

SUMMARY REPORT

# Bridge as a Pedagogical Tool in Primary Schools

Results of a cross-national European study



<b>Framework:</b> Erasmus+ KA210-SCH 2024–2025	<b>Consortium:</b> FFB (France) · PBU (Poland) · NBB (Netherlands)	<b>Scientific lead:</b> University of Vienna (Austria)
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**Key message**

*This cross-national study provides robust empirical evidence that a structured bridge programme (9 sessions), delivered through a school–federation partnership model, produces statistically significant improvements in pupils' emotional well-being and social inclusion with no negative impact on academic learning. The programme is replicable, low-cost, and highly transferable to other national contexts.*

## Key findings

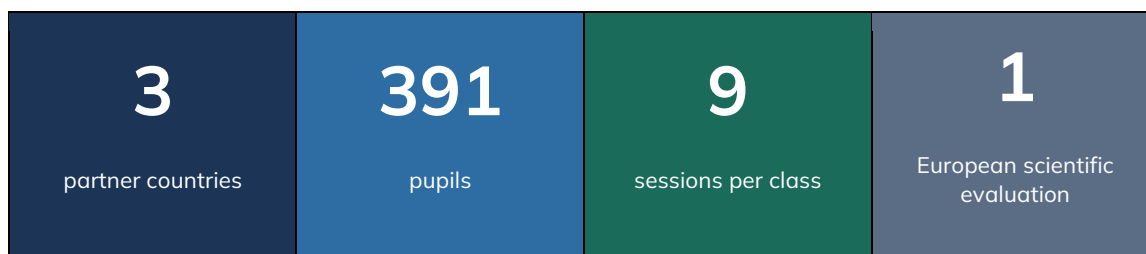
✓	Statistically significant improvement in pupils' emotional well-being and social inclusion, confirmed across three countries.
✓	Short, low-resource format: 9 sessions per class, delivered jointly by a teacher and a trained volunteer. No prior knowledge of bridge required.
✓	Pedagogically safe: no negative impact on academic confidence, mathematical self-efficacy, or emotional competencies.
✓	Inclusive reach: the programme was successfully implemented with pupils with special educational needs (11%) and non-native speakers (21.5%).
✓	European momentum: 15+ national bridge federations expressed interest at the closing seminar (Utrecht, January 2026). The model is ready for broader international deployment.

## 1. Background and programme design

The Petit Bridge at School (PBAS) project is an Erasmus+ Small-Scale Partnership exploring the potential of bridge as a structured pedagogical tool in primary education. Initiated by the French Bridge Federation (FFB) and carried out in collaboration with the Polish Bridge Union (PBU) and the Nederlandse Bridge Bond (NBB), it is the first multi-country scientific evaluation of bridge as an educational programme.

The programme consists of nine structured sessions of Petit Bridge: a simplified version designed for primary school children, without bidding, played with a 40-card deck. Sessions were co-facilitated by classroom teachers and trained federation volunteers, requiring no prior bridge knowledge from pupils or teachers.

The programme is designed to develop cross-curricular competencies: logical reasoning, decision-making, cooperation, and emotional regulation — competencies increasingly recognised in national and European educational frameworks.



## 2. Participants

The study included 391 pupils across 20 classes and 13 schools in three countries. Data were collected before and after the intervention using validated instruments.

Country	Schools	Classes	Pupils
France	6	8	146
Poland	4	6	130
Netherlands	3	6	115
<b>Total</b>	<b>13</b>	<b>20</b>	<b>391</b>

The sample reflects the diversity of European primary school classrooms: 21.5% of pupils spoke a language other than the language of instruction at home; 11% had a formal diagnosis of special educational needs. Gender distribution: 54.9% female, 43.9% male.

### 3. Evaluation methodology

The evaluation was designed and conducted by the University of Vienna, using a pre-test / post-test design with internationally validated instruments:

- PIQ (Perception of Inclusion Questionnaire, Venetz et al., 2014): emotional well-being, social inclusion, academic self-concept.
- ESC-Q (Emotional Self-Concept Questionnaire, Schmidt & Zurbriggen, 2021): emotion perception, regulation, and expression.
- Mathematical Self-Efficacy Scale (Usher & Pajares, 2009).
- ESM — Event Sampling Method: real-time momentary assessments across 7 sessions (positive and negative activation, social dynamics).
- Qualitative focus groups: pupils, teachers, and trainers in all three countries.

All instruments were translated and back-translated following established cross-cultural research protocols (Cheung et al., 2020). Scale reliability was acceptable to excellent across the full cross-national sample (Cronbach  $\alpha$ : 0.79 for mathematical self-efficacy; 0.85 for emotional well-being; 0.97 for the ESC-Q total scale). The report was validated and signed by both researchers.

## 4. Results

### 4.1 Primary outcomes: social and emotional inclusion

The strongest and most consistent findings relate to the social and emotional dimensions of pupils' school experience.

Outcome	Finding	Level
Emotional well-being	Statistically significant improvement: $t(274) = 2.19$ , $p = .030$ , Cohen's $d = 0.13$ . Measured across 275 pupils in three countries.	✓ Significant
Social inclusion (peer relations)	Statistically significant improvement: $t(275) = 2.21$ , $p = .028$ , Cohen's $d = 0.13$ . Consistent across multiple classes and countries.	✓ Significant
Sociometric integration	Significant improvement in 3 out of 13 classes ( $p < .05$ ). Effects varied by class context and implementation conditions.	✓ Significant

**Note on effect sizes:** Effect sizes are small ( $d \approx 0.13$ ), which is consistent with the short duration of the intervention (9 sessions). The direction and statistical significance of the effects are robust across the full multi-country sample.

## 4.2 Qualitative findings: convergent evidence across countries

Focus groups with pupils, teachers, and volunteer trainers in all three countries revealed consistent patterns:

- Pupils reported enhanced cooperation, mutual respect, and a stronger sense of responsibility in group play. Effects observed across all three countries.
- Teachers noted a more positive classroom environment and positive engagement, including among previously withdrawn or struggling pupils.
- Tournament sessions were consistently identified as a strong motivational driver.
- The programme was experienced as accessible and enjoyable by pupils of all academic levels, including those with special educational needs.

## 4.3 In-session emotional dynamics (Event Sampling Method)

Real-time data collected over 7 sessions revealed clear contextual patterns in pupils' emotional engagement:

- Free choice of playing partners and group satisfaction were positively associated with positive activation.
- Successful problem-solving in bridge tasks correlated positively with positive affect and negatively with negative activation.
- Game outcomes had a weaker but statistically significant effect on emotional states.

These findings suggest that bridge creates a contextualised social learning environment in which positive interactions and experiences of competence are mutually reinforcing.

## 4.4 Cognitive and academic outcomes: stability confirmed

Outcome	Finding	Level
Mathematical self-efficacy	No significant change ( $p = .530$ , $d = -0.04$ ). Pupils' confidence in mathematics was fully preserved.	= Stable
Academic self-concept	No significant change ( $p = .284$ ). No negative effect on pupils' academic self-perception.	= Stable
Emotional self-concept	No significant change ( $p = .364$ ). Existing emotional competencies were not affected.	= Stable

**Researchers' interpretation:** The absence of significant cognitive effects at short term is consistent with a 9-session intervention. It should be interpreted as a confirmation of pedagogical safety, not as a null result. The programme does not interfere with any existing learning. Indirect effects on reasoning and decision-making warrant investigation in a longitudinal design.

## 5. Closing seminar — Utrecht, 29 January 2026

The project's closing seminar was held in Utrecht on 29 January 2026. It brought together consortium partners, classroom teachers, researchers, and representatives from approximately fifteen national bridge federations across Europe.

The event was structured around three sessions: an opening presentation of the project and its educational rationale; a live demonstration of Petit Bridge in a classroom setting; and a scientific session presenting the evaluation findings and discussing links with neuroeducation research.

The seminar provided an opportunity to share classroom experience across countries, present the pedagogical resources developed during the project, and open discussions on pathways for broader dissemination.

**Significance:** The attendance of approximately fifteen national federations signals genuine international interest in this model, well beyond the original consortium. This represents a meaningful foundation for a coordinated international deployment strategy under WBF leadership.

## 6. Limitations and conditions of interpretation

The following methodological limitations should be considered when reading these results:

- No control group: the pre/post design does not allow causal isolation of the programme's effects from other contextual factors.
- Short intervention duration: cognitive effects cannot reasonably be expected from a 9-session programme. A 18–24 session longitudinal design with a control group would be needed to test these dimensions.
- Variable class-level effects: sociometric outcomes were significant in some classes but not others, indicating sensitivity to local implementation conditions (teacher engagement, group dynamics, volunteer support).

**From the research team:** These limitations are explicitly documented in the final evaluation report and do not invalidate the findings obtained. They define the appropriate interpretive framework and outline clear priorities for a Phase 2 study.

## 7. Programme replicability and scalability

The PBAS model has been designed from the outset to be transferable. Key features relevant to international deployment:

Feature	Detail
<b>Delivery model</b>	Joint facilitation: one classroom teacher + one trained federation volunteer per session.
<b>No prior knowledge required</b>	Neither pupils nor teachers need to know bridge before the programme begins.
<b>Session format</b>	9 structured sessions of approximately 45–60 minutes, integrated into the regular school timetable.
<b>Pedagogical resources</b>	Step-by-step teacher guide and session materials developed and tested across three national contexts.
<b>Language adaptation</b>	Materials were successfully translated and culturally adapted for France, Poland, and the Netherlands.
<b>Inclusive design</b>	Effective with diverse student populations, including those with special educational needs.
<b>Scientific protocol</b>	Validated evaluation instruments available for use in future national or international studies.

## 8. Suggested next steps

Based on these results, the consortium suggests the following directions for future development, which could benefit from WBF coordination:

### Phase 2 — Enhanced scientific evaluation

A new study incorporating a control group, a longer intervention (18–24 sessions), and a longitudinal follow-up would allow for a more definitive assessment of the programme's effects on cognitive, social, and emotional outcomes.

### Broader national deployment

National federations wishing to deploy the programme have access to the full pedagogical resources, the evaluation protocol, and the trainer preparation model developed during PBAS. Adaptation to national curricula is feasible within existing frameworks.

### International coordination

A WBF-coordinated framework for bridge in education could provide a shared quality standard, facilitate resource sharing across federations, and strengthen the evidence base through coordinated multi-country studies.

## Summary

The PBAS study provides robust empirical evidence that bridge, when delivered through a structured school–federation partnership model, has a measurable positive impact on pupils' social and emotional development.

The programme has several key strengths: it is short in duration, easy to implement, cost-effective, highly inclusive and has a proven track record in terms of educational outcomes.

The PBAS study demonstrates that bridge can be implemented successfully across different educational, linguistic and cultural contexts while maintaining consistent positive outcomes. These results establish bridge as a credible and evidence-based educational tool, one ready for broader international recognition and deployment.

*The consortium is available to present these findings in detail and to discuss pathways for international collaboration with the World Bridge Federation.*

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