Inclusive Teaching: Spotting Social Isolation in the Classroom *

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Abstract

We evaluate an intervention designed to increase teachers' awareness of social isolation by providing them with their own students' social network and information on developmental risks associated with social exclusion. Using friendship data and incentive-compatible measures of antisocial and prosocial behavior, we find that the intervention reduces social isolation and antisocial behavior without improving prosocial behavior. The reduction in antisocial behavior leads to better economic outcomes in treated classrooms, measured by average payoffs and the Gini coefficient. Our findings highlight the personal and communal benefits of alleviating social exclusion and antisocial peer relationships in schools.

Keywords: Social Isolation, Anti-social behavior, Social Networks.

JEL: I24, I28, C93

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The social environment of a child plays a crucial role in their overall development. While schools are primarily learning institutions, they also serve as social hubs where students interact, play, learn from one another, and form lasting friendships. However, for some students, the social aspects of schooling can be burdensome due to antisocial behaviors from their peers. These behaviors, ranging from subtle exclusion to outright peer violence, can have profound and enduring negative effects on a child's development (Brown and Taylor, 2008; Carrell et al., 2018; Kiessling and Norris, 2023; Lacey et al., 2014; Qualter et al., 2010). Social isolation, often difficult for adults to detect, can lead to serious issues for children and adolescents, including low self-esteem, a diminished sense of belonging, chronic expectations of rejection, and even suicidal thoughts (Ayduk et al., 2001; Downey and Feldman, 1996; Leigh-Hunt et al., 2017; Maes et al., 2019; Mendoza-Denton et al., 2002). High-quality, enjoyable learning experiences are compromised in classrooms where some students feel lonely, unwanted, bullied, or excluded. Indeed, research in medical and social psychology indicates that loneliness is associated with poor academic performance and unhealthy behaviors, both of which negatively impact learning and may lead students to disengage from education (Buhs et al., 2006; Jefferson et al., 2023). Thus, it is essential to create cohesive and supportive school environments where social isolation and segregation based on any characteristics are promptly spotted and addressed.

This study examines the potential for teachers to address and ameliorate socialization issues among their students. We evaluate the effectiveness of an intervention designed to highlight social isolation by providing teachers with detailed maps of the friendship networks in their classrooms. Alongside this feedback, teachers receive information on the detrimental effects of social exclusion on children's cognitive and socioemotional development, as well as its long-term consequences. The intervention emphasizes the critical role of teachers in fostering an inclusive classroom environment. It offers practical strategies for promoting social integration, such as using random group assignments for class activities or assigning isolated students tasks typically reserved for the most popular or outgoing children. The overarching objective of the intervention is to enhance social integration and create an inclusive social environment in schools.

The study was conducted across 46 public primary schools in three regions of Italy, including over 2,200 students and 239 teachers. We collected baseline data in the school year 2021-2022 to create friendship network maps for each classroom to share with the respective teachers. In November 2022, teachers in the 22 treatment schools were invited to an online

meeting. The session emphasized the crucial role teachers play in shaping children's social skills and relationships. We revealed that the actual prevalence of social exclusion was significantly higher than the teachers' perceptions and highlighted that isolation was particularly prevalent among children from low socio-economic status or with migrant backgrounds. We also showed that social exclusion was positively correlated with poor mental health status and a negative perception of the school environment. After the meeting, we distributed personalized classroom reports to all teachers in the treatment schools and invited them to join WhatsApp groups to monitor the implementation. Our hypothesis is that by providing teachers with information on social exclusion patterns in their classrooms and emphasizing their ability to address these issues through simple actions, we can reduce antisocial behavior toward vulnerable children and alleviate social exclusion. To test this hypothesis, we collected endline data in May 2023.

We collected a set of indicators that characterize the classroom's relational climate both at baseline and endline. We elicit classroom social networks by asking children to nominate classmates as their best friends and used these data to construct measures of social exclusion, which serve as our primary outcomes. Additionally, we developed an incentivized game to measure antisocial behavior toward peers. The game involves a tournament with an anonymous classmate, followed by a decision on whether to sabotage the classmate's performance to gain an unfair advantage. The sabotage, in this context, involves canceling the opponent's earned output, allowing us to measure economic waste and inequality resulting from antisocial acts within the classroom. To measure prosocial behavior, we implemented a cooperation game and a dictator game. Finally, we implemented item-response questionnaires to evaluate children's mental health, their sense of belonging to school, and their perception of teachers.

We find that the treatment reduced social isolation in the classroom. Treated students were 1.5 percentage points less likely to report having "no friends in the classroom," representing a 50% effect relative to the control group. Moreover, treated students received significantly more nominations as friends from classmates, indicating improved inclusivity. Specifically, the number of nominations children made and the number of times a child was nominated increased significantly, compared to the control group. We also observed a significant reduction in antisocial behavior: children in treated schools were 7 percentage points less likely to cancel their opponents' performance, representing a 10% reduction relative to the control group. While we estimate null effects on prosocial behavior, we detect some improvement, albeit statistically weak, in children's mental health, sense of belonging, and

perception of teachers. We contend that the treatment led to these positive outcomes by encouraging teachers to adopt more inclusive practices in the classroom. Consistent with this explanation, we find that treated teachers are more likely to create mixed-ability groups for class activities.

We designed our sabotage game to demonstrate that antisocial behavior has economic and social implications for the classroom as a community. To illustrate this, we simulated payoffs using the empirical distribution of actual decisions and constructed classroom-level economic aggregates. We calculated per-capita payoffs, minimum and maximum payoffs, and the Gini coefficient for each classroom. We show that treated classrooms achieved higher per-capita payoffs, indicating lower economic waste from sabotage. They also achieved significantly higher minimum payoffs and significantly lower payoff inequality compared to the control classrooms.

Our study makes two significant contributions. First, to the best of our knowledge, this is the first study to show that revealing the extent of social isolation to teachers, coupled with information on its risks and how to prevent them, can reduce social isolation and antisocial behavior in the classroom. The intervention is cost-effective with 21 US dollars per student and compares favorably to similar school-based interventions that target student behavior (Hunter et al., 2018; Sorrenti et al., 2024). Second, we developed an innovative measure of antisocial behavior through an incentivized game, which allows us to assess the economic and social cost of such behavior for a community. Through this simple simulation exercise and the randomized implementation of the intervention, we provide causal evidence that complements the existing literature on the relationship between social cohesion and economic prosperity (Alesina and La Ferrara, 2005; Easterly et al., 2006).

