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LEARNING DEPARTMENT,
EVALUATION

Project

Consonanze Impact Evaluation



Project Description



GOAL



Culture.

MISSION

Developing skills



Fondazione
Compagnia
di San Paolo



Fondazione
per la
Scuola

KEY PRIORITY

Develop the curricular and socio-emotional skills of primary school children through ensemble music-making, and strengthen educational alliances between schools and Third Sector organizations active in music.

DESCRIPTION OF THE INITIATIVE

Consonanze is a five-year action research project on music education, conceived by Fondazione Compagnia di San Paolo with Fondazione per la Scuola. For three consecutive school years, 19 primary school classes in Piedmont and Aosta Valley followed an inclusive orchestral training program (two hours a week), led by practitioners from music organizations alongside teachers and supported by ongoing training; 19 control classes followed traditional music training. The research assessed its impact on children, teachers, practitioners, and organizations.

DURATION

2021 - 2026 (classroom activities: school years 2022/23 - 2024/25)

TARGET AREA

Piedmont and Aosta Valley

PARTNERS

Music organizations: Dedalo (Novara), Istituto Musicale Comunale "Leone Sinigaglia" (Chivasso), SFOM - Fondazione Viglino (Aosta), Musicanto (Piosasco).

ORGANIZATION

Fondazione Compagnia di San Paolo and Fondazione per la Scuola

KEY FIGURES

15 school sites in 8
comprehensive
school institutes

10 new orchestras

658 children involved
(orchestra and control)



Evaluation Coordinates



EVALUATING BODY/BODIES AND/OR SCIENTIFIC COORDINATION

Scientific committee:

Gianni Nuti (University of Aosta Valley)
Maria Celeste Fasano (Aarhus University)
Manuela Filippa (University of Geneva)

Statistical analyses:

Maria Grazia Monaci (University of Aosta Valley)

Survey of organizations, practitioners, and teachers:

Fondazione Santagata per l'Economia della Cultura

EVALUATION PERIOD

September 2022 - November 2025

OBJECTIVE



Informed Design (Foresight)



Ongoing Improvement (Improvement)



Performance Evaluation (improvement)



Transparency (accountability)



Experimentation and innovation (learning)



Knowledge and scientific research (advocacy)

METHODOLOGY



Counterfactual impact evaluation



Randomized Controlled Trial (RCT)



SROI or other non-counterfactual estimate



Customer satisfaction



Qualitative survey of beneficiaries



Implementation analysis



Monitoring data analysis



Pre- and post-intervention monitoring

Other: (specify)

SAMPLE AND DATA COLLECTION

Longitudinal quasi-experimental design with a control group (traditional music training); standardized tests and questionnaires across five assessment waves (T0-T4). 658 children at T0: 348 orchestra, 310 control.

COGNITIVE QUESTIONS

- 1 Does the orchestra improve musical skills, reward, and motivation compared with traditional training?
- 2 Are there spillover effects on motivation to study, socio-emotional skills, attention and self-regulation, and body awareness (transfer beyond music)?
- 3 Do the effects depend on the pedagogical fidelity with which the orchestras are led?



Focus on the Sample

SAMPLE

The sample comprises 658 children (348 in the orchestra group, 310 in the control group) from 15 school sites in 8 comprehensive school institutes (Istituti Comprensivi) in Piedmont and Aosta Valley, enrolled in the second and third grades of primary school in the first year of the project.

The assignment of classes to the two groups, originally planned to be randomized, was decided in each institute together with school principals on organizational and feasibility criteria, not on the basis of pre-tested aptitude. Most school sites include classes from both conditions (treatment and control). This methodological choice made it possible to compare groups exposed to similar school contexts, limiting the effect of variables related to the school site or institute and making comparisons between the two conditions easier to interpret from the baseline onward.

