Quality Education with Salvadoran Teachers

Policy Brief: April 2025

Introduction

Education is a human right and a key component for employment, income, health, and poverty reduction, and has been declared a Sustainable Development Goal by the United Nations. Although there have already been considerable improvements in school attendance across many low- and middle-income countries, school learning has stagnated at a low level. This is why the World Bank declared a "global learning crisis" in its World Development Report 2018.

Available evidence suggests that the learning crisis in developing countries is, to a large degree, a direct consequence of a teaching crisis: teacher assessments highlight that teachers do not master a large part of the curriculum, and that pedagogical practices tend to be poor. To mitigate the learning crisis, Consciente seeks to address the teaching crisis in El Salvador through the project "Quality Education with Salvadoran Teachers" (QUEST).

With the aid of the University of Bern and the University of Teacher Education Fribourg, we designed three teacher training programs focusing on either

1. Primary math content knowledge
2. General pedagogical practices
3. A combination of 1. and 2.

Following our evidence-based approach, we partnered with the University of Bern to evaluate the impact of each of these programs. This policy brief describes the study and summarizes the main results and lessons learned.

Figure 1: *Departments in the study sample (blue)*

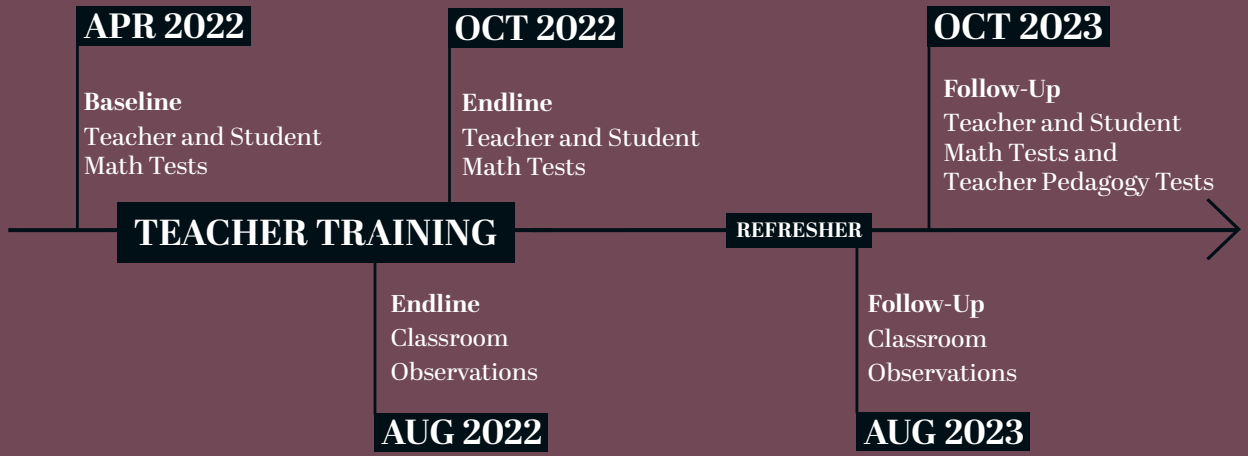

Figure 2: *Timeline of the study*

Baseline math knowledge

A first part of the study was to investigate the math knowledge of the sampled teachers and their students before the treatment.

Teachers of 4th and 5th grade were given a test consisting of 40 2nd-6th grade questions, assessing the areas numeric sense and arithmetic, geometry, and data, statistics and probability (see figure 4). On average, teachers answered 61 percent of the questions correctly. This ranged from over 90%, e.g. in the subtraction of two-digit numbers, to under 20% in a task on inverse probability. This suggests that teachers have substantial knowledge gaps regarding the materials they teach.

A similar evaluation was conducted with their students from grade 4 and 5. 4th grade students were tested on material from grades 1 to 3 while 5th grade students were tested on material from grades 1 to 4 reflecting the content they are expected to know.

With an average of 29% of correctly answered questions, students performed poorly. While 1st-grade tasks were answered correctly by more than half the students, some 2nd-grade tasks like reading the time, the subtraction of two-digit numbers or a simple multiplication text task were answered correctly only by about one in six students (see figure 3).

