

Defeat Means Friendship: Does Competitive Play Prepare Children for Cooperation?

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Abstract: Cooperative and competitive board games each have documented value for social-emotional learning (SEL), but whether the order in which children encounter them matters is largely unexplored. Teachers may be tempted to begin with cooperative games; yet cooperation may depend on regulatory skills that competitive play is better suited to develop, and cooperative formats can conceal tensions that competitive play surfaces. We present a work-in-progress quasi-experimental study in four 2nd-grade classes (N = 86, ages 7-8). Students were assigned to competitive-first or cooperative-first sequences across eight monthly board-game sessions (Oct 2025 - May 2026). Social behaviours are coded during each session using a purpose-built 23-item instrument spanning Collaboration, Misconduct, Conflict, Emotionality, and Strategy and Support; pre- and post-intervention teacher questionnaires complement the observational data. Preliminary analysis of the pre-transition phase (12 sessions, 289 behaviours) shows that positively-coded behaviours are twice as frequent in cooperative (55%) as in competitive (28%) sessions, with indicators such as joint planning and accepting defeat positively concentrated in the former, and rule-breaking and coalition-forming in the latter — a contrast describing what each format elicits, not the children's competence. Two classes show dissonances between baseline teacher ratings and observed behaviour, suggesting that structured gameplay surfaces regulatory demands the classroom context conceals. Post-transition data will test the sequencing hypothesis directly.

Keywords: Board games, Cooperation, Competition, Social-emotional learning, Primary education, Behavioural observation

1. Introduction

Board games are increasingly used in primary classrooms as tools for social-emotional learning (SEL; Cès et al, 2024). Cooperative formats have been linked to gains in prosocial interaction and reductions in aggression (Bay-Hinitz et al, 1994; Eriksson et al, 2021); competitive formats can support task-oriented competencies and provide structured occasions to practise emotional self-regulation (Paquette et al, 2013; Cès et al, 2024).

This paper starts from a practitioner-generated question: whether the order in which children encounter these two formats affects their SEL. A teacher may be tempted to begin a game-based SEL programme with cooperative titles: they produce fewer visible conflicts and align directly with prosocial outcomes. Yet this intuition may lead to suboptimal sequencing. First, cooperation as a learned competence could depend on skills that competitive play is better suited to develop — managing frustration, tolerating adversarial moves, regulating emotions under pressure. Second, cooperative formats can conceal interpersonal tensions rather than resolve them: contributions may be quietly dismissed, one child may dominate, and real disagreement can go unspoken (Barron, 2003). Competitive play, by surfacing conflict openly, may paradoxically create better conditions for adult mediation.

This work in progress paper presents the design of the ongoing study, a purpose-built 23-item behavioural observation instrument, and preliminary findings from the pre-transition phase.

2. Study Design

2.1 Participants and Conditions

Four 2nd-grade classes (N = 86, ages 7-8) from an Italian primary school participate over the 2025-26 school year. Two classes (Competitive 1 and Competitive 2; n = 42) follow a competitive-first sequence; two classes (Cooperative 1 and Cooperative 2; n = 44) follow a cooperative-first sequence. Each class takes part in eight monthly sessions (October 2025 – May 2026), facilitated by a trained board-game facilitator, with classroom teachers taking part as observers. Teachers were introduced to the observation grid by the research team in an online session; Session 1 served as supervised familiarisation with the instrument, and is excluded from the analysed data. Each session had a single coder. Sessions 2-4 constitute Phase 1 (pure competitive vs pure cooperative); Sessions 5-6 use transitional formats (team-based competitive and semi-cooperative games)

common to both conditions; Sessions 7-8 constitute Phase 3, in which each condition plays games of the type opposite to its Phase 1.

2.2 Games

Competitive titles (Quoridor, Stone Age Junior, Splendor Kids, Carcassonne Junior) involve direct opposition. Cooperative titles (*Leo Goes to the Barber*, *The Enchanted Forest*, *Ghost Fightin' Treasure Hunters*) require joint planning toward shared goals. Transitional formats (*Star Wars: Super Team*, *MicroMacro*) bridge the conditions. Within each condition, the Phase-1 game order was counterbalanced across the two classes.

2.3 Behavioural Observation Instrument

We developed a 23-item behavioural observation sheet spanning five categories:

Collaboration (5): commanding others, ignoring suggestions, yielding advantages, accepting compromises, joint planning.

Misconduct (4): rule-breaking, turn violations, unjustified targeting, unfounded cheating accusations.

Conflict (5): raising voice, sabotage, destructive criticism, forming coalitions, taking others' components.

Emotionality (5): disinterest, threatening to quit, physical frustration, anger at others' advantages, accepting defeat positively.