Points of caution in interpreting the results:

- The number of respondents decreases over time (from about 650 at T0 to about 400 at T4, partly because of the transition to lower secondary school): comparisons by assessment wave do not always correspond to a closed panel.
- Between T1 and T2, one control class switched to orchestral training for organizational reasons; 71 children joined the project between T1 and T2 and 13 after T2.
- Some motivational differences already at T0 should be read with caution: the children knew which group they had been assigned to.

	Classes	Children (T0)
Orchestra	19	348
Control	19	310
TOTAL	38	658

FIG. 1 MAP OF MUNICIPALITIES INVOLVED IN THE PROJECT, HOSTING TREATMENT AND/OR CONTROL CLASSES.





The Evaluation Process



The effectiveness of the three-year music education intervention, based on orchestral practice, was assessed across **4** interconnected **developmental domains** through the administration of questionnaires and psychological tests.

1. Musical domain

- Music-induced pleasure: sensitivity to musical reward. (BMRQ – Mas-Herrero et al., 2013)
- Musical growth mindset: belief that musical abilities can improve through effort. (Holochwost et al., 2021)

2. Motivational domain

- Motivation for music training: intrinsic, identified, and extrinsic motivation, and amotivation. (C-PLOC – Goudas et al., 1994)
- Motivation to study: intrinsic and extrinsic motivation. (ASRQ – Alivernini, Lucidi, Manganelli, 2011)
- Overall growth mindset: belief that one's own abilities can improve through effort. (Holochwost et al., 2021)

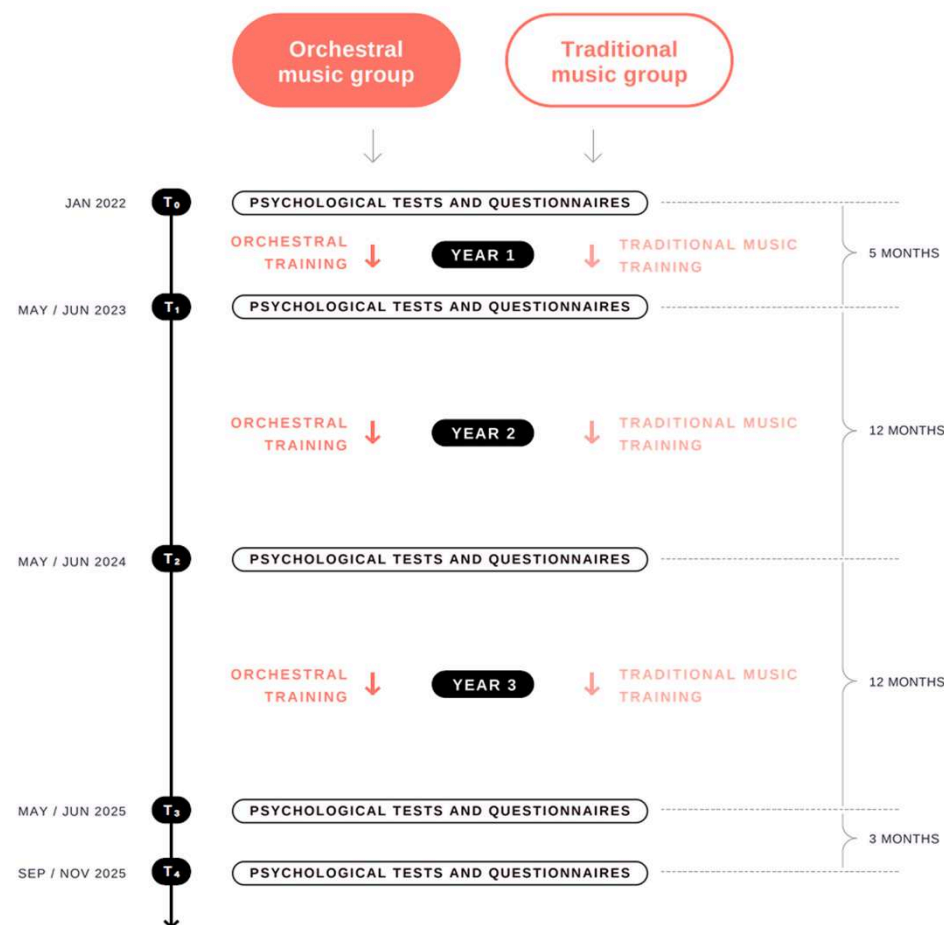
3. Socio-emotional and bodily domain

- Empathy: affective, cognitive, and prosocial dimensions. (EmQue-CA – Liang et al., 2023)
- Interoceptive awareness: perception of emotions and bodily states. (MAIA – Mehling et al., 2012)

