

# The hardest puzzle of all

Suman Bhattacharjea<sup>1</sup>

As ASER teams travelled around the country during the roll out of ASER 'Early Years', every now and then we would ask children to tell us which of the ASER tasks they had liked the most. Of the total of 24 items, most children mentioned one of the 5 tasks in the domain of cognitive concepts and skills - those related to, for example, the ability to categorize, remember, and reason. In other words, these questions weren't about subject-specific knowledge (like math sums), but rather they addressed more basic skills that our brains need in order to store and process information in different ways.

Of course the kids weren't thinking about strengthening their brains, they were identifying tasks that they had enjoyed doing. Of these five tasks, three were given to all children in our target age group of 4 to 8. The seriation task required children to lay out a set of four picture cards from smallest to largest, based on the size of the image on each card. In the pattern recognition task, the volunteer showed the child a two-item pattern and demonstrated how to figure out which item came next. She then showed the child a three-item pattern and asked her to point to the item that should come next in the sequence. In the puzzle task, the volunteer showed children how to put a 4-piece puzzle of a horse together by looking at the picture of the horse in front of them, and then asked them to do a similar puzzle on their own, this time with a picture of an elephant.<sup>2</sup>



Of course, no one who has interacted with young children will be at all surprised by the fact that the tasks they enjoyed the most were hands-on activities involving colours and pictures. What we did not anticipate was the response of family members who were present during the process. Over and over again, older siblings, mothers and even grandmothers looked on fascinated (there were usually more adult women around than adult men) - you could see they wanted to have a go at the tasks themselves. Because ASER is a household survey, curiosity about what we are up to is a key part of the process, and stimulating that interest is one of the reasons the process is designed the way it is. But the 'Early Years' tasks that we used this year generated a level of interest that was unprecedented even by the standards of the 13 previous occasions that ASER has been in the field. So much so that once the process had been completed with the children in our target age group of 4-8 in a sampled household, we would often invite the onlookers to try doing the tasks themselves. And once *didior amma* or *bua* had experienced the fun of figuring out how to make pieces of elephant come together as a real, complete picture of an



<sup>1</sup>Director of Research, ASER Centre

<sup>2</sup>Older children age 6-8 were given a 6-piece puzzle.

elephant, it was a natural next step to discuss how it was easy to create more such activities by cutting up pictures from an old calendar or magazine.

The Early Learning Development Standards (ELDS), developed by the Centre for Early Childhood Education and Development (CECED) at Ambedkar University Delhi with the participation of UNICEF and a range of government and non-governmental institutions, suggest that all three of these tasks should be well within the capability of a 5-year-old child to handle.<sup>3</sup> The specification of learning outcomes developed by NCERT for children in pre-primary grades also includes these kinds of tasks.<sup>4</sup> But in the ASER 'Early Years' sample only about half of the 5-year-olds could do them: 50.6% could do the seriation task, 47.3% could identify and extend the pattern, and 52.4% could put together the elephant picture from its four component pieces. Only about 2 in every 10 of these 5-year-olds were able to do all 3 cognitive tasks.

One reason this matters is that ASER 'Early Years' data underlines what child development experts have been saying for years: cognitive skills matter. The extensive literature on school readiness shows that children's cognitive development is closely linked to their outcomes in many other areas. ASER 'Early Years' data shows a very clear relationship between children's cognitive skills on the one hand, and their early language and numeracy abilities on the other. This relationship is visible in every subpopulation of the sample: it is true for children age 5 as well as those age 8, among children in pre-primary grades as well as those in Std III of primary school. Even more important is the fact that this relationship is strongest when it comes to tasks requiring conceptual understanding rather than mechanical task completion, as Wilima Wadhwa's article in this report discusses.

