

POLICY BRIEF

National Early Grade Literacy and Numeracy Survey— Jordan: 2014/2015 Remedial Pilot Research Activity

EdData II

I Introduction and Approach

During the 2014/2015 Jordanian school year, the Ministry of Education, in partnership with the United States Agency for International Development (USAID), created, implemented, and researched a pilot remedial research activity for early grade reading and mathematics.

The remedial pilot research program was designed to assist teachers in improving the performance of those children who had fallen behind the general performance level of the rest of the class. The program was focused on Arabic reading and mathematics in grades 1, 2, and 3. The rationale of the program is that children who are not performing at the general level of the class can benefit from additional instructional support that is aimed at their individual level of learning.

The remedial program developed several resources for teachers, which were piloted as part of the remedial activity. First, teachers administered a coarse-grain diagnostic tool that served to identify the children in each class whose performance was below the general performance level of the class, both for Arabic reading and mathematics. After children with lower performance levels were identified, the teacher used a fine-grain diagnostic tool to determine the grade level equivalent performance of each child at one of seven different levels: kindergarten (KG), grade 1 semester 1 (1.1), grade 1 semester 2 (1.2), and so on, up to grade 3 semester 2 (3.2). Finally, based on the results of the fine-grain diagnostic, teachers provided remedial support to the lowest performing students twice a week using 15-minute mini-lessons specifically aimed at their learning level.

An additional objective of the resources developed for the remedial pilot was to help schools determine the grade level equivalent

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performance of Syrian refugee (and other) children who are without reliable school records when they try to enroll at a school.

The remedial program was piloted in 41 treatment schools, by 308 teachers, during the entire 2014/2015 school year. To research the program's impact on student performance level, the diagnostic tools developed for the program were also administered in 16 control schools, in grades 1, 2, and 3, both at the start and the end of the 2014/2015 school year.

II Findings

To assess the impact of the remedial support program, the researchers considered two main variables:

1. The performance of children in schools where the program was implemented (treatment schools) in comparison to the performance of children where the program was not implemented and children did not receive remedial support (control schools).
2. The performance levels of children at the beginning of the school year (baseline) in comparison with the performance levels of children at the end of the school year (endline).

Impact was determined by comparing the change in performance levels, from baseline to endline, of children in treatment schools to the change in performance levels, baseline to endline, of the children in control schools.

The researchers were interested in answering three specific questions about the impact of the remedial support program:

1. Did the children who were identified as performing below the general performance level of the class benefit from receiving remedial support?
2. Did the range of performance levels between the highest and lowest performing students in a class decrease because the poorer performing children received remedial support?
3. What were the factors associated with greater and lesser impact of remedial support?

Findings for each question are presented below.

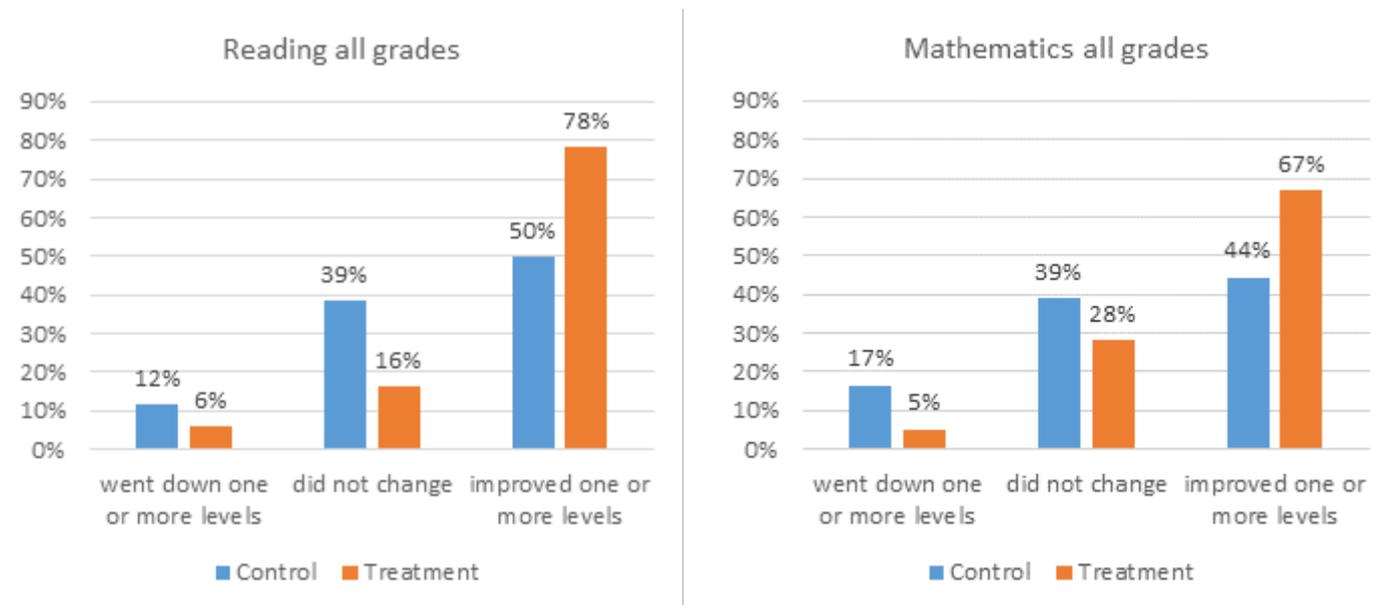
I. Did the children, who were identified as performing below the general performance level of the class, benefit from receiving remedial support?