4. Cognitive-regulatory and dispositional domain

- Attention and impulsivity (BIA – Marzocchi, Re, Cornoldi, 2010)
- Openness (BFQ-C – Barbaranelli, Caprara, Rabasca, 1998)

FIG. 2 TIMELINE OF THE STUDY'S LONGITUDINAL DESIGN





Focus: Individual Tests



Administered individually with headphones, to ensure correct perception of the sound stimuli and reduce environmental interference.



Musical perceptual abilities

MBEMA · Montreal Battery for Evaluation of Musical Abilities

≈ 20 min

- Battery widely used to assess musical skills in children
- Short version, administered in about 20 minutes
- Assesses different components of music processing
- Measures of melodic and rhythmic perception (discrimination)



Perception of vocal emotions

GEMEP · Geneva Multimodal Emotion Portrayal
(Bänziger & Scherer, 2010; children: Filippa et al., 2022)

- Non-linguistic emotional vocalizations produced by adults
- Basic emotions: joy, fear, anger, sadness, and neutral stimuli
- 30 vocalizations (mean duration ~2 s; range 1205–5236 ms)
- Rated on continuous emotion scales
- Pseudo-expressions: isolate prosody and avoid language-related effects



Key Findings of the Evaluation



IMPACT EVALUATION

1. Musical abilities: early peak

After the first year, the orchestra (treatment group) outperforms the control group in **rhythm recognition (+23%)** and **melody recognition (+20%)**; the advantage fades in later assessments but remains positive, **especially in high-fidelity orchestras(*)**.

2. Social reward: stable advantage

This is the most robust outcome: **the social reward of music (BMRQ)** is higher in the orchestra group as early as T1 (+12%) and is maintained over time (+7% at T2, T3, and T4).

3. More autonomous motivation toward music

Intrinsic motivation is higher in the orchestra group at every assessment wave (from +7% to +14%); in the control group, extrinsic motivation and amotivation are higher.

4. Transferable skills

Transferable skills (study, attention and self-regulation, empathy, emotion recognition, body) are more selective: favorable signals, but not stable across all assessment waves.

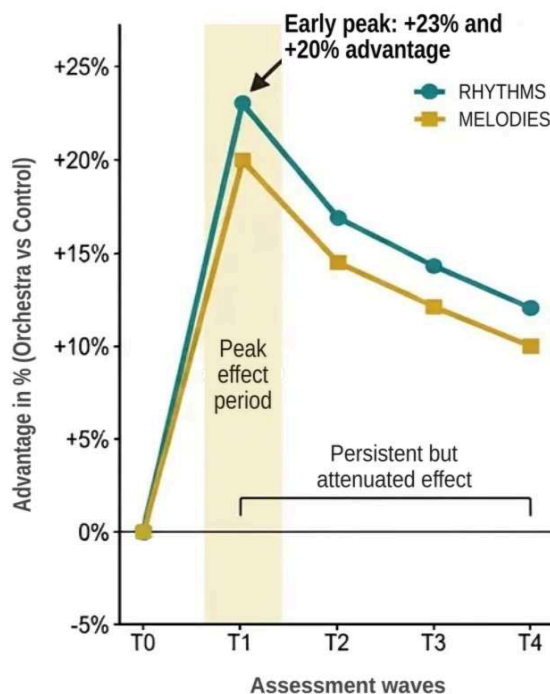
(*) By **fidelity** we mean the degree of adherence to the pedagogical approach of the Consonanze project by practitioners and teachers, as well as their level of participation and involvement in project activities. For the purposes of the analysis, the orchestras were divided into two groups, high and low fidelity, based on the quality of pedagogical implementation observed.