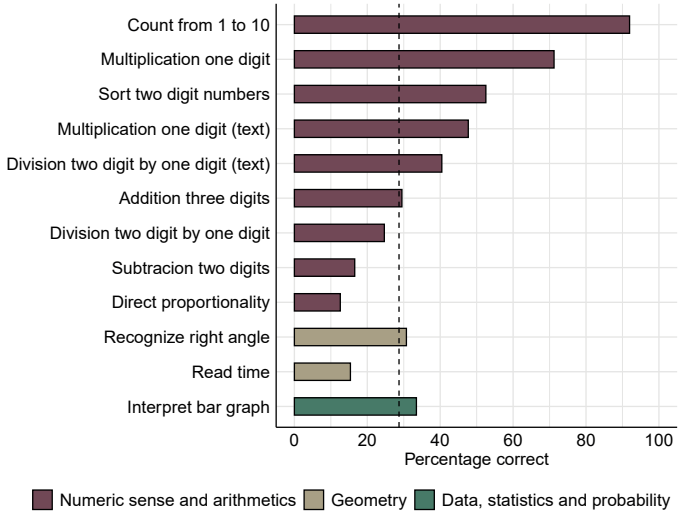

Figure 3: *Content knowledge of students in El Salvador*

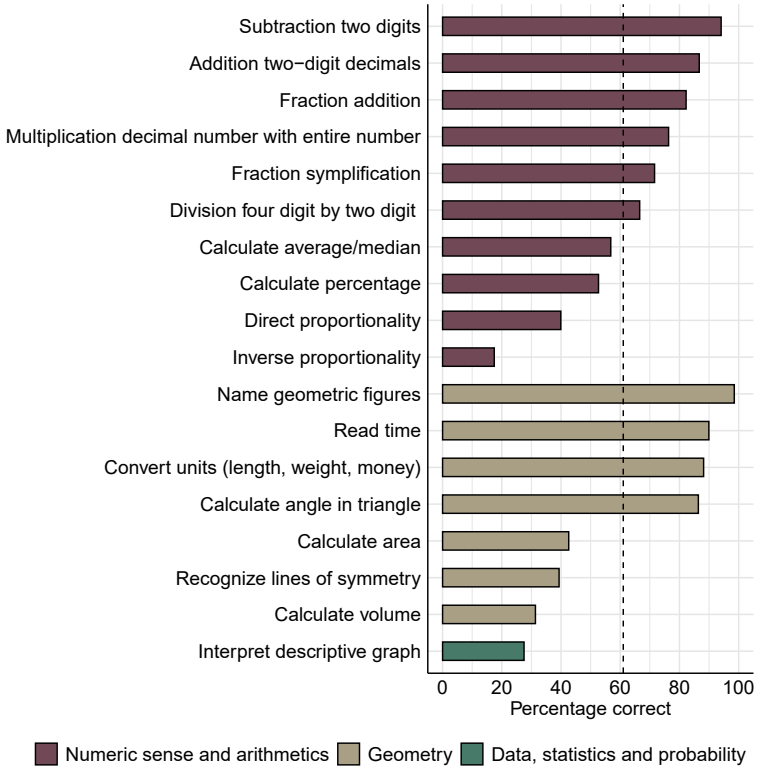

Figure 4: *Content knowledge of teachers in El Salvador*

Quality Education for Salvadoran Teachers

To mitigate pupil's poor and ineffective learning gains in school, teacher trainings were carried out and evaluated as the second and main part of the study.

Our team of economists, sociologists, and educational scientists designed a randomized controlled trial (RCT) that was rolled out across 338 primary schools in La Unión, Morazán, San Miguel, and Usulután. It consisted of three teacher training programs focusing on either (T1) content knowledge, (T2) teaching skills (didactics), or (T3) a combination of both inputs.

Voluntarily participating teachers were randomly assigned to one of the three treatment groups or a control group. Between mid-May 2022 and early October 2022, 254 primary school math teachers were invited to participate in one of these training programs that shared a common basic framework combining seven face-to-face meetings, coaching elements, and six self-study modules.

338 teachers participated

3 treatment groups

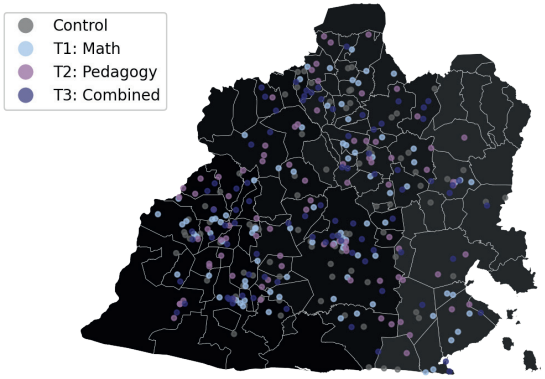

Figure 5: *Schools in the sample*


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Effects on teachers

Immediately after the intervention and one year later, content knowledge tests were carried out again with both pupils and teachers. Comparing results between treatment groups and the control group enabled us to draw conclusions about the effectiveness of the three interventions.