ASER is not a longitudinal study that follows the same children over time, so it is not possible to say with certainty whether the advantages generated by stronger cognitive development persist as children progress through school. But these findings point in the same direction as those of India's first large scale longitudinal study of young children - the India Early Childhood Education Impact study (IECEI), conducted by ASER Centre and CECED between 2011 and 2016, which tracked a cohort of 14,000 children from age 4 to 8 - exactly the same age range as was covered by ASER 2019. The IECEI study found, for example, that children who were able to do tasks such as sequential thinking at age 5 had better early language and numeracy outcomes than their peers who could not do these tasks and moreover, that this advantage persisted even three years later.<sup>5</sup>

How best to ensure that children acquire this toolkit of cognitive concepts and skills first, before they are required to plunge head-first into the primary school curriculum? Both ASER and IECEI data show that to some extent, no intervention is required - children develop these skills naturally as they grow older. So one part of the solution may be to simply ensure that children do not enter school too early. Most states in India permit entry to grade 1 at age 5, and data from ASER 2018 shows that more than a quarter of 5-year-old children in rural India were already enrolled in school.<sup>6</sup> Assuming that the 2018 cohort of 5-year-olds had similar levels of skill and ability as those in the ASER 'Early Years' sample, most children would not have developed the cognitive concepts and skills that are necessary building blocks for learning. The age-grade distribution in different types of schools shows that most of these underage (relative to RTE norms) children are in government, rather than private schools - their peers whose families are able to afford private schooling are usually enrolled in pre-primary classes (LKG or UKG) rather than in grade 1. Many children going to government schools also have limited access to learning support at home relative to their private school going peers, since the rapid expansion of private schooling options has meant that increasingly, only children from the most disadvantaged households - which are also those with the least exposure to and familiarity with schools and schooling - attend government schools. 5-year-olds in grade 1 thus often face a double disadvantage, both of age and of limited home support, at the stage when they are just beginning their journey through the formal school system. And as ASER reports have been repeating for the last fifteen years, lack of flexibility in the school system means that once children fall behind it is very difficult for them to find a way to catch up.

The other part of the solution is, of course, to ensure that children access high quality and developmentally appropriate pre-primary education that provides them with the foundational skills and abilities they need before they enter school. International recognition of the importance of ECE, as reflected in SDG 4.2, targets exactly this objective - that quality ECE interventions should

<sup>3</sup>CECED and UNICEF (2018). Early Learning and Development Standards (ELDS). Centre for Early Childhood Education and Development and UNICEF India.

<sup>4</sup>National Council of Educational Research and Training (2018). Preschool Curriculum. Delhi: National Council of Educational Research and Training.

<sup>5</sup>Kaul, V., Bhattacharjee, S., Chaudhary, A. B., Ramanujan, P., Banerji, M., & Nanda, M. (2017). The India Early Childhood Education Impact Study. New Delhi: UNICEF.

<sup>6</sup>ASER 2018 figures are cited here because unlike ASER 'Early Years' which covered one purposively selected district per state, the 'basic' ASER conducted in 2018 covered almost all rural districts, reaching more than half a million children in all.

support young children with the appropriate environments and inputs that will enable them to develop these foundational skills, thus providing children with a more level playing field in terms of their ability to cope with the formal school curriculum.

This objective is now very much on the government's agenda, as evidenced by a range of new policies and programs over the past few years. The most recent reflection of this focus on the early years can be seen in the draft National Education Policy (2019) which envisages a "flexible, multifaceted, multilevel, play-based, activity-based, and discovery-based learning about, e.g., alphabets, languages, numbers, counting, colours, shapes, indoor and outdoor play, puzzles and logical thinking, problem solving, drawing/painting and other visual art, craft, drama and puppetry, music and movement."<sup>7</sup> Of course, the devil is in the details, and states are grappling with how best to design mechanisms that work for their particular context and needs. But while the various government systems sort out who will do what, how they will be trained for these new roles, and how they will coordinate with each other to ensure that the envisaged continuum of early learning moves from policy pronouncement to ground reality, it is important not to forget that at this young age children still spend most of their time at home. 'School readiness' ideally means that families and schools should work together to ensure that children have a smooth transition from one environment to the other. An uneducated mother may not be able to offer the expert scaffolding that a well-trained ECE teacher can provide to help young children grow and learn, but she can still do a great deal.

A necessary first step, though, is to find effective ways of spreading the message that for young children especially, learning should not be about textbooks and memorizing the 'right answer'. For the many adults in a child's life, both at home and in pre-school or school, perhaps the most challenging puzzle of all is to be able to see the big picture in terms of how young children learn. Once the overall picture is clear, the 'studying' and 'having fun' pieces can be put together, arranged and rearranged in many different ways.



<sup>7</sup>MHRD. Draft National Education Policy 2019.