Key Findings of the Evaluation / Musical abilities



FIG. 3 DEVELOPMENT OF MUSICAL ABILITIES - ORCHESTRA
ADVANTAGE (%) OVER CONTROL, T1-T4



Note: Longitudinal differences between the Consonanze group and the Control group (T0–T4) in musical abilities.

MUSICAL ABILITIES

- **Rhythmic skills:** immersive entrainment, synchronization, motor-auditory coordination, and immediate feedback;
- **Melodic skills:** recognition of melodic contours, phrase memory, prediction of musical events.

After the first year, the orchestra group shows a **marked advantage** in the recognition of rhythms (+23%) and melodies (+20%). In the following years the advantage fades, but remains positive.

- Learning takes place within a collective practice, in which the child must listen to others, come in at the right moment, keep time, and adapt to the group.

PEDAGOGICAL FIDELITY AND MUSICAL ABILITIES

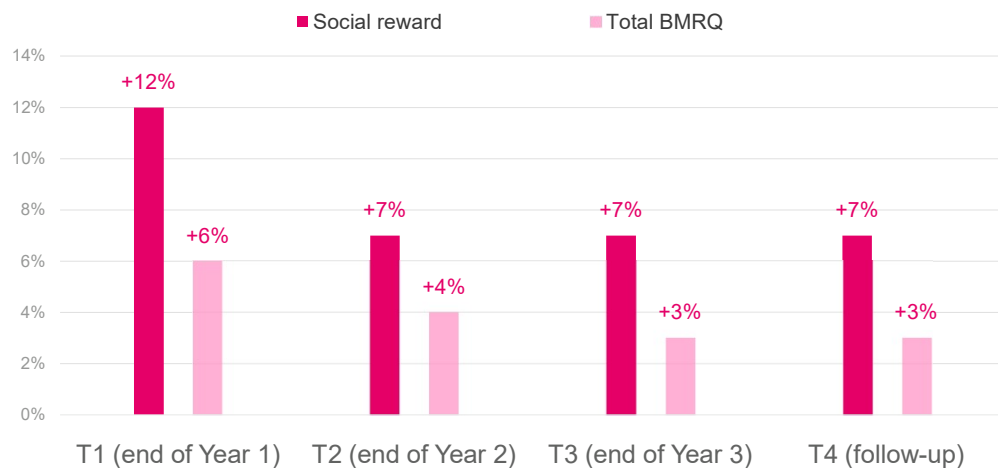
When the Orchestra group is split into high and low fidelity, the **musical effects** are **concentrated mainly in high-fidelity orchestras**.

- In Year 2, high-fidelity orchestras show an advantage over the control group on rhythms and melodies.
- The advantage on melodies is maintained in Year 3 as well, albeit only as a trend.
- In some cases (T3, melodies), the high-fidelity group even outperforms the lower-fidelity group.
- Musical improvement emerges when playing in an orchestra becomes a shared practice of listening, synchronization, and responding to the group.

Key Findings of the Evaluation / Social reward



FIG. 4 ORCHESTRA GROUP ADVANTAGE OVER THE CONTROL GROUP
Percentage difference in Barcelona Music Reward Questionnaire (BMRQ) scores, T1-T4 assessments



Note: Longitudinal differences between the Consonanze group and the Control group (T0–T4) in the social dimensions. Social reward shows a marked increase as early as T1, which remains stable in later assessments

REWARD IS RELATIONAL BEFORE IT IS PERFORMATIVE

The **Social Reward** subscale of the BMRQ measures the pleasure and sense of connection that arise from making music together.

- It is the most consistent and stable outcome of the project.

