

Personal and Educational Development Index – PEDI: Case study 1

“A violin can change the world” – Zurich, Switzerland

The project “A violin can change the world” was designed and funded by the Vareille Foundation for schools in vulnerable areas, under the hypothesis that intensive study of the violin accelerates the development of skills and facilitates the learning process. This would lead to a decrease in school dropouts. Unfortunately, the evaluation of the project was affected by the isolation measures caused by the Covid 19 pandemic.

The five-year pilot project consisted of an introduction to classical music through learning the violin for vulnerable children in preschool through third grade of elementary school. 54 children who started in preschool in 2015 and completed the project were taken into consideration. The control group consisted of 39 children from the same school, randomly selected.

To measure the impact of the project on its beneficiaries, a five-year longitudinal study was conducted (first preschool through third grade). The first evaluation (baseline) was conducted before the children started the project. The evaluation of the control group was also carried out, and no significant statistical differences were observed.

During the following four years, an evaluation of the two groups was carried out. Comparison of the results of the project group and the control group made it possible to establish the changes that could be attributed to the project.

The methodology used was that of the Personal and Educational Development Index (PEDI), which comprises four major components (tangible, intangible, individual and collective) and 10 indicators, all of which are weighted.

PEDI	<i>Individual</i>	<i>Collective</i>
<i>Tangible</i>	1. Gross motor skills 2. Fine motor skills 3. Sensory development	7. Social competences 8. Family Dynamics
<i>Intangible</i>	4. Cognitive development 5. Language skills 6. Music / Rythm	9. Self-esteem/confidende 10. Interpersonal relationships

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Transversal study: comparison of the project group and the control group

En octubre de 2020, se realizó la evaluación final. El cuadro siguiente muestra los resultados de los 10 indicadores, tanto del grupo del proyecto como del grupo de control.

Vareille - Music Zürich - P3	Project Group	Control Group	Δ Project vs Control Group	Δ % Project vs Control Group	p	Cohen's d
1. Gross motor skills	61.4	46.5	14.92	24%	< .001	0.938
2. Fine motor skills	59.3	52.1	7.17	12%	< .001	0.765
3. Sensory development	69.7	58.5	11.14	16%	< .001	1.336
4. Cognitive development	69.0	43.1	25.89	38%	0.001	0.704
5. Language skills	58.8	50.2	8.65	15%	0.006	0.597
6. Music-Rhythm	65.0	50.0	15.00	23%	0.014	0.536
7. Social competences	64.3	26.7	37.67	59%	< .001	2.194
8. Family dynamics	60.0	40.0	20.00	33%	< .001	1.954
9. Self-perception and self-confidence	84.4	88.2	-3.83	-5%	0.136	-0.32
10. Interpersonal relationships	80.0	80.0	0.00	0%	0.598	0.111
PEDI Value	65.3	48.6	16.71	26%	< .001	1.962

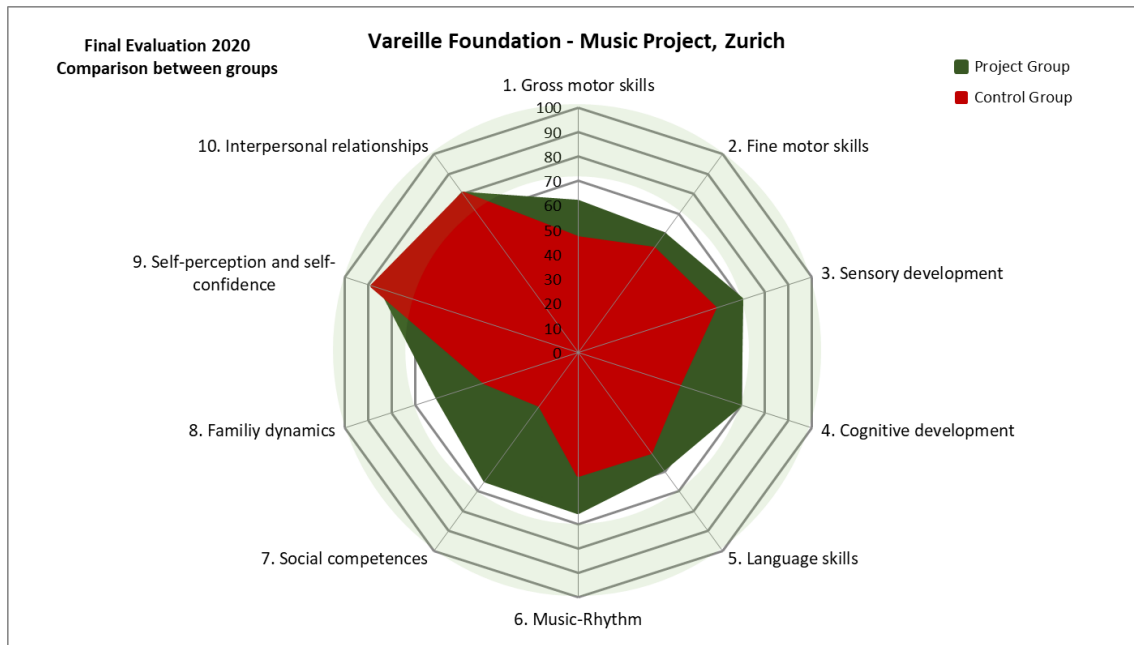
The PEDI value of the project group was 16.71 points higher than that of the control group, which shows a very large effect (1.96 standard deviations) on the beneficiaries. This significant difference between the two groups clearly illustrates that the project had a positive impact on its beneficiaries.