The math knowledge training (T1) had a positive effect on the outcome of the endline test (see figure 6). This correlation is statistically significant, meaning that we can be confident that the difference is caused by the treatment and not by chance. In the follow-up exam one year later, this effect even got bigger, suggesting that teachers were able to consolidate their math knowledge. For the pedagogy treatment (T2) there were, as anticipated, no significant findings in neither the endline nor the follow-up of the content knowledge exam. The effect of the combined treatment (T3) is consistent with the pattern we observe in the math treatment, but with smaller effect sizes. The effect only becomes significant in the follow-up exam, likely because this group did not receive the full math training.

To assess teachers' pedagogical knowledge, they were asked to design a lesson on the topic of adding and subtracting fractions for a class that has a wide age and ability range. The results show that the teachers who received one of the three treatments all developed better lesson plans than the control teachers (see figure 7). Even teachers who received only math training scored higher on the pedagogy test than the control group, likely because the training was presented in a didactically valuable way, which they incorporated into their teaching.

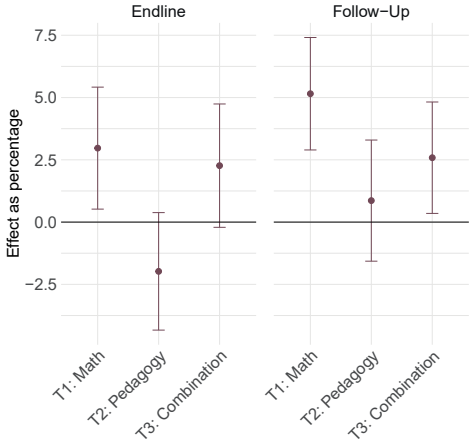


Figure 6: *Impact of the teacher trainings on teachers' math scores*

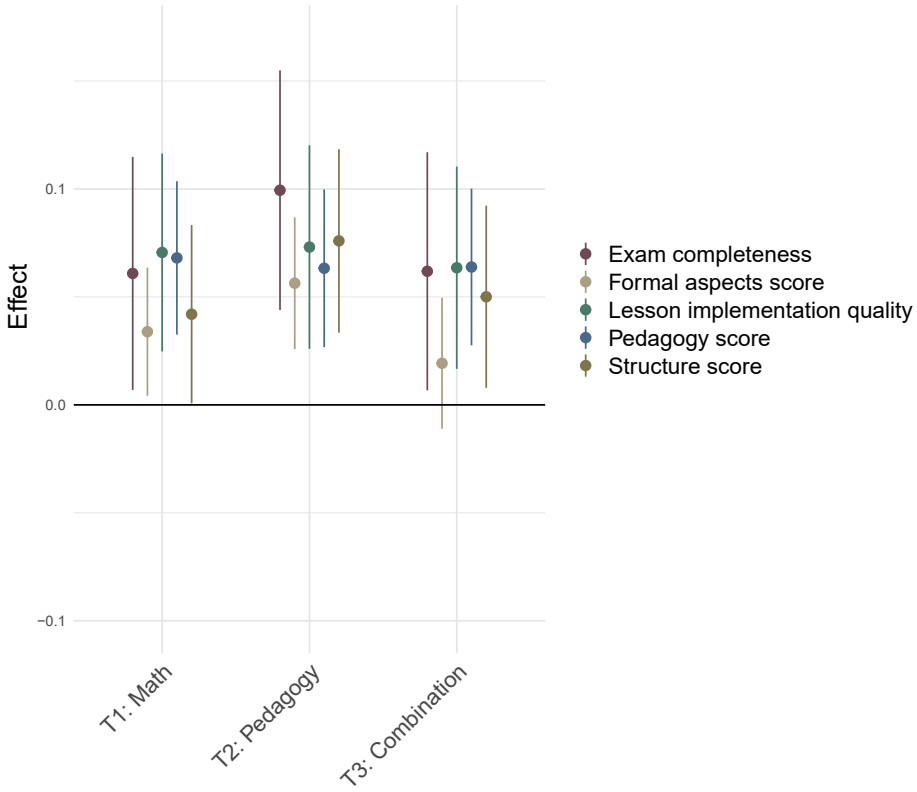


Figure 7: *Impact of the teacher trainings on pedagogy*

Effects on students

Among the pupils, only the 4th graders whose teacher attended the math treatment (T1) showed a significant effect: They performed better compared to their peers from control classes. However, this effect disappears in the follow-up. This suggests that none of the three interventions had a sustainable impact on student learning.

