

Research Note

The Learnings and Outcomes of the Pilot Project
**“ Social Impact Bond
Junior Code Academy ”**

Executive Summary
April 2018

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The Junior Code Academy Social Impact Bond (SIB) was designed to test if teaching computer programming to primary school students has a positive impact on logical thinking skills and school performance.

The main objective of this pilot project was to learn. To learn about the best outcome indicators, most appropriate assessment methods, most adequate weight for each indicator. To learn about what works and what does not when teaching computer programming to young students.

The degree of scrutiny and rigor applied to the outcomes assessment of the pilot project shall be a reference for other social innovation and social entrepreneurship initiatives in Portugal.

At the end of the project, there are some positive outcomes to be shared:

- Regarding students' logical thinking skills and considering aggregated data, the treatment groups started from a lower point than the control groups and reached a higher position (overcoming the average results of the control group). In the end, the results of the treatment group were 2.2% higher.
- Regarding Portuguese language learning outcomes, which were only assessed at the end of the intervention, the aggregate mean of the treatment group was lower than the aggregate mean of the control groups (-4.56%). As for math learning performance outcomes, the aggregate mean of the treatment group was higher than the aggregated mean of the control group (4.10%).
- After disaggregating these results, it is possible to verify that in all schools, the treatment groups had higher math scores than the control groups (an improvement of 9% in São João de Deus, 14% in Aida Vieira and 17% in the Bairro do Armador).
- Portuguese grades were also higher in TEIP schools (14% in Aida Vieira and 11% in Bairro do Armador).
- When assessed through the empirical method (more robust), the two outcomes - logical thinking skills and school performance in portuguese and mathematics – are not only positive across schools and in aggregated terms, but larger than when the observable (less robust) method was applied. It is noteworthy that outcomes were not statistically significant, which can be due to the small size of the sample.
- The intervention had a greater impact among disadvantaged areas school groups, suggesting that it served as a complementary learning method for students.

Despite these positive notes, the following learning and improvement points should be taken into account:

- The intervention must adapt to the schools' contexts, catering to the different levels of performance that exist.
- The intervention has a smaller impact on Portuguese discipline performance. As this is a discipline as important as Mathematics, the intervention must adapt to include more activities relevant to the Portuguese course. It should also create the right incentives for students to improve performance in Portuguese, rather than exclude Portuguese from the impact metrics that count towards assessing the success of future programs.
- Results suggest performance improved over time, indicating that a year of intervention is short to achieve the desired impact. A future program should have a minimum duration of two years and ensure that results are measured in that time period.
- The sample size should increase in order to be provide statistical significance to the results of the empirical method - in this pilot, only 94 students were eligible for the evaluation of logical reasoning skills (50 from the treatment group and 44 from the control group). 92 students were eligible for Portuguese and mathematics assessment (50 from the treatment group and 42 from the control group).
- Pilot results suggest that the weights used - 90% observable method and 10% empirical method - should be more balanced and not so uneven.
- The evaluation method should take into account the comparison of the evolution of treatment groups and control groups over time (difference-in-differences method), in detriment of evaluating only a static moment in time (as adopted in this pilot).

At the end of the project, the Lisbon City Council reimbursed the Calouste Gulbenkian Foundation for about 25% of its initial investment, as the result metrics were partially achieved. The project was considered a success for all parties involved, for the learning generated and for the possibility of injecting scientific and rigorous evaluation bases in the evaluation of the project results. Overall, students who participated in the Junior Code Academy project showed superior scholastic performance and an improvement in their logical reasoning ability. This was, after all, the main goal of the project. The learning generated during this pilot should inform a forthcoming SIB in this thematic area, serving to improve student impact and reduce risk for investors.



This Research Note is a document produced by MAZE, reviewed by all partners. This note is not intended to replace the final project evaluation report drafted by the Nova SBE team in October 2016, circulated among the project partners, which presents thoroughly the project results and the evaluation team's considerations.