Eight of the indicators had significant positive changes, and two indicators had a statistically non-significant negative difference.

The following graph shows the impact on the project group for each indicator: statistically significant positive differences are shown in green, non-significant differences in gray and significant negative differences (in this case none) in red.



The following chart shows very clearly the difference between the project group and the control group:



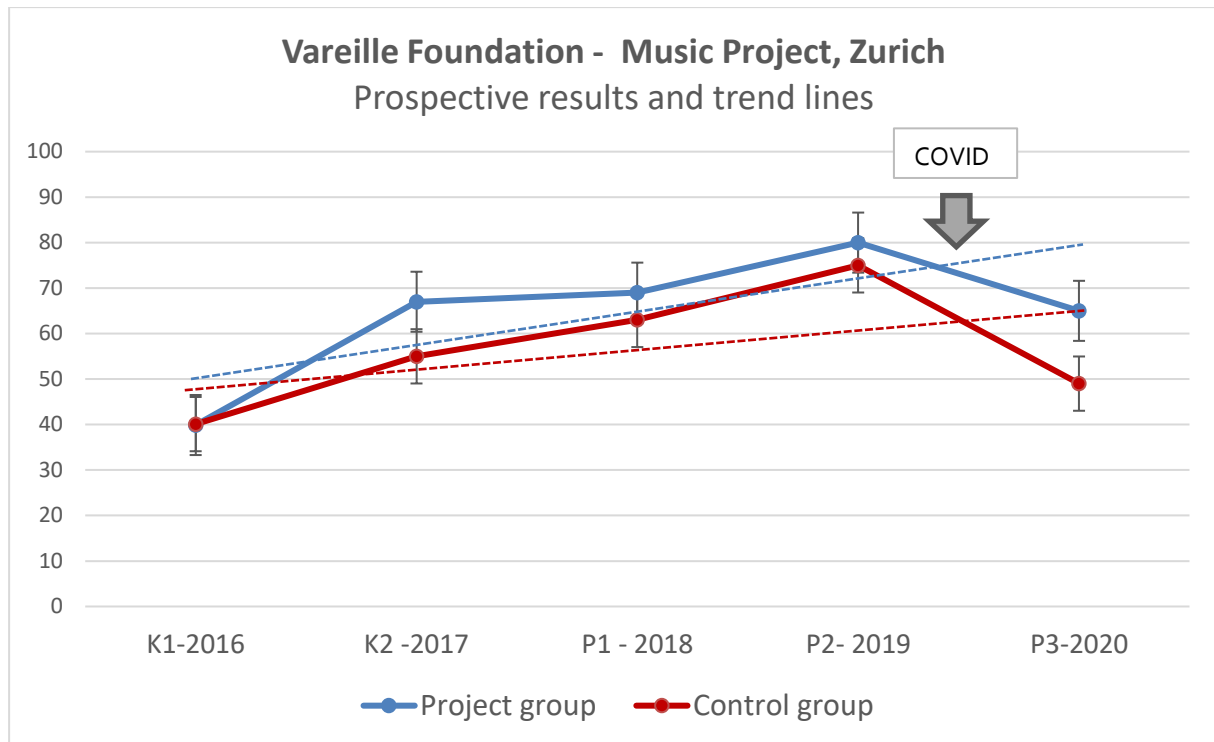
Longitudinal study: comparison of the results of successive evaluations

The longitudinal study shows that the project group had an improvement of 25 PEDI points (from 40 to 65), while the control group improved by 9 points (from 40 to 49).

Importantly, the PEDI values for both the project and control groups were significantly higher at the end of 2019. The decrease observed for the two groups in 2020 was due to the isolation measures caused by the Covid19 pandemic.

The fact that the IDEPE values of the project group decreased proportionally less than those of the control group indicates that the former, thanks to the project, had more resources to cope with the adverse conditions (personal and social) caused by the Covid19 pandemic.

The following graph shows the evolution of the indices during the project, in which the dashed lines show the trend of the different groups. It can be seen that, as the project progresses, the trend line of the project group progressively separates from that of the control group, and thus the impact of the project was increasing.



Impact evaluation results and recommendations

- 1) The project has had a very positive impact on the children and has considerably improved their living conditions. It is obvious that human beings tend to have a multisystemic response to stimuli, and this is also the case with this project.
- 2) In addition to the sense of accomplishment and personal satisfaction of being able to play the violin for four years, the children in the project group acquired more gross motor skills, fine motor coordination or dexterity, and are better able to manage the "process" of learning, showing improved cognitive and linguistic skills. In addition, the project has helped to better connect families with the educational community.
- 3) Both groups show the negative influence of the isolation measures adopted in the wake of the Covid19 pandemic. However, despite the effect of these measures, the project group was able to maintain a good level (more than 60 PEDI points) and the trend is increasingly divergent from that of the control group.
- 4) It is convenient to evaluate a larger population, so that the results are more conclusive.

Zurich, July 2022