The data clearly indicates that children identified as performing below the general performance level of the class benefited from receiving remedial support. More remedial children in treatment schools than in control schools improved their performance by the end of the school year. For reading, it was 30% more children, and for mathematics, 25% more children.

Reading. For grade 1, an additional 35% of remedial children in treatment schools showed a positive change in performance by the end of the school year than in control schools. Similarly, in grade 2, 26% more children improved their performance level in treatment schools, and in grade 3, 23% more children.

Mathematics. For mathematics, an additional 28% of the grade 2 children and 44% of the grade 3 children improved their performance level by one or more levels than would have been expected if they had not received remedial support. In grade 1, only 5% more children improved their performance level in the treatment schools than in the control schools. It is likely that this result is from the inability of the fine-grain tool to effectively discriminate between performance levels at the lower end of the performance spectrum.

Change in performance levels from baseline to endline for remedial children



2. Did the range of performance levels between the highest and lowest performing students in a class decrease because the poorer performing children received remedial support?

The findings clearly indicate that the remedial pilot research activity benefited all children in treatment schools. Specifically, it was found that:

- **On average, all children in treatment schools showed greater improvements in performance in comparison to children in control schools.** In reading, their scores increased by 27% vs. 19% in grade 1; 15% vs. 2% in grade 2; and 10% vs 0% in grade 3. In mathematics, their scores increased 20% vs. 7% in grade 2, and 13% vs 1% in grade 3.
- **The improvement in the performance of non-remedial students was significantly greater in treatment schools than in control schools.** In reading, their scores increased by 24% vs. 16% in grade 1; 13% vs. 0% in grade 2; and 9% vs -2% in grade 3. In mathematics, their scores increased by 19% vs. 5% in grade 2 and 10% vs -1% in grade 3.
- **The variation between the performance levels of the highest and lowest performing students was reduced in a larger degree in treatment schools.** Therefore, classes in treatment schools became more homogenous. In reading, the variation was significantly reduced in 65% of treatment schools, but only in 29% of control schools. In mathematics, the variation was significantly reduced in grades 1 and 3 in treatment schools, but increased in grade 2.

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3. What were the factors associated with greater and lesser impact of remedial support?

The factors examined were school type, gender, and nationality:

School type. This factor included (1) ordinary public schools with few or no Syrian refugee children; (2) ordinary public schools with a significant number of Syrian children in the mainstream; (3) double-shift (morning shift) schools with no Syrian refugee children, but reduced teaching hours due to the double shifting; and (4) double shift (afternoon shift) schools for Syrian children, but with reduced teaching hours due to the double shifting:

- Results were not definitive enough to determine whether there were significant differences in the performance between schools types. Results also were not distinct enough to state whether the presence of Syrian refugee children made an impact or not on the performance of children in the different schools.

Gender. This factor looked at results for female students vs. male students:

- Male students benefited as much as female students from remedial support.

Nationality. This factor looked at results for non-Syrian vs. Syrian children:

- The evidence did not suggest that remedial support impacted non-Syrian children differently than Syrian children.

III Lessons learned

Diagnostic tools. With the exception of the fine-grain mathematics tool that needs to be refined to be able to better differentiate between children performing at the KG and at the I.I levels, all developed tools were effective in terms of their purpose. There is no indication that teachers found them too difficult to use.

Remedial activities. The research suggests that it is possible to develop materials that teachers can use to provide effective remedial support to children. More generally, teachers who are exposed to more research-based pedagogies for reading and mathematics are associated with children who perform better.

Implementing differentiated support in class. Teachers conducted the mini-lessons during regular classroom time. Therefore, the main difficulty teachers encountered was keeping the other children in the class productively engaged. The lesson from the pilot is that teachers need support for learning how to work with a subset of the class, while making sure the rest of the students are productively engaged with work they can complete independently.

Gender. Given that teachers were guided to interact with students in a very specific way under the remedial pilot, and that male students seemed to respond well to this type of support, it is hypothesized that male students need more supervision and structuring than females to perform well. A follow-up study on this lesson, in particular, is currently underway.

Use of project coaches. The teacher coaches for this activity were not Ministry of Education staff. The benefit of using external project coaches is evident in that more than 90% of the teachers in the remedial pilot research activity were visited as often as was required.