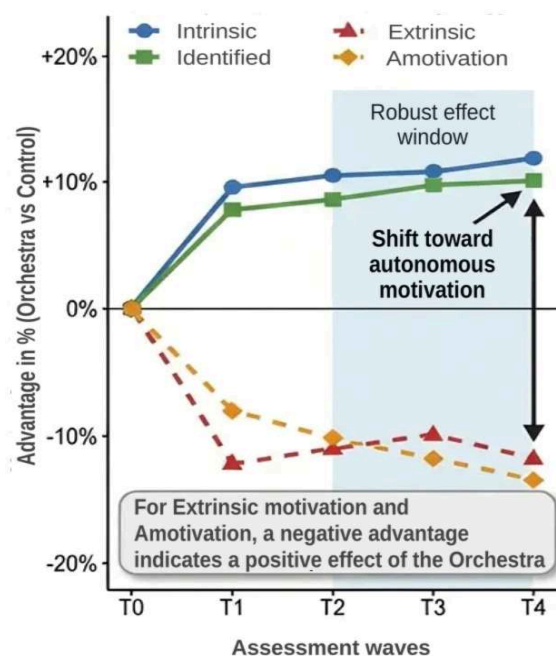
From T1 to T4, the orchestra group remains **consistently above the control group**.

- Social Reward: +12% at T1, then stable at +7%.
- Total BMRQ: from +6% to +3%, with more modest intensity but in the same direction as Social Reward.

Key Findings of the Evaluation / Motivation



FIG. 5 MOTIVATION FOR MUSIC - ORCHESTRA GROUP
ADVANTAGE (%) OVER THE CONTROL GROUP, T0-T4



QUALITY OF MOTIVATION: FROM EXTERNAL REGULATION TO INTERNALIZATION

Motivational trajectories show a steady increase in **intrinsic** motivation (from +8% at T1 to +14% at T4) and **identified** motivation (from +8% at T1 to +10% at T4) in the Consonanze group, accompanied by a decrease in **extrinsic** motivation and **amotivation**, indicating a shift toward more autonomous forms of motivation.

More **autonomous** motivation means that the activity is perceived as interesting, meaningful, or consistent with one's own sense of competence and belonging.

Consonanze seems to foster a **better quality of engagement**.

The most plausible interpretation is that the orchestral context gives children three decisive conditions:

1. an experience of progressive competence, a clear perception of evolving mastery;
2. a sense of belonging to the group;
3. a space for action perceived as meaningful.

Note: Longitudinal differences between the Consonanze group and the Control group (T0–T4) in the motivational dimensions. Positive values indicate higher scores in the Consonanze group, while negative values indicate lower scores. The zero line represents no difference between the groups, and the distance from zero indicates the size of the effect.

Key Findings of the Evaluation / Transferable skills



TRANSFERABLE SKILLS

1. Motivation to study and self-regulation

At T4, the orchestra group shows more intrinsic motivation and less extrinsic motivation toward studying; in the final assessments, the control group shows more inattention and, above all, hyperactivity.

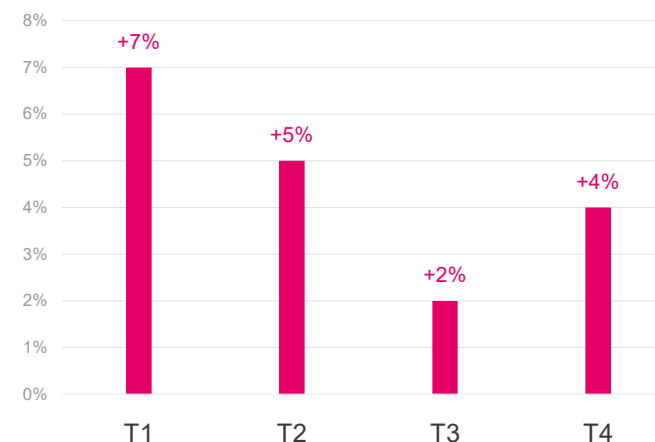
2. Socio-emotional skills

A tendency toward better recognition of emotions in the voice and higher prosocial empathy as early as T1 (fig.6); clearer signals in high-fidelity orchestras, but not stable over time.