Our paper contributes to several strands of literature. First, we add to the small but growing body of work on the significance of schools' social climate for children's cognitive and socioemotional development (Alan et al., 2021; Alan and Kubilay, 2023; Shinde et al., 2018, 2020; Sorrenti et al., 2024). By documenting that classroom climate can be influenced by teachers' awareness, we complement this literature. Second, we engage with the recent research showing that socioemotional skills can be nurtured within the school environment (Alan et al., 2021; Alan and Ertac, 2018; Alan et al., 2019; Cappelen et al., 2020; Deming, 2009; Kosse et al., 2020; Sorrenti et al., 2024). Third, our paper relates to studies on the role of teachers in shaping children's beliefs and attitudes, ultimately influencing their socioemotional development. Some of these studies focus on how teachers' gender stereotypes impact children's outcomes and gender beliefs (Carlana, 2019), while others examine the

implications of ethnic stereotypes (Alan et al., 2023; Alesina et al., 2024). By showing that teacher practices play a crucial role in shaping children's beliefs and attitudes, we contribute to this literature (Gradstein and Justman, 2002). Finally, we contribute to the broader literature on group cohesion and economic prosperity by emphasizing the communal implications of antisocial behavior. Our findings underscore the importance of maintaining group cohesion for achieving economic and social benefits (Alesina and La Ferrara, 2005; Easterly et al., 2006; Gächter et al., 2023).

1 Evaluation Design

1.1 Context and the Timeline of the Study

The study was conducted in a sample of Italian elementary schools during the 2022-23 academic year, targeting grade 3 students. Italy provides an ideal context for this research for two reasons. First, the Italian educational system places relatively little emphasis on socioemotional skills, especially social inclusion. Second, students are generally assigned to classes in grade 1 and remain with the same group of peers and teachers until the end of elementary school in grade 5. Each class may have one or two main teachers responsible for all subjects. This continuity allows teachers to become well-acquainted with their students, making it easier to address socialization issues within the classroom.

The intervention was implemented as a clustered randomized control trial (RCT) during the 2022-2023 academic year, with each school as the cluster unit. The sample includes 46 schools across three regions in the North and Center of Italy (Lombardy, Piedmont, and Lazio), comprising 135 classrooms, 239 teachers, and over 2,500 officially registered students. All schools in our sample initially participated in a training program offered to teachers during the 2021-22 school year, focusing on socio-emotional skills (Development of Social Skills – DeSS) implemented by Professor Zanetti's team at the University of Pavia. Out of 53 DeSS schools, 46 of them chose to participate in our intervention. The randomization for our intervention was conducted at the beginning of the 2022-23 school year, after the DeSS training was completed.

The timeline of the study is as follows: initial baseline data were collected in October-November 2021, with additional baseline information gathered in Spring 2022. The intervention was rolled out from November 2022 to February 2023. Endline data were collected in May 2023. The detailed timeline is presented in Appendix Figure A.1. Data collection was conducted in person by the research team, with assistance from trained research assistants.

Teachers were generally present in the classroom during data collection but were not involved in the process. We spent two lecture hours in each classroom at baseline (one hour at the beginning and one hour at the end of grade 2) and one hour at endline.

1.2 Nature of the Intervention

The intervention implemented in this study is an information treatment with two components. The core component involves providing each teacher with a personalized report, that includes a detailed map of the friendship network within their classroom. To generate these maps, each child was asked at baseline in grade 2 to discreetly nominate up to three close friends from their classroom. Using these data, we created friendship network maps for each treatment class, which were then shared with the respective teachers in their personalized reports. These reports also contained statistics on social isolation among their students, highlighting the percentage of children who were not nominated as friends by any classmates and those who did not nominate anyone themselves. Additionally, we provided information on how social isolation varied according to parental socio-economic status and immigrant background.

The second component involves offering general information on the negative effects of social isolation and the importance of preventing it. This included neuroscientific evidence on the impact of social exclusion on the brain (Eisenberger et al., 2003), highlighting that persistent social exclusion can have lifelong effects, with profoundly negative consequences for an individual's choices and outcomes. We also presented evidence on the correlation between social isolation and children's mental health (Leigh-Hunt et al., 2017). This information was included in the personalized teacher reports and discussed in an online meeting. During this meeting, teachers were also asked about their perceptions of social isolation in their classrooms, and we demonstrated that the actual prevalence was significantly higher than the teachers' perceived prevalence. A generic classroom network map was shown to help teachers interpret these maps accurately. Finally, we encouraged teachers to take proactive steps to prevent persistent social isolation in their classrooms in subtle ways that avoid stigmatization. We provided practical tips, both in the report and in the online meeting, for promoting social inclusion, based on the works of Juvonen et al. (2019) and Nagy and Paschke (2022). For example, we suggested that teachers mix students during group activities and remain vigilant for signs of subtle social exclusion, particularly among vulnerable students.

All teachers in the treatment group received their personalized reports and teachers in 19 out of 22 treatment schools attended the online meeting, representing 60% of all treatment

teachers. To monitor the intervention's progress, we created WhatsApp groups with the treatment teachers, encouraging them to share successful activities with the research team. Online Appendix C presents a summary of the intervention report and the content of the online meeting.[1]

2 Measurement and Data

2.1 Descriptive Statistics and Balance

We collected comprehensive baseline data, including demographic information, fluid cognitive ability using Raven's Progressive Matrices (Raven et al., 2004), friendship network data, and measures of prosocial behavior through cooperation and dictator games. Additionally, we collected data on teacher characteristics (e.g., years of experience, education), emotional intelligence using the Eyes Test (Baron-Cohen et al., 2001) and self-reported inclusive teaching practices. Detailed information on our measurement inventory is provided in Appendix E. We matched the data we collected with administrative data from the Italian Ministry of Education and INVALSI, which include baseline test scores from grade 2, as well as information on gender, and immigration background.

Approximately 15% of students in our sample have an immigrant background, and around one-third have parents with a university degree. The average class size is 19 students. Most of the teachers in our sample are female (98%); 83% hold tenured contracts; they are, on average, 50 years old, with an average of 19 years of teaching experience. Appendix Table B.1 presents the balance of baseline variables across treatment and control groups, including student demographics (Panel A), baseline network measures (Panels B and C), socioemotional and cognitive measures (Panels D and E), classroom and teacher characteristics (Panels F and G). Overall, the randomization was successful; out of 32 tests, only one significant difference was detected at the 5% level (for teachers' eye test).

Notably, social isolation is present in our classrooms: approximately 15% are socially isolated, meaning they either did not nominate anyone as their friend or were not nominated as a friend by any of their classmates. This average conceals significant heterogeneity: 31% of immigrant students and 17% of students from low socio-economic backgrounds are socially isolated, compared to 13% of native students and 11% of students from higher socio-economic backgrounds (columns 1 and 2 of Appendix Table A.1). Additionally, our data corroborate

[1]The full intervention package is available upon request.

existing evidence that socially isolated children have substantially lower mental health and are less likely to feel a sense of belonging at school (columns 3 and 4 of Appendix Table A.1). Moreover, there is a strong negative correlation between social isolation and academic ability (column 6 of Appendix Table A.1). These baseline findings were instrumental in reinforcing the message of our intervention, as discussed in Section 1.2.

In the next section, we discuss our outcomes of interest, including a detailed account of the incentivized game we designed to measure antisocial behavior.