We also investigated whether students benefited differently from the treatments depending on how well they performed in the baseline: Average and high performing students from teachers from the math treatment group (T1) developed better than comparable control students in the endline exam. High-performing students who got educated by teachers from the pedagogy treatment group (T2) also developed better in the endline. But all these effects disappear in the follow-up exam. In summary, learning deficits in grades 4 and 5 may already be so pronounced that even with improved content and / or pedagogical skills reversing these deficiencies proved challenging.

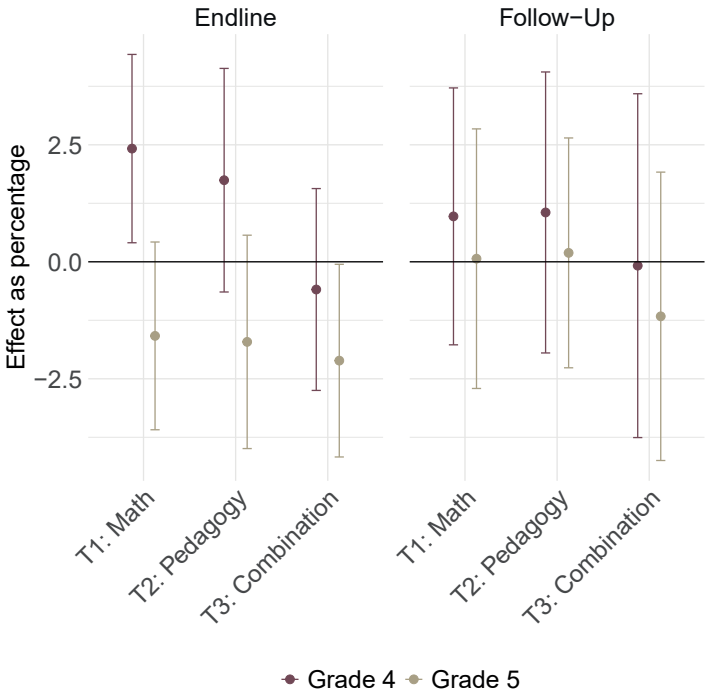


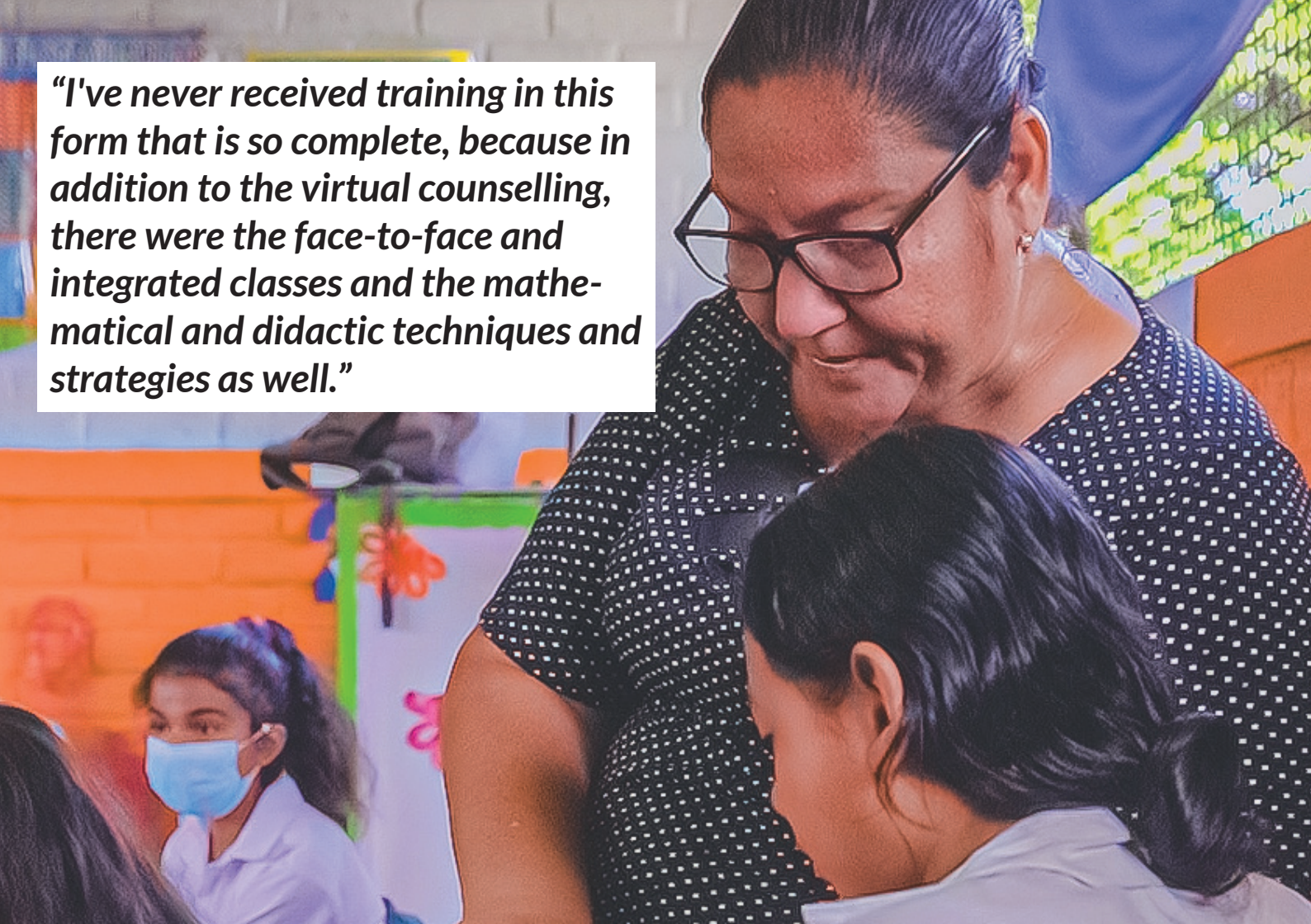
Figure 8: *Impact of the teacher trainings on students' math scores*