3. Body awareness (MAIA)

Levels above the control group as early as T1 (+3%), not maintained with the same intensity in later assessments. Collective music-making is deeply embodied: breathing, posture, gesture, spatio-temporal orientation, tone regulation, sensorimotor listening.

FIG. 6 RECOGNITION OF EMOTIONS IN THE VOICE
Orchestra advantage (%) over control, T1-T4



Note: Recognition of emotional prosody, i.e., the ability to read the emotions conveyed by the voice.

There is no single, generalized effect, but a set of specific signals: transfer from music to other domains is not automatic and depends on duration, systematicity, and quality of implementation.

Key Findings of the Evaluation / Pedagogical fidelity



It is not generic exposure to music that explains the results, but the way the experience is led, structured, and pedagogically supported.



MEASURE

How it was measured

Binary composite index (high/low fidelity) of how the orchestras are led by practitioners, across four dimensions: improvisation and logbooks, job shadowing through direct observation, the questionnaire “How I participated in the activity” completed by professionals, and training attendance. High fidelity = at least three of the four dimensions positive.



EFFECTS

Where it makes a difference

- Musical effects are concentrated mainly in high-fidelity orchestras, such as the advantage in musical pleasure.
- The most favorable motivational profiles emerge mainly in contexts of high pedagogical adherence.



CONDITIONS

What makes it effective

Imitation and improvisation as teaching levers; attention to everyone's participation; flexibility; a focus on relationships rather than performance; empowering pupils; genuine integration between practitioners and teachers. Not methodological rigidity, but consistency of principles.



The Effects of Pedagogical Fidelity



In the Consonanze project, pedagogical fidelity is not merely a compliance check, but a **key to interpreting the strength of the results**. The most consistent results tend to be concentrated in orchestras with greater adherence to the project's educational approach.

Musical outcomes:

- **Rhythms and melodies:** High fidelity > control. At T3 on melodies, high fidelity > low fidelity.
- **Social Reward** and **Total BMRQ:** At T2 and T3, high fidelity > control.
- **Musical growth mindset:** Greater belief that musical abilities can improve with effort in high-fidelity orchestras.

Motivational outcomes:

- Fidelity mainly strengthens the more autonomous forms of **motivation to participate in music training**.
- The most favorable profiles concern intrinsic and identified motivation.
- Extrinsic motivation and amotivation are higher in the control group than in high-fidelity orchestras.

Socio-emotional outcomes:

- **Emotional prosody:** high fidelity > control and > low fidelity
- **Prosocial empathy:** at T1, high fidelity > control and > low fidelity.



Summary of Findings



Area	Measure / subscale	Trend	Interpretation
Musical abilities	Recognition of rhythms and melodies	Robust, especially $T_1 - T_2$	The orchestra strengthens basic musical learning; outcomes grow in high-fidelity orchestras
Musical reward	– BMRQ - Social Reward – Total BMRQ	Very robust	Musical pleasure takes a relational form: belonging, coordination, recognition
Motivation toward music	– C-PLOC - Intrinsic – C-PLOC - Identified	Very robust	The experience fosters more autonomous motivation and less amotivation
Motivation (school transfer)	ASRQ	Selective, more visible at T_4	Possible internalization of more autonomous attitudes toward learning, without automatic effects
Socio-emotional	Prosocial empathy	Present but non-linear	The most convincing signals concern the prosocial components and high-quality-implementation contexts
Self-regulation	– Inattention – Hyperactivity	Late and selective	Orchestral practice acts as a shared regulatory context rather than as clinical training
Body	MAIA	Early but not always stable	Collective musical experience reactivates the embodied dimension of learning



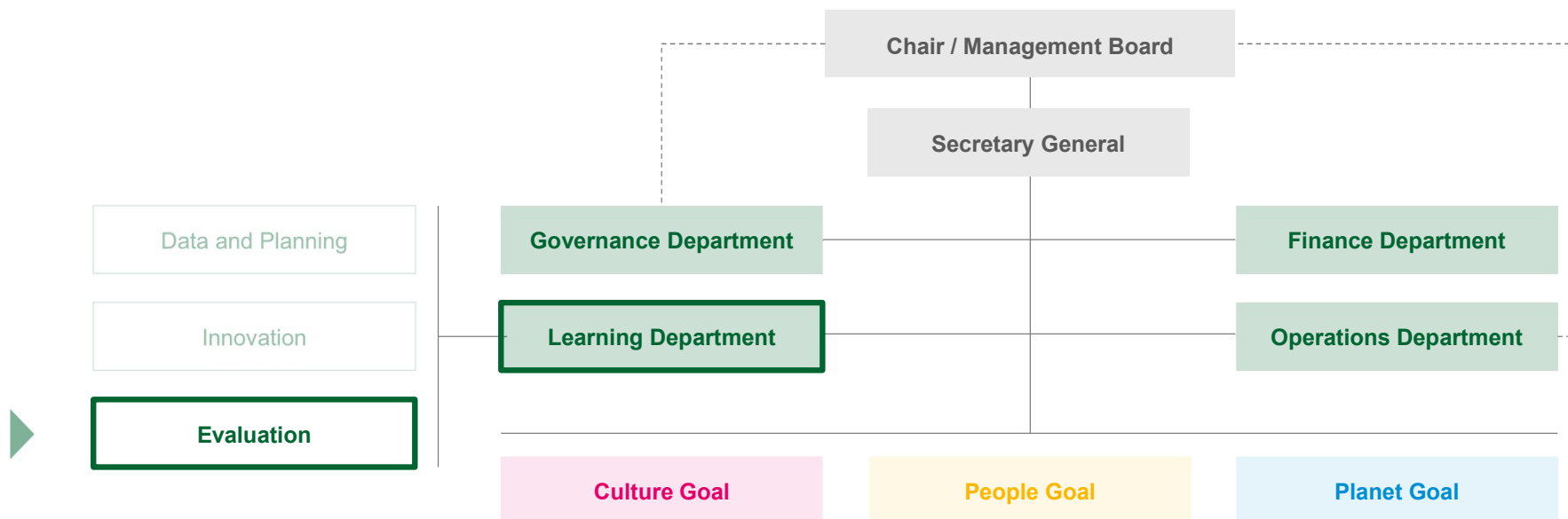
Policy Implications



Music as a strategic axis	■	If orchestral practice produces credible outcomes on belonging, motivation, regulation, and inclusion, then intervention lines are needed that recognize, in learning and in choral and community practice, not only one possible approach but an essential criterion for supporting projects and proposals or for designing direct lines of intervention.
Inclusion	■	The orchestral setting works as an environment in which difference can find a form of participation. This requires a focus on building learning contexts that adopt inclusion as a design and organizational criterion, guaranteeing everyone access to quality artistic practice, regardless of socio-economic conditions or individual vulnerabilities.
Co-teaching and interprofessional cooperation	■	The encounter between classroom teachers and specialist music educators is a condition of quality. Policies should therefore encourage stable partnership models among schools, music organizations, cultural associations, universities, and local stakeholders.
Training and quality of implementation	■	Ongoing training and the quality of implementation are a fundamental infrastructure for the sustainability and effectiveness of arts-based educational interventions.
Governance and continuity	■	For a project to be sustainable, investments must be stable and coordinated, with a view to vertical continuity between primary and secondary school.



STRUCTURE



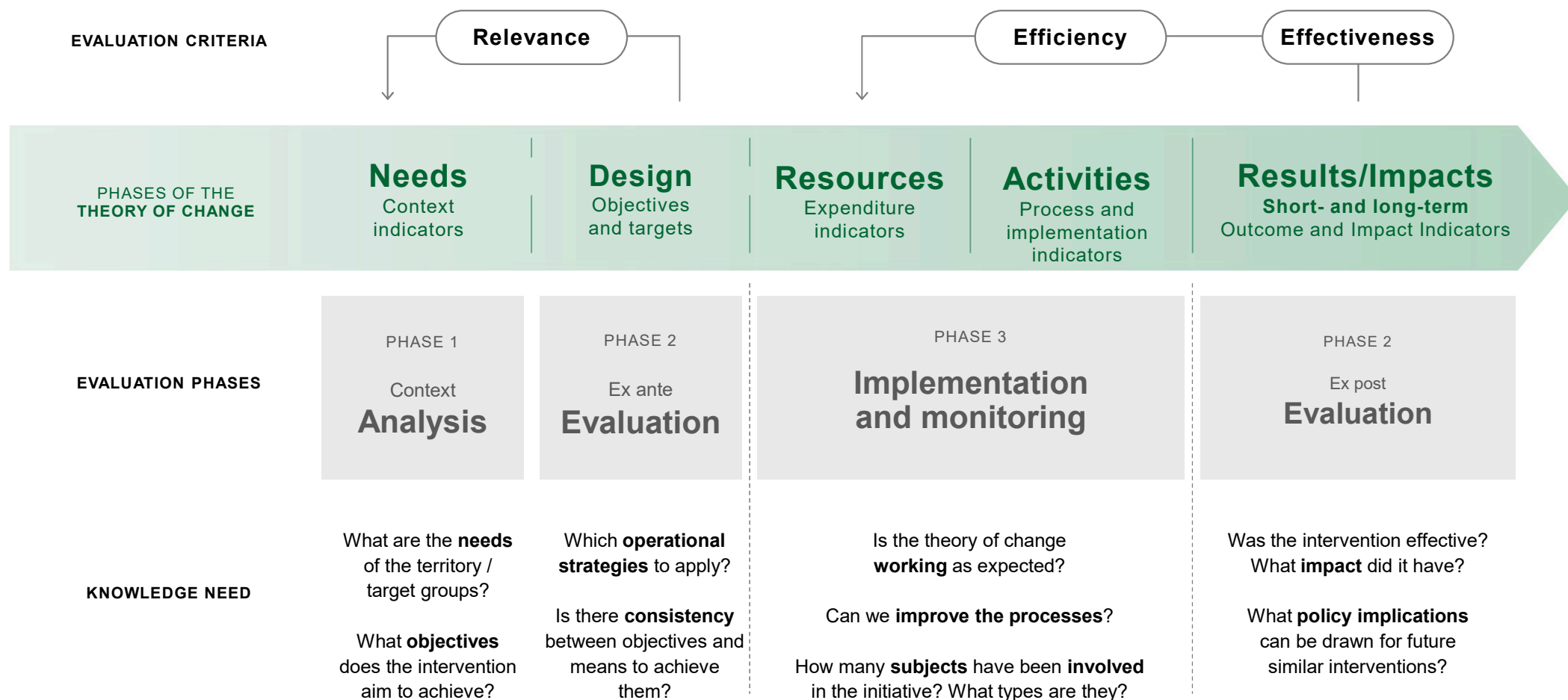
LEARNING DEPARTMENT EVALUATION

Evaluation manages the **ex-post evaluation** of FCSP's main projects, to gain an understanding of the relevant processes, effects and impacts, in such a way as to support the re-design of initiatives, rectify any shortcomings and emphasize success stories.

It also conducts **ex-ante evaluations** and needs assessments to support the design of new projects, particularly those with high-impact, promoting the use of rigorous and innovative methodologies.



Evaluation Criteria, Evaluation Phases, and Knowledge Needs





Evaluation for the benefit of the community



Data and evaluation findings are valuable when they are made available to the community.

Full reports and datasets may be shared with researchers and institutions, subject to case-by-case assessment based on the specific context and intended purpose, to ensure their informed and responsible use.

To access the full reports

Write to valutazione@compagniadisanpaolo.it





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