2.2 Outcomes

Social Networks. We collected friendship network data to assess social isolation and inclusion. Children were asked to nominate up to three classmates as their best friends in the classroom. It was made clear that they could choose not to nominate anyone if they felt they had no friends in the classroom or could nominate one, two, or three classmates as their best friends. From these nominations, we constructed measures of out-degree and in-degree ties, defined as the number of nominations a student gives and receives, respectively. We report results on: (1) binary measures of out-degree and in-degree ties, indicating whether the child nominates (out-degree) or is nominated (in-degree) by at least one classmate as a best friend. We reversed these measures to reflect social isolation; and (2) normalized continuous out- and in-degree ties that account for class size (measures of social inclusion).[2] We hypothesize that the intervention will reduce the prevalence of social isolation in the classroom.

Antisocial Behavior: Sabotage Game. We designed an incentivized game to measure antisocial behavior among children. In this game, pairs of children are randomly formed and anonymously compete in a mathematical task. The player who answers the most questions correctly in two minutes receives one gift token per correct answer, while their opponent receives zero tokens, regardless of their own performance. Tokens can later be exchanged for small gifts, such as toys and colorful stationery items, which are valuable to children of this age. After the competition, before learning their performance outcome, all students receive five bonus tokens (endowment). They can use these tokens to sabotage their opponent by canceling correct answers, at a cost of one bonus token per cancellation. Each player can cancel up to five of their opponent's correct answers, thereby increasing their own chances of winning the tournament.

[2]We divide the continuous measures of in-degree and out-degree ties by the total number of nodes minus one (Badham, 2013; Azzimonti and Fernandes, 2023).

The experimenter provided several examples and asked questions to ensure that children understood the implications of their decisions, including the option of not canceling any answers. Our measures of antisocial behavior are the binary sabotage decision and the fraction of the sabotage endowment used. Appendix D contains the verbatim instructions of the game.[3]

Prosocial Behavior: Cooperation and Dictator Games. This game, a version of a one-shot prisoner's dilemma, involves two participants being anonymously paired. We designed this game so that both participants are endowed with three tokens and must choose a card simultaneously—either green or orange. The payoff depends on both participants' choices. If both choose orange, each retains their initial endowment of three tokens. If they choose different colors, the player who chooses orange triples their tokens to nine, while their partner loses all their tokens. If both choose green, they double their endowments to six tokens. The cooperative action is to choose the green card. After playing this game, we implemented a donation (dictator) game, in which students were given four tokens and asked whether they would like to donate any of their tokens to an anonymous child from another school we did not visit. We expect the treatment to increase the likelihood of cooperation and donation.

We explore the predictive validity of decisions made in all these games within our context. Appendix Figure A.2 shows the correlations of these decisions with various indicators of social and emotional well-being. Overall, the decisions in these games capture a range of relevant attributes in children. For example, the sabotage decision is highly predictive of lower mental health, lower sense of belonging, negative perception of teachers and social isolation, while not correlated with fluid IQ (Raven score). Similarly, donating is highly correlated with the sense of belonging and with the test score. The cooperation game has very little predictive validity relative to the other two games. Choosing the cooperative action is negatively correlated with fluid IQ as in Alan et al. (2021) and with the performance in the standardized test score.

Our hypothesis is that the intervention will reduce antisocial behavior, as measured by sabotage decision in the tournament, and improve prosociality, as measured by decisions in the cooperation and donation games. It is important to note that neither of the games

[3]The exact wording of the question is: "How many correct answers from your partner do you want to delete?" Following this, they were asked a question with an ethnic twist: "The classmate you are paired with could be someone whose parents are not Italian. How many correct answers from your partner do you want to delete? Indicate your choice on the tablet." We explained that only one of these questions would be used to determine their final payment. The results are almost identical using the second question, and we report them in the Appendix for completeness.

captures all aspects of the constructs we aim to describe. In the case of sabotage game for example, we aim to capture an aspect of antisocial behavior that involves being insensitive to a friend's effort for own advantage. There are many different forms of antisocial behavior ranging from being insensitive to someone's emotional states to verbal or physical abuse and more. Similarly, there are many forms of prosocial behavior than cooperation and willingness to donate. Nevertheless, as suggested by the experimental literature and correlations we present in Appendix Figure A.2, these measures are informative about one's social and emotional health and cognitive capacity, albeit imperfectly (Alan and Kubilay, 2024; Bhat et al., 2022; Krupka and Weber, 2013; Haushofer et al., 2023).

Social and Emotional Well-being. We assessed children's social and emotional well-being through a series of item-response questions. These items were aggregated to measure various dimensions of well-being, specifically mental well-being, sense of belonging at school, and perceived support from Math and Italian teachers. We estimated the treatment effects on the average standardized indices for each of these outcome domains, as well as on their overall average. The survey instruments used at baseline and endline are detailed in Appendix Table E.1.

3 Results

3.1 Empirical Strategy

We estimate the effect of the intervention on outcomes of interest by conditioning on baseline covariates and randomization strata fixed effects using the following model:

$$y_{ics} = \alpha_0 + \alpha_1 T_s + X_{ics}^{'}\beta + Z_{cs}^{'}\gamma + \delta_j + e_{ics} \tag{1}$$

where y_{ics} is the outcome for individual i, in classroom c and in school s. T_s is a binary indicator that defines the treatment status, equal to 1 if school s belongs to the treatment group and 0 otherwise. $X_{ics}^{'}$ is a vector of controls for student i, which includes the outcome variable at baseline when available, age, gender, migrant status, Raven's score measured at baseline, parents' education levels, national standardized test scores (INVALSI), and binary indicators for children with learning difficulties, children who were absent at baseline or joined the school in grade 3. $Z_{cs}^{'}$ is a vector of class-level controls, including class size, the share of migrants in the class, teachers' characteristics (e.g., years of experience, level of education, Eyes Test Score, and binary indicators for full-time and fixed-term contracts).

δ_j represents strata fixed effects, which account for (i) participation in the DeSS treatment in the first or second round, and (ii) geographic area (North vs. Center regions). Standard errors are clustered at the school level, which is the unit of randomization. We also provide wild bootstrapped p-values to account for the small number of clusters (Cameron et al., 2008). Given imperfect compliance by teachers, the parameter of interest α_1 should be interpreted as the Intent-to-Treat (ITT) effect.

For robustness, in Appendix Figure B.1, we also report results using a basic set of controls, including strata and experimenter fixed effects, class size, and the share of migrant students. Since not all children present at baseline were available at endline during our classroom visits, Appendix Figure B.2 presents results using inverse probability weights to account for endline attrition, which is independent of treatment status (p-value=0.986), as shown in Appendix Table B.2.

3.2 Treatment effects on Social Isolation and Social Inclusion

We begin by investigating whether the intervention has any impact on the socialization structure in the classroom. Columns 1 to 3 of Table 1 present the estimated treatment effect on social isolation. Column 1 presents the results for out-degree centrality, where social isolation is measured by whether a student chose the option "I have no friends in the classroom." Column 2 shows in-degree centrality, which reflects whether a student was not nominated by any classmates. Column 3 combines both out-degree and in-degree measures into a total degree centrality, indicating if a student was isolated in either dimension. The last three columns present the effects of the intervention on social inclusion by examining the number of friendship links each student has, using out, in, and total degree measures. Social inclusion measures are standardized to have a mean of zero and a standard deviation of one for the control group, so the effects are reported in standard deviation units.

In the control group, only 3% of untreated children did not nominate any classmates as friends, and about 13% did not receive any nominations. The intervention resulted in a 1.5 percentage point reduction in out-degree isolation, which implies a 50% relative effect. The estimated effects on in-degree and total-degree isolation are smaller—10% and 15% relative effects, respectively—and do not reach statistical significance at conventional levels. The positive impact of the intervention on the classroom network structure is further reflected in the measures of social inclusion. We observe statistically significant increases in all metrics: a 0.11 and 0.08 standard deviation increase in, respectively, normalized out-degree ties and in-degree ties and a 0.11 standard deviation increase in total-degree ties, which corresponds

to an increase of 0.19 in and out degree ties in a class of 20 students.

These results indicate that the intervention effectively reduced social isolation and increased friendship ties within the classroom.

Table 1: Treatment Effects on Social Isolation and Inclusion

	Social Isolation			Social Inclusion		
	(1) Out-Degree Binary	(2) In-Degree Binary	(3) Total-Degree Binary	(4) Out-Degree Continuous	(5) In-Degree Continuous	(6) Total-Degree Continuous
Treatment	-0.015*	-0.013	-0.022	0.114*	0.079**	0.107**
	(0.008)	(0.013)	(0.015)	(0.059)	(0.034)	(0.049)
Control Mean	0.03	0.13	0.15	-0.00	0.00	0.00
Observations	2218	2218	2218	2219	2219	2219
Wild bootstrapped p-values	0.070	0.386	0.208	0.102	0.060	0.058

Notes: The table reports the estimated treatment effects on social isolation and social inclusion. Dependent variables in columns 1 and 2 are binary indicators equal to one if, respectively, the Out-Degree and In-Degree are equal to 0. The dependent variable in column 3 is a binary indicator that takes value 1 if at least one of Out-Degree and In-Degree is equal to 0. Dependent variables in columns 4 to 6 are, respectively, the normalized number of Out-Degree ties, In-Degree ties, and Total-Degree ties (In-Degree + Out-Degree) standardized relative to the control group. Regressions (OLS) include strata fixed effects (FE), enumerator FE, the value of the outcome collected at baseline, the share of immigrants in the class, Raven's score, standardized test scores, gender, immigrant status, parental education, age in months, binary variables identifying students with a reported disability or learning disorder, students who were not autonomous during the survey data collection, students with a special teacher support, students who were absent at baseline or new in the school at endline, class size, binary indicators identifying whether the teacher is a math, Italian, or other subject teacher, as well as their gender, age, years of experience, level of education, eye test score, and binary indicators for holding a full-time or fixed-term contract. Standard errors are in parentheses and clustered at the school level (unit of randomization). The last row reports wild cluster bootstrap p-values calculated following Cameron et al. (2008).

3.3 Treatment effects on antisocial and prosocial behaviors

It appears that the intervention was effective in reducing social isolation and increasing friendship ties in the classroom. Our next question is whether this success is accompanied by a reduction in antisocial behavior and/or improvement in prosocial behavior among treated children. Columns 1 and 2 of Table 2 present the estimated treatment effects on the decisions in the sabotage game. In the control group, 71% of children engaged in sabotage behavior, meaning they canceled at least one correct answer of their opponent. On average, they used 35% of their sabotage endowment, resulting in approximately 1.75 correct answers canceled. Compared to the control group, the intervention led to a 7.6 percentage point reduction in the likelihood of canceling an opponent's correct answers, which represents an 11% relative effect, and is statistically significant at the 1% level. Additionally, treated students used

about 11% less of their sabotage endowment to cancel correct answers.[4]

In terms of prosocial behavior, around 40% of students took the cooperative action in our cooperation game, while 56% donated a portion of their donation endowment. We estimate precise null treatment effects for these prosociality outcomes. These findings suggest that the intervention's impact is primarily evident in reducing antisocial behavior rather than enhancing prosocial acts among treated children.

Table 2: Treatment Effects on Antisocial and Prosocial Behaviors

	Antisocial Behaviours		Prosocial Behaviours		
	(1) Probability of Cancelling	(2) Fraction of endowment used	(3) Probability of Cooperating	(4) Probability of Donating	(5) Fraction of endowment donated
Treatment	-0.076***	-0.037**	0.002	-0.000	-0.006
	(0.019)	(0.016)	(0.031)	(0.027)	(0.019)
Control Mean	0.71	0.35	0.40	0.56	0.25
Observations	2217	2217	2218	2218	2218
Wild bootstrapped p-values	0.000	0.046	0.906	0.978	0.784

Notes: The table reports the estimated treatment effects on antisocial behavior, measured using the decisions in the sabotage game, and prosocial behavior, measured using the decisions in cooperation and donation games. The dependent variable in column 1 is a binary indicator that takes value 1 if the child chooses to cancel her opponent's correct answers and zero otherwise; in column 2: is the fraction of sabotage endowment used (out of 5 tokens) for canceling; in column 3: is the binary variable that takes the value 1 if the child chooses the cooperative action in the prisoner's dilemma game; in column 4: is a binary indicator that takes the value 1 if the child chooses to donate at least one of her 4 tokens; in column 5: is the fraction of tokens donated out of 4 tokens. Regressions (OLS) include strata fixed effects (FE), enumerator FE, the value of the outcome collected at baseline (when collected), the share of immigrants in the class, Raven's score, standardized test scores, gender, immigrant status, parental education, age in months, binary variables identifying students with a reported disability or learning disorder, students who were not autonomous during the survey data collection, students with a special teacher support, students who were absent at baseline or new in the school at endline, class size, binary indicators identifying whether the teacher is a math, Italian, or other subject teacher, as well as their gender, age, years of experience, level of education, eye test score, and binary indicators for holding a full-time or fixed-term contract. Standard errors are in parentheses and clustered at the school level (unit of randomization). The last row reports wild cluster bootstrap p-values calculated following Cameron et al. (2008).

Economic and Social Implications of Antisocial Behavior. Our sabotage game, along with its implementation in the classroom, allows us to explore possible economic and social justice implications of antisocial behavior within a community. In our context, a classroom can function as a community and correct answers represent the output generated by the efforts of its members. Using the empirical distribution of actual decisions, we simulate expected payoffs for each student by randomly matching them with classmates multiple times (with replacement). Using these payoffs, we calculate key economic aggregates to measure classroom wealth and inequality relative to other classrooms. We focus on the following aggregates: per-capita payoffs, minimum and maximum payoffs, and the Gini coefficient as measures of economic prosperity and inequality. We obtain these aggregates under two scenarios: one where sabotage is not possible, termed the "Ideal World," and another where

[4]Similar patterns are observed in the version of the game where children were informed that their opponent might have foreign-born parents; see Appendix Table B.3.

sabotage is allowed, referred to as the "Actual World."

Figure 1 illustrates the average simulated payoffs in both scenarios across treatment groups. As expected, in the "Ideal World," all aggregates are similar across treatment groups due to randomization ensuring balanced task performance. However, when sabotage is allowed, average, minimum, and maximum payoffs are significantly lower due to the economic waste created by output destruction (i.e., canceled correct answers). Specifically, in the control classrooms, per-capita payoffs decrease by 22%, and the Gini coefficient increases by 12% when sabotage is permitted. Nevertheless, treated classrooms achieve significantly higher per-capita payoffs in this scenario and exhibit lower inequality. This improvement in equality in treated classrooms is largely due to higher minimum payoffs compared to untreated classrooms. Treated classrooms have a 26% higher minimum payoff than untreated classrooms while we detect no treatment effect on maximum payoffs. Panel A of Appendix Table B.4 provides classroom-level regression results.[5]

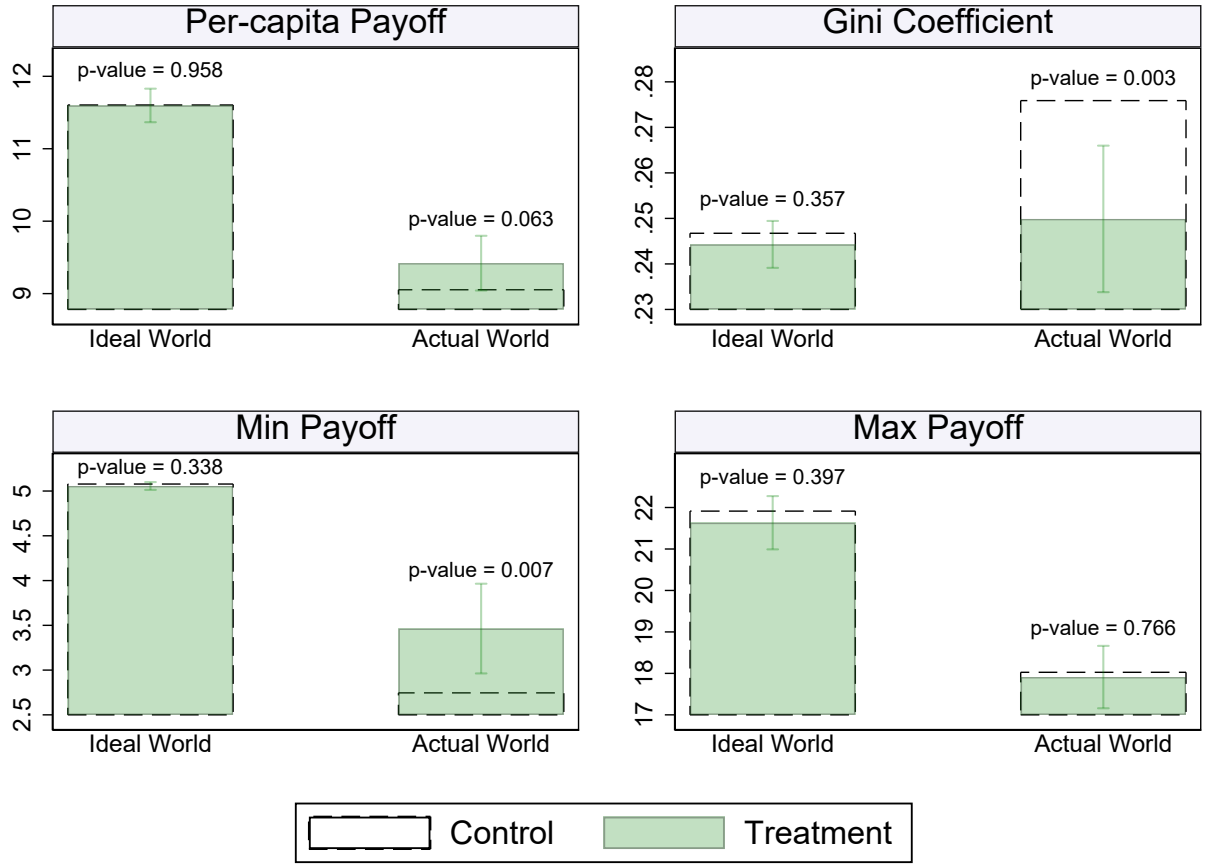
The design of the sabotage game allows participants to undermine their opponents' performance, creating economic waste. Therefore, the lower prosperity and elevated inequality in such a scenario are expected. Admittedly, antisocial behavior within a group can negatively impact individual productivity in multiple ways, not just through direct performance sabotage. Nevertheless, this exercise, while straightforward, provides suggestive evidence that reducing antisocial behavior and fostering a more inclusive environment can enhance the well-being of a community in a broader context.

4 Potential Mechanisms and Heterogeneity in Treatment Effects

The intervention we evaluated provided teachers with comprehensive insights into the social dynamics of their classrooms, specifically highlighting socially isolated children and the potential risks associated with such isolation. As we hypothesize, the intervention lowered the prevalence of social isolation in the classroom. This finding is supported, albeit weakly, by our survey results. Table 3 presents the estimated effects on three indices described in Section 2.2: mental well-being, sense of belonging to school and perception of teacher behaviour (columns 1 to 3). Column 4 reports the estimate of an average index comprising all three indices. While all coefficients are positive, suggesting improvements ranging from 0.04 to 0.1 standard deviations, estimates lack precision. Notably, the largest estimated effect is

[5]Panel B of Appendix Table B.4 reports the same effects for the outcome that has the immigrant reference.

Figure 1: Treatment effects on classroom-level economic aggregates



Notes: The figure depicts differences in classroom aggregates between treatment and control, with white bars representing control means and green bars representing treatment means. In all four panels, the first set of bars corresponds to the assumption that sabotage was not allowed, referred to as the "Ideal World." The second set of bars represents the scenario where sabotage was allowed, referred to as the "Actual World." To calculate the aggregates, we first calculated expected payoffs for each student by randomly pairing them with a classmate (with replacement). A student's payoff was determined based on their performance, sabotage decision, and that of their pair. This procedure was repeated 500 times. We then calculated aggregate quantities for each classroom, including per-capita payoff, Gini coefficient, maximum payoff, and minimum payoff. The bars in the figure are derived through OLS regression, controlling for strata fixed effects (FE), enumerator FE, the share of immigrants in the class, Raven's score, standardized test scores, gender, parental education, age in months, binary variables identifying students with a reported disability or learning disorder, students who were not autonomous during the survey data collection, students with a special teacher support, students who were absent at baseline or new in the school at endline, class size, binary indicators identifying whether the teacher is a math, Italian, or other subject teacher, as well as their gender, age, years of experience, level of education, eye test score, and binary indicators for holding a full-time or fixed-term contract. Since the regressions are conducted at the class level, individual-level controls are averaged at the class level. P-values are clustered at the school level (unit of randomization).

observed for the sense of belonging to school, indicating that treated students feel less lonely at school.

Given that the objective was to integrate socially isolated students into daily activities to mitigate feelings of rejection and loneliness, we estimated heterogeneous treatment effects based on social isolation at baseline, socioeconomic status, and migrant status. Appendix Figure A.3 illustrates these results. As expected, baseline data from the control group indicate that socially isolated, immigrant, and low-SES children are less likely to be nominated as friends by their peers, less likely to feel a sense of belonging at school, and more likely to experience lower mental health. The intervention, however, had a positive effect across all groups, increasing friendship ties, reducing antisocial behavior, and weakly improving well-being outcomes.

The question then arises: what specific actions did teachers take to reduce social isolation and address antisocial behavior in their classrooms? One plausible strategy may have been deliberately mixing students for group work, rather than allowing them to self-select. Self-selection often results in ability-based clustering, which is frequently associated with factors such as migrant status and socioeconomic background in primary schools (Juvonen et al., 2019). Our teacher survey data support this hypothesis. At the endline, we asked teachers about their inclusivity practices through the following questions: "I allow students to choose their own friends for group activities", "I group students by ability level and assign different tasks to each group based on their ability", and "Even if some students don't understand a specific topic, I must continue with the program with the rest of the class." Figure 2 reports the treatment effect on these items, as well as on an Inclusivity Index we constructed by reversing and averaging the responses. The results suggest that treated teachers were more likely than control teachers to mix students with different ability levels during group work. Given that academic ability is strongly (negatively) correlated with social isolation, migrant status, and socioeconomic status, this practice likely encouraged the inclusion of students from diverse backgrounds in group activities, thus promoting inclusivity.[6]

Social isolation is often accompanied by exposure to antisocial acts and bullying at school (Matthews et al., 2022; Pavri, 2015). Similarly, students who anticipate antisocial behavior from peers may become defensive and, in turn, display antisocial tendencies themselves.

[6]Out of 239 teachers involved in the study, only 163 participated in our endline survey. Our attrition analysis reveals that teachers with temporary teaching contracts and those with lower eye test scores (emotional intelligence) are more likely to be non-responsive to endline surveys. The attrition, however, is balanced across treatment status (p-value=0.557). Panel G of Appendix Table B.2 shows the balance of baseline characteristics of teachers who participated in endline surveys, with no notable imbalance. Figure 2 presents the results obtained using inverse probability weighting to account for this attrition.

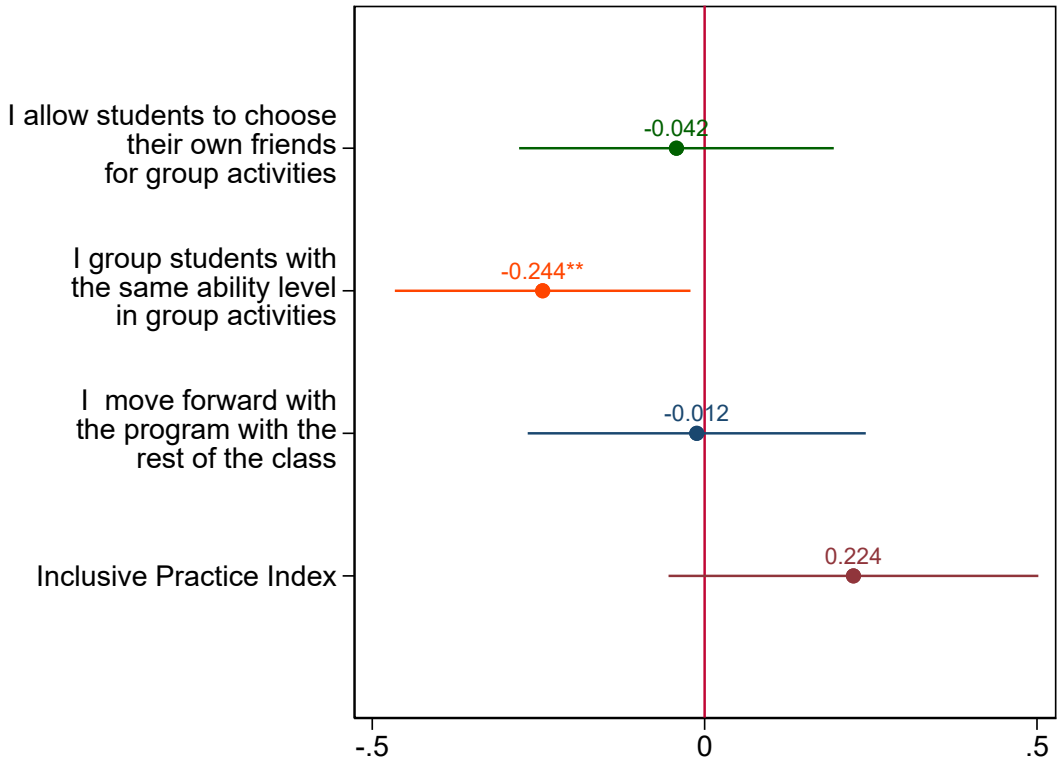
The treatment may have reduced social isolation by curbing these antisocial tendencies rather than directly increasing prosocial acts. Consistent with this, we find no evidence supporting an increase in prosocial behavior. However, our main findings suggest a reduction in antisocial behavior. This effect might be attributed to teachers closely monitoring socially isolated students and shielding them from negative interactions. More likely, though, the reduction in antisocial behavior resulted from inclusive practices, such as creating mixed-ability groups and integrating socially isolated students into general classroom activities. These practices likely reduced opportunities for antisocial behavior by fostering contact and inclusion among socially isolated children. Once an isolated child becomes part of a group, they are less likely to engage in or be the target of antisocial behavior. In summary, while we cannot conclusively rule out all alternative explanations for our results, our data suggest that specific teacher practices — shaped by the awareness generated through the intervention — played a significant role in reducing social isolation and antisocial behavior in the classroom.

Table 3: Treatment Effects on Socio-emotional Well-being

	(1) Mental well-being	(2) Sense of belonging	(3) Perceived teacher behavior	(4) Wellbeing Index
Treatment	0.049	0.103	0.038	0.074
	(0.046)	(0.065)	(0.060)	(0.061)
Control Mean	0.00	0.00	0.00	0.00
Observations	2216	2213	2216	2216
Wild bootstrapped p-values	0.366	0.186	0.610	0.280

Notes: The table reports estimated treatment effects on the indices of mental well-being, sense of belonging, and perceived teacher behavior of students. The average index in column (4) is the average of the nonstandardized indices in columns (1) to (3), standardized relative to the control group. Regressions (OLS) include strata fixed effects (FE), enumerator FE, the value of the outcome collected at baseline, the share of immigrants in the class, Raven's score, standardized test scores, gender, immigrant status, parental education, age in months, binary variables identifying students with a reported disability or learning disorder, students who were not autonomous during the survey data collection, students with a special teacher support, students who were absent at baseline or new in the school at endline, class size, binary indicators identifying whether the teacher is a math, Italian, or other subject teacher, as well as their gender, age, years of experience, level of education, eye test score, and binary indicators for holding a full-time or fixed-term contract. Standard errors are in parentheses and clustered at the school level (unit of randomization). The last row reports wild cluster bootstrap p-values calculated following Cameron et al. (2008).

Figure 2: Treatment effect on inclusive teaching practices



Notes: The figure reports Weighted Least Square (WLS) estimates of treatment on teachers' inclusivity practices. Each outcome is standardized relative to the control mean of zero. The Inclusive Practice Index is the average of all items shown (reversed) and standardized relative to the control group. The weights are computed as the inverse of the predicted probability of being in the endline sample, estimated with a logit model that includes: binary indicators identifying whether the teacher is a math, Italian, or other subject teacher, as well as their gender, age, years of experience, level of education, eye test score, and binary indicators for holding a full-time or fixed-term contract. Regressions (WLS) include strata FE, enumerator FE, the value of the outcome collected at baseline, teacher's gender, experience and eye test score. 95% confidence intervals are calculated via standard errors clustered at the school level (unit of randomization).

5 Conclusions

This paper evaluates an informational intervention designed to increase teachers' awareness of social dynamics within their classrooms, with a particular focus on socially isolated children. The intervention provided teachers with detailed network maps of their classrooms and highlighted the risks associated with social exclusion in schools. Our findings indicate that the intervention effectively reduces social isolation and curbs antisocial behavior, as measured by a novel incentive-compatible game. These positive results likely stem from teachers adopting more inclusive classroom practices in response to the information provided.

The intervention is highly cost-effective. The staff cost for generating teacher reports,

online meetings and WhatsApp monitoring was 18,500 dollars, travel cost was 1900 US dollars, PI time for teacher training was 6670 US dollars, resulting in a total cost of 27,070 US dollars. With 1315 children participating (the total number, not just those surveyed), the cost per child was 21 US dollars. This compares favorably with recent educational interventions aimed at improving school climate (Alan and Kubilay, 2024; Dinarte-Diaz and Egana-delSol, 2024; Sorrenti et al., 2024). However, there are two important caveats to note. First, the intervention consists of two components: providing teachers with detailed friendship network maps of their classroom and offering general information on the risk of social isolation and strategies for its prevention. As a result, we cannot disentangle the individual effects of each component on the observed results. Nonetheless, our findings suggest that even a basic feedback mechanism— giving teachers insights into their classroom's social dynamics and highlighting the importance of addressing social exclusion— can serve as a cost-effective approach to reducing social isolation and antisocial behavior in schools. The second caveat concerns the scalability of the intervention. The intervention was implemented and monitored by researchers. While such involvement is impractical at scale, alternative approaches could include training teachers to independently assess their classroom's social networks using simple templates, allowing them to identify social isolation on their own.

Our study shows that a straightforward intervention—informing teachers about the social structure within their classrooms and possible consequences of social isolation—can go a long way in reducing social exclusion among young children. Given the critical role that positive social environments and healthy peer relationships play in children's development, it is crucial to continue exploring and refining such interventions. By doing so, we can ensure that schools become nurturing environments where all children can thrive socially and academically, ultimately benefiting the wider community.

References

Alan, S., Baysan, C., Gumren, M., and Kubilay, E. (2021). Building Social Cohesion in Ethnically Mixed Schools: An Intervention on Perspective Taking. *The Quarterly Journal of Economics*, 136(4):2147–2194.

Alan, S., Boneva, T., and Ertac, S. (2019). Ever failed, try again, succeed better: Results from a randomized educational intervention on grit. *The Quarterly Journal of Economics*, 134(3):1121–1162.

Alan, S., Duysak, E., Kubilay, E., and Mumcu, I. (2023). Social exclusion and ethnic segregation in schools: The role of teachers' ethnic prejudice. *Review of Economics and Statistics*, 105(5):1039–1054.

Alan, S. and Ertac, S. (2018). Fostering patience in the classroom: Results from randomized educational intervention. *Journal of Political Economy*, 126(5):1865–1911.

Alan, S. and Kubilay, E. (2023). Impersonal trust in a just and unjust world: Evidence from an educational intervention. *Journal of Development Economics*, 162:103044.

Alan, S. and Kubilay, E. (2024). *Empowering adolescents to transform schools: Lessons from a behavioral targeting*. Number 18735 in CEPR Discussion Paper. Centre for Economic Policy Research.

Alesina, A., Carlana, M., La Ferrara, E., and Pinotti, P. (2024). Revealing stereotypes: Evidence from immigrants in schools. *American Economic Review*, 114(7):1916–1948.

Alesina, A. and La Ferrara, E. (2005). Ethnic diversity and economic performance. *Journal of Economic Literature*, 43(3):762–800.

Ayduk, O., Downey, G., and Kim, M. (2001). Rejection sensitivity and depressive symptoms in women. *Personality and Social Psychology Bulletin*, 27(7):868–877.

Azzimonti, M. and Fernandes, M. (2023). Social media networks, fake news, and polarization. *European Journal of Political Economy*, 76:102256.

Badham, J. M. (2013). Commentary: Measuring the shape of degree distributions. *Network Science*, 1(2):213–225.

Baron-Cohen, S., Wheelwright, S., Hill, J., Raste, Y., and Plumb, I. (2001). The "reading the mind in the eyes" test revised version: a study with normal adults, and adults with asperger syndrome or high-functioning autism. *The Journal of Child Psychology and Psychiatry and Allied Disciplines*, 42(2):241–251.

Bhat, B., de Quidt, J., Haushofer, J., Patel, V. H., Rao, G., Schilbach, F., and Vautrey, P.-L. P. (2022). The long-run effects of psychotherapy on depression, beliefs, and economic outcomes. Working Paper 30011, National Bureau of Economic Research.

Brown, S. and Taylor, K. (2008). Bullying, education and earnings: evidence from the national child development study. *Economics of Education Review*, 27(4):387–401.

Buhs, E. S., Ladd, G. W., and Herald, S. L. (2006). Peer exclusion and victimization: Processes that mediate the relation between peer group rejection and children's classroom engagement and achievement? *Journal of Educational Psychology*, 98(1):1.

Cameron, A. C., Gelbach, J. B., and Miller, D. L. (2008). Bootstrap-based improvements for inference with clustered errors. *The Review of Economics and Statistics*, 90(3):414–427.

Cappelen, A., List, J., Samek, A., and Tungodden, B. (2020). The effect of early-childhood education on social preferences. *Journal of Political Economy*, 128(7):2739–2758.

Carlana, M. (2019). Implicit stereotypes: Evidence from teachers' gender bias. *The Quarterly Journal of Economics*, 134(3):1163–1224.

Carrell, S. E., Hoekstra, M., and Kuka, E. (2018). The long-run effects of disruptive peers. *American Economic Review*, 108(11):3377–3415.

Deming, D. (2009). Early childhood intervention and life-cycle skill development: Evidence from head start. *American Economic Journal: Applied Economics*, 1(3):111–134.

Dinarte-Diaz, L. and Egana-delSol, P. (2024). Preventing violence in the most violent contexts: Behavioral and neurophysiological evidence from el salvador. *Journal of the European Economic Association*, 22(3):1367–1406.

Downey, G. and Feldman, S. I. (1996). Implications of rejection sensitivity for intimate relationships. *Journal of Personality and Social Psychology*, 70(6):1327.

Easterly, W., Ritzen, J., and Woolcock, M. (2006). Social cohesion, institutions, and growth. *Economics & Politics*, 18(2):103–120.

Eisenberger, N. I., Lieberman, M. D., and Williams, K. D. (2003). Does rejection hurt? an fmri study of social exclusion. *Science*, 302(5643):290–292.

Gächter, S., Starmer, C., and Tufano, F. (2023). Measuring "group cohesion" to reveal the power of social relationships in team production. *Review of Economics and Statistics*, pages 1–45.

Gradstein, M. and Justman, M. (2002). Education, social cohesion, and economic growth. *American Economic Review*, 92(4):1192–1204.

Haushofer, J., Lowes, S., Musau, A., Ndetei, D., Nunn, N., Poll, M., and Qian, N. (2023). Stress, ethnicity, and prosocial behavior. *Journal of Political Economy Microeconomics*, 1(2):225–269.

Hunter, L. J., DiPerna, J. C., Hart, S. C., and Crowley, M. (2018). At what cost? examining the cost effectiveness of a universal social–emotional learning program. *School Psychology Quarterly*, 33(1):147.

Jefferson, R., Barreto, M., Verity, L., and Qualter, P. (2023). Loneliness during the school years: How it affects learning and how schools can help. *Journal of School Health*, 93(5):428–435.

Juvonen, J., Lessard, L. M., Rastogi, R., Schacter, H. L., and Smith, D. S. (2019). Promoting social inclusion in educational settings: Challenges and opportunities. *Educational Psychologist*, 54(4):250–270.

Kiessling, L. and Norris, J. (2023). The long-run effects of peers on mental health. *The Economic Journal*, 133(649):281–322.

Kosse, F., Deckers, T., Pinger, P., Schildberg-Hörisch, H., and Falk, A. (2020). The formation of prosociality: causal evidence on the role of social environment. *Journal of Political Economy*, 128(2):434–467.

Krupka, E. L. and Weber, R. A. (2013). Identifying social norms using coordination games: Why does dictator game sharing vary? *Journal of the European Economic Association*, 11(3):495–524.

Lacey, R. E., Kumari, M., and Bartley, M. (2014). Social isolation in childhood and adult inflammation: evidence from the national child development study. *Psychoneuroendocrinology*, 50:85–94.

Leigh-Hunt, N., Bagguley, D., Bash, K., Turner, V., Turnbull, S., Valtorta, N., and Caan, W. (2017). An overview of systematic reviews on the public health consequences of social isolation and loneliness. *Public health*, 152:157–171.

Maes, M., Nelemans, S. A., Danneel, S., Fernández-Castilla, B., Van den Noortgate, W., Goossens, L., and Vanhalst, J. (2019). Loneliness and social anxiety across childhood and adolescence: Multilevel meta-analyses of cross-sectional and longitudinal associations. *Developmental psychology*, 55(7):1548.

Matthews, T., Caspi, A., Danese, A., Fisher, H. L., Moffitt, T. E., and Arseneault, L. (2022). A longitudinal twin study of victimization and loneliness from childhood to young adulthood. *Development and Psychopathology*, 34(1):367–377.

Mendoza-Denton, R., Downey, G., Purdie, V. J., Davis, A., and Pietrzak, J. (2002). Sensitivity to status-based rejection: implications for african american students' college experience. *Journal of Personality and Social Psychology*, 83(4):896.

Nagy, E. and Paschke, S. (2022). Transformative educational action: Game-based educational resources for global citizenship. Technical report, Transformative Educational Methods for Social Inclusion and Global Citizenship, CESIE, (InteRed).

Pavri, S. (2015). Loneliness: The cause or consequence of peer victimization in children and youth. *The Open Psychology Journal*, 8(1).

Qualter, P., Brown, S. L., Munn, P., and Rotenberg, K. J. (2010). Childhood loneliness as a predictor of adolescent depressive symptoms: an 8-year longitudinal study. *European child & Adolescent Psychiatry*, 19:493–501.

Raven, J., Raven, J. C., and Court, J. H. (2004). *Manual for Raven's Progressive Matrices and Vocabulary Scales*. San Antonio.

Shinde, S., Weiss, H. A., Khandeparkar, P., Pereira, B., Sharma, A., Gupta, R., Ross, D. A., Patton, G., and Patel, V. (2020). A multicomponent secondary school health promotion intervention and adolescent health: an extension of the seher cluster randomised controlled trial in bihar, india. *PLoS medicine*, 17(2):e1003021.

Shinde, S., Weiss, H. A., Varghese, B., Khandeparkar, P., Pereira, B., Sharma, A., Gupta, R., Ross, D. A., Patton, G., and Patel, V. (2018). Promoting school climate and health outcomes with the SEHER multi-component secondary school intervention in Bihar, India: a cluster-randomised controlled trial. *The Lancet*, 392(10163):2465–2477.

Sorrenti, G., Zölitz, U., Ribeaud, D., and Eisner, M. (2024). The causal impact of socio-emotional skills training on educational success. *Review of Economic Studies*.

In-Paper Appendix

Figure A.1: Timeline of the Study

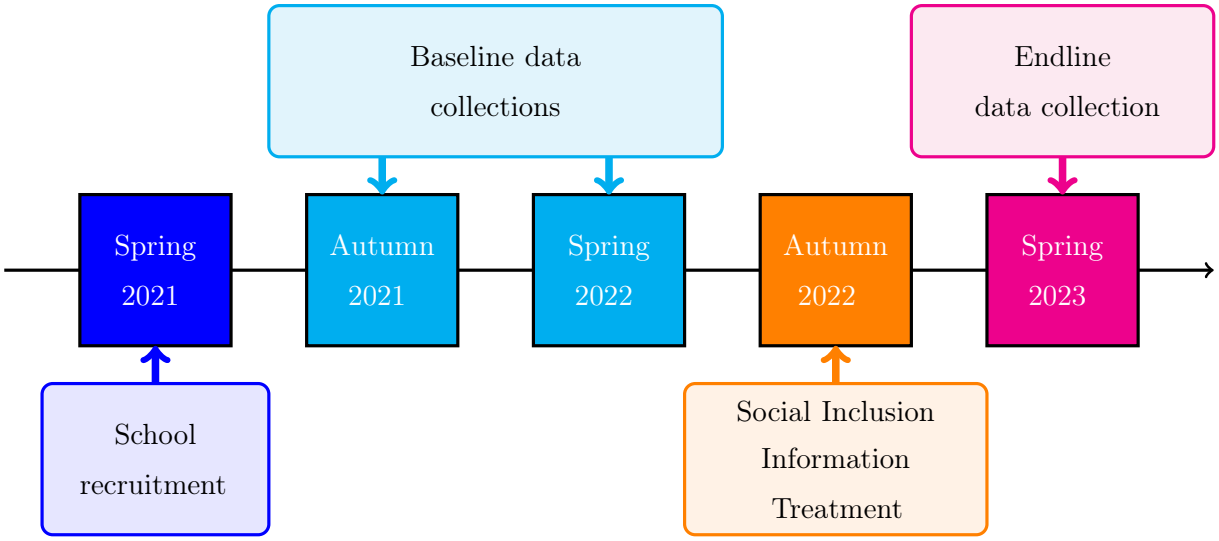
