers – only 66 percent know the nearest location of an early childhood service (such as daycare, playgroup), whereas nearly all caregivers know the location



^{iv} Riskesdas 2007. <http://www.litbang.depkes.go.id/riskesdas/download.htm>
^v To measure this, we utilize the Strengths and Difficulties Questionnaire (SDQ) and the Early Development Instrument (EDI). With both of these instruments being used internationally, the results can be compared across countries.
^{vi} There are three progressively more challenging stages to the game: sorting by color, sorting by shape, and sorting by color when the card has a border, sorting by shape when it does not. The game is generally played by children up to age 7.
^{vii} In most countries, the EDI is administered by teachers, but in this study the EDI was administered by interviewers with the primary caregiver being the respondent. The EDI is validated for children from age 3 to 6.

Table 2: Percent of Children Exposed to Type of ECED Service

	One-year olds (%)	Four-year olds (%)
Daycare (TPA)	<1	<1
ECE (KB/TPK)	2	11
Kindergarten (TK/RA)	N/A	13
Other early childhood education service*	6	26
Children who have never had exposure**	92	56
Total	100	100

* includes any early childhood service that is private, unrelated to the project, or does not fit in another category.

** does not include posyandu since nearly all children are exposed to posyandu. Letters in parenthesis are Indonesian abbreviations.

of the integrated health post (posyandu) or the public health clinic. This is not surprising, as shown in Table 2, given nearly all one-year olds and over half of four-year olds have never had exposure to early childhood services.

Children may have not had exposure to ECED services because the service does not yet exist. There is significant variation in the provision of services across districts. For example, in the most remote district, Ketapang (Kalimantan), there are almost no early childhood education services per 1000 people, while in Sarolangun (Sumatra) there are around three early childhood education centers per village per 1000 people.

Key Findings and Recommendations: What Can Policymakers in Indonesia Do to Support Improved Child Development Outcomes?

This study finds that Indonesia is not living up to its full potential of preparing students for success and proper adjustment in school and beyond. Of course, Indonesia is not alone—it is estimated that poverty is suppressing the cognitive potential of around 200 million children throughout the world (Grantham-McGregor 2007), but ECED projects like the one supported by MoNE have a chance to reverse or mitigate the effects of such suppression.

In focusing on Indonesia's potential, Table 3 presents opportunities for the ECED project as it progresses in implementation. These pre-project findings show that MoNE can strengthen services by focusing on areas of vulnerability, such as language and cognitive development. It is also notable that early childhood development services seem to be very limited and/or little utilized, so this presents an opportunity for the project to reach thousands of children who haven't been exposed before.

Table 3: ECED Baseline Key Findings and Recommendations

Findings	Recommendations
Chronic nutrition problems need to be addressed if children are to flourish.	Project could better coordinate with posyandu by asking posyandu staff to educate teachers and parents at centers, and center staff could refer parents to posyandu.
Children's social and communication skills are strong.	Current level of project attention in this area is sufficient.
Children's language and cognitive vulnerability presents opportunity for project to better prepare children for primary school.	Direct resources to books, storytelling and cognitive stimulation at centers, and teaching parents to do this at home. Consider offering books for home borrowing as part of ECED center, and/or work with community libraries to promote reading to children and lending books. Consider educating posyandu staff about vulnerability and ways to address it since exposure is near universal at posyandu.
Parents could be exposed to more ways of stimulating child development.	Project's greatest potential for affecting child development is engaging parents. Support parental caregiving education to promote attachment and early stimulation by role modeling and engagement in playgroups.
Nearly all of one-year olds and over half of four-year olds have never been exposed to an early childhood service.	Programs can have the greatest impact at younger ages. Significant scope to increase participation, especially for younger children (ages 0-3). Add more focused services, linking with posyandu, a model for early childhood service delivery.

Sources

Brooks-Gunn, J., Cunha, F., Duncan, G., Heckman, J.J., & Sojourner, A. (2006). "A Reanalysis of the IHDP Program". *Unpublished manuscript, Infant Health and Development Program*, Northwestern University.

Grantham-McGregor, S., Cheung, Y., Cueto, S., Glewwe, P., Richter, L., & Strupp, L. (2007). *Developmental Potential in the First 5 Years for Children in Developing Countries*. Lancet, 369, 60–70.

Heckman, J.J. (2008). *Schools, Skills and Synapses. Economic Inquiry*, 46(3): 289–324. http://jenni.uchicago.edu/papers/Heckman_2008_EI_v46_n3.pdf

Le, V.N., Barney, H., Gershwin, D., Kirby, S.N., & Setodji, C.M. (2006). *School Readiness, Full-Day Kindergarten, and Student Achievement: An Empirical Investigation*. Santa Monica, California: RAND Corporation. http://www.rand.org/pubs/monographs/2006/RAND_MG558.pdf

Lloyd, J., & Hertzman, C. (2009). *From Kindergarten Readiness to Fourth-Grade Assessment: Longitudinal analysis with Linked Population Data*. Social Science & Medicine; 68:111–123.

McCain, M.N., Mustard, J.F., & Shanker, S. (2007). *Early years study 2: Putting science into action*. Toronto, ON: Council for Early Child Development.

Murnane, R.J. (1981). *New Evidence on the Relationship between Mother's Education and Children's Cognitive Skills. Economics of Education Review*. Volume1, Issue2, Spring, Pages 245–252.

Nores, M., & Barnett, W.S. (2009). *Benefits of early childhood interventions across the world: (Under) Investing in the very young*. Economics of Education Review. doi:10.1016/j.econedurev.2009.09.001.

Shonkoff J.P., & Phillips D.A. (2000). *From neurons to neighborhoods: The science of early childhood development*. Committee on Integrating the Science of Early Childhood Development, eds. Washington, DC: National Academy Press.

UNICEF. (2009, 11 13). *Infant and Young Child Feeding. Nutrition, [online]*. Retrieved from http://www.unicef.org/nutrition/index_breastfeeding.html

World Bank. (2006). *Early Childhood Education and Development in Indonesia: an Investment for a Better Life*. Working Paper Series No. 2006-2. <http://siteresources.worldbank.org/INTINDONESIA/Resources/Publication/280016-1152870963030/ReportECED.pdf>

World Health Organization. (2010). *Exclusive Breastfeeding. Nutrition Health Topics, [online]*. Retrieved from http://www.who.int/nutrition/topics/exclusive_breastfeeding/en/

Wylie, C., Ferral, H., Hodgen, E., Thompson, J. (2006). *Competencies at age 14 and competency development for the Competent Learners study sample*. Wellington, NZ: New Zealand Council for Educational Research.

ABOUT DESP

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