Additional: classroom observations and interviews

In addition to the content tests and the pedagogical assessment, classroom observations and interviews with teachers were carried out.

To assess if teachers changed their behaviour in the classroom, we conducted classroom observations during and one year after the intervention: In unannounced visits, enumerators collected data on teachers' teaching practices. The observations show short-term improvements for example in the use of pedagogically good material (ICT, didactical and shared material) for the purely pedagogical and the mixed treatment group (T2 & T3), but in the long run, these differences disappear. We see a similar picture with the pedagogical instruments teachers use in their classes: In comparison with the untreated teachers, teachers from the pedagogy (T2) and the combined treatment (T3) more often did homework reviews, gave homework, or provided a lesson outline and a summary during the time they received the treatment.

But one year later, the classes from treated and untreated teachers no longer differed. Overall, it was evident that teachers across all experimental groups relied heavily on the scripted lessons provided in the official math textbook, rather than adapting or expanding the material to enhance student understanding. Also, it may have been difficult for teachers who benefited from pedagogical inputs to implement the learned didactical tools, since only one teacher per school participated in the program and thus a supportive environment was lacking.



“I've never received training in this form that is so complete, because in addition to the virtual counselling, there were the face-to-face and integrated classes and the mathematical and didactic techniques and strategies as well.”

Lessons learned and recommendations

The results show that while the interventions effectively and sustainably improved teachers' content and pedagogy knowledge, these gains largely failed to translate into better learning outcomes for their students. Similarly, in the classroom observations, hardly any significant differences could be observed between the treated and untreated teachers, especially in the long term.

To address the potential factors limiting the success of these programs, the following policy recommendations are suggested:

A) Align training programs with curriculum constraints:
In contexts with strict curricula, teacher training should be closely aligned with curricular requirements to ensure that new methods can be realistically integrated.

B) Focus training on lower-grade teachers or level-based instruction:
To prevent entrenched learning deficits, prioritize training for teachers in lower grades. Additionally, equip teachers to adapt their instruction to meet students at their current learning levels, ensuring a more responsive approach to existing gaps.

C) Include multiple teachers per school in training programs:
When only one teacher per school is trained, it may be challenging to apply new teaching methods. Training multiple teachers per school could create a supportive environment for implementing new practices across classrooms.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Computación
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About Consciente

Consciente is an NGO committed to making high-quality education accessible to everyone. To pursue this goal, we run three programs:

- ***The Scholarship Program*** promotes equal access to education irrespective of socio-economic background.
- ***The Education Innovation Program*** improves the quality of education in local schools. This program includes the computer assisted teacher training program.
- ***The Sustainability Education Program*** promotes the discussion of important social and environmental issues.

About the Evaluation

The impact evaluation was conducted by researchers from the Department of Economics and the Institute of Sociology at the University of Bern. It was financed with a grant by the *Swiss National Science Foundation*.

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