Strategy and Support (4): individual planning, maintaining calm, defending peers, helping struggling players.

Items were distilled from an initial pool of 54 candidate behaviours drawn from established instruments — SSIS (Gresham and Elliott, 2008), PCQ (Paquette et al, 2013), the FACT collaborative-teams checklist (Taylor et al, 2014), and CPBQ (Brazzelli et al, 2018) — and reduced through consultation with a teacher-practitioner experienced in game-based SEL to those realistically observable during game sessions. During each session, teachers observed small groups (3-5 students), marking each behaviour and tallying reiterations separately.

2.4 Additional Measures

Pre- and post-intervention teacher questionnaires rate each student on negative competitive, positive competitive, and collaborative behaviour frequency (5-point scales). Pre-intervention ratings are available for $N = 86$ students in the four study classes. The baselines (Table 1) show the two groups closely matched on collaborative behaviour (Cohen's $d = -0.06$) and on competence ($d \approx -0.1$ to -0.3), with Comp-first classes rated slightly higher on both negative ($d = +0.33$) and positive ($d = +0.52$) competition.

Table 1: Pre-intervention teacher ratings by condition (mean (SD); $N = 86$ students)

Measure	Scale	Comp-first (n=42)	Coop-first (n=44)	d
Negative competition	1–5	2.05 (0.99)	1.73 (0.95)	+0.33
Positive competition	1–5	3.95 (0.76)	3.52 (0.88)	+0.52
Collaborative behaviour	1–5	3.86 (0.90)	3.91 (0.91)	-0.06

3. Preliminary Results

We report on Sessions 2-4, the Phase-1 period in which Comp-first classes played exclusively competitive games and Coop-first classes exclusively cooperative ones. Twelve sessions were observed (three per class).

3.1 Normalisation and Instrument use

Observation intensity varied across teachers: Phase-1 totals per class ranged from 42 to 120 coded behaviours, likely reflecting annotation thoroughness as much as behavioural frequency. All analyses therefore use **within-session proportions** rather than raw counts. In total, 289 behaviours was coded across 12 sessions. The instrument captured a wide but uneven range: one indicator (*destructive criticism*) was never recorded, five were recorded fewer than six times, while the five most frequent indicators accounted for 51% of observations. Future revisions should consider removing rarely-observed items.

3.2 Behavioural Profiles Across Classes

Figure 1 shows the indicator profile for each class alongside the three pre-intervention teacher ratings.

Pre-intervention teacher ratings (1-5 scale)				
(+) Positive competition	3.76	4.14	3.81	3.26
(+) Collaborative behaviour	3.57	4.14	4.29	3.57
(-) Negative competition	2.10	2.00	1.62	1.83
In-session behaviours (% of each class's pooled session observations)				
(+) Yielding advantages	0.8	1.3	—	—
(+) Accepting compromises	1.7	1.3	2.4	10.0
(+) Joint planning	10.0	5.2	11.9	16.0
(+) Accepting defeat positively	4.2	11.7	2.4	24.0
(+) Individual planning	—	3.9	4.8	8.0
(+) Maintaining calm	6.7	—	2.4	—
(+) Defending peers	0.8	—	4.8	—
(+) Helping	10.8	1.3	7.1	6.0
(-) Commanding others	3.3	9.1	14.3	—
(-) Ignoring suggestions	0.8	3.9	—	—
(-) Rule-breaking	20.0	15.6	21.4	6.0
(-) Turn violations	12.5	7.8	11.9	2.0
(-) Unjustified targeting	3.3	3.9	—	—
(-) Unfounded cheating accusations	0.8	3.9	—	8.0
(-) Raising voice	11.7	1.3	7.1	6.0
(-) Sabotage	0.8	5.2	4.8	2.0
(-) Destructive criticism	—	—	—	—
(-) Forming coalitions	1.7	10.4	—	—
(-) Taking others' components	3.3	3.9	—	—
(-) Disinterest	3.3	6.5	4.8	8.0
(-) Threatening to quit	—	—	—	2.0
(-) Physical frustration	3.3	1.3	—	2.0
(-) Anger at others' advantage	—	2.6	—	—
	Competitive 1	Competitive 2	Cooperative 1	Cooperative 2

Figure 1: Pre-intervention teacher ratings (top strip, 1-5 scale) and in-session behaviours (bottom grid, % of each class's pooled session observations). Darker cells indicate higher frequency

The proportion of positively-coded behaviours is substantially higher in cooperative sessions ($M = 55\%$) than in competitive ones ($M = 28\%$), partly because some indicators (e.g. *forming coalitions*) are realistically observable only in competitive formats, while others (e.g. *Helping*) are more salient in cooperative ones (albeit, surprisingly, *joint planning* is frequently observed in competitive play). Importantly, *accepting defeat positively* is more frequent in cooperative play. The aggregate positivity rate therefore describes what each format elicits rather than measuring children's social competence; the planned sequencing test is within-format — Phase-3 against Phase-1 cooperative play — and is unaffected by this asymmetry. These contrasts confirm the instrument's sensitivity to the distinction between the two game types.

3.3 Trajectories and Within-condition Dissonances

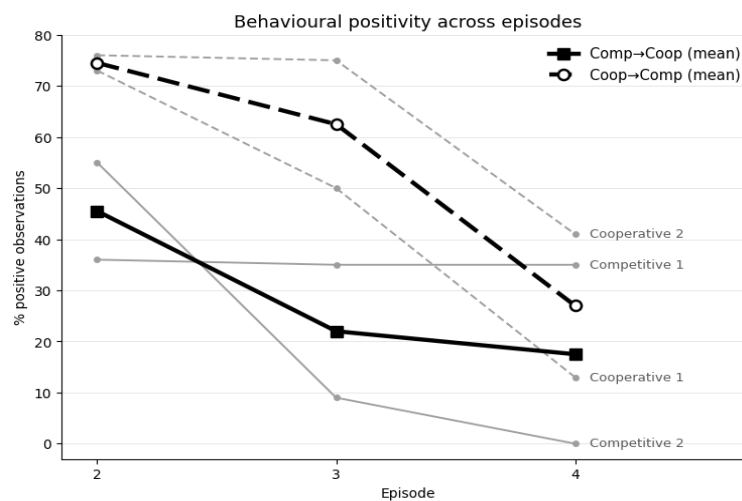


Figure 2: Proportion of positively-coded behaviours by class and session, with condition means (thick lines)

Three of the four classes showed strongly declining positivity across Sessions 2-4; the fourth (Competitive 1) was essentially flat. Beyond this shared decline, two classes produced striking dissonances between baseline teacher ratings and observed behaviour.

Competitive 2 — negative behaviours surface in a highly-rated class. Competitive 2 was rated the most collaborative class Comp-first class ($M = 4.14$, above both Coop-first classes). Yet during competitive sessions it produced the study's highest rate of *forming coalitions* (10.4%) and substantial rates of *sabotage* and *unfounded cheating accusations*. The positivity dropped steeply (55% → 9% → 0%). After Session 4 the teacher extended the competitive phase by one session— excluded from between-condition comparisons and treated as a pedagogical note —noting that her students were "not yet ready to reason as a team."

Cooperative 1 — cooperative sessions progressively deteriorate in a highly-rated class. Cooperative 1 was rated the most collaborative class of all ($M = 4.29$). In Sessions 2 and 3 it showed high positivity (73%, 50%), but by Session 4 it had produced the study's highest rate of *commanding others* (14%) and high rates of *rule-breaking* (21%), *raising voice* (7%) and *sabotage* (5%). Positivity collapsed from 73% to 13%. Unlike Competitive 2, where negative behaviours dominated from the start, Cooperative 1 shows progressive deterioration within a cooperative phase.

4. Discussion and Next Steps

Phase-1 results describe what the instrument captures during the two game types. The core test of the sequencing hypothesis awaits Phase-3 data, in which each condition plays games of the opposite type from its Phase 1; we predict stronger collaborative behaviour in the Phase-3 cooperative sessions of Comp-first classes than Coop-first classes showed in Phase 1. The prediction follows from the Introduction's mechanisms: competitive play gives repeated, adult-mediated practice in managing frustration and open conflict, which are regulatory skills also necessary for sustained cooperation. Even so, the present findings offer three contributions: (i) they document the expected behavioural contrast between competitive and cooperative play in a naturalistic classroom, (ii) they suggest the instrument's feasibility for use by non-specialist teachers, which should be further explored, and (iii) the two within-condition dissonances support the study's framing that gameplay surfaces regulatory demands the classroom can conceal.

Limitations are substantial. With two classes per condition, inferential statistics are not warranted. Group-level coding limits per-student analyses. There is no control group, and inter-rater reliability has not yet been formally assessed. With a fixed session calendar, Phase-3 sequence effects are also entangled with maturation and familiarity; they will be treated as hypothesis-generating, read alongside within-class trajectories and pre/post teacher ratings.

Ethics Declaration: Informed consent was obtained from parents/guardians of all participating children and from the participating teachers.

AI Declaration: AI tools (a large language model) were used to support data analysis scripting and initial drafting of the paper text. All data analyses were independently verified by the authors; all interpretive claims and conclusions are the authors' own. The final text was reviewed, edited and approved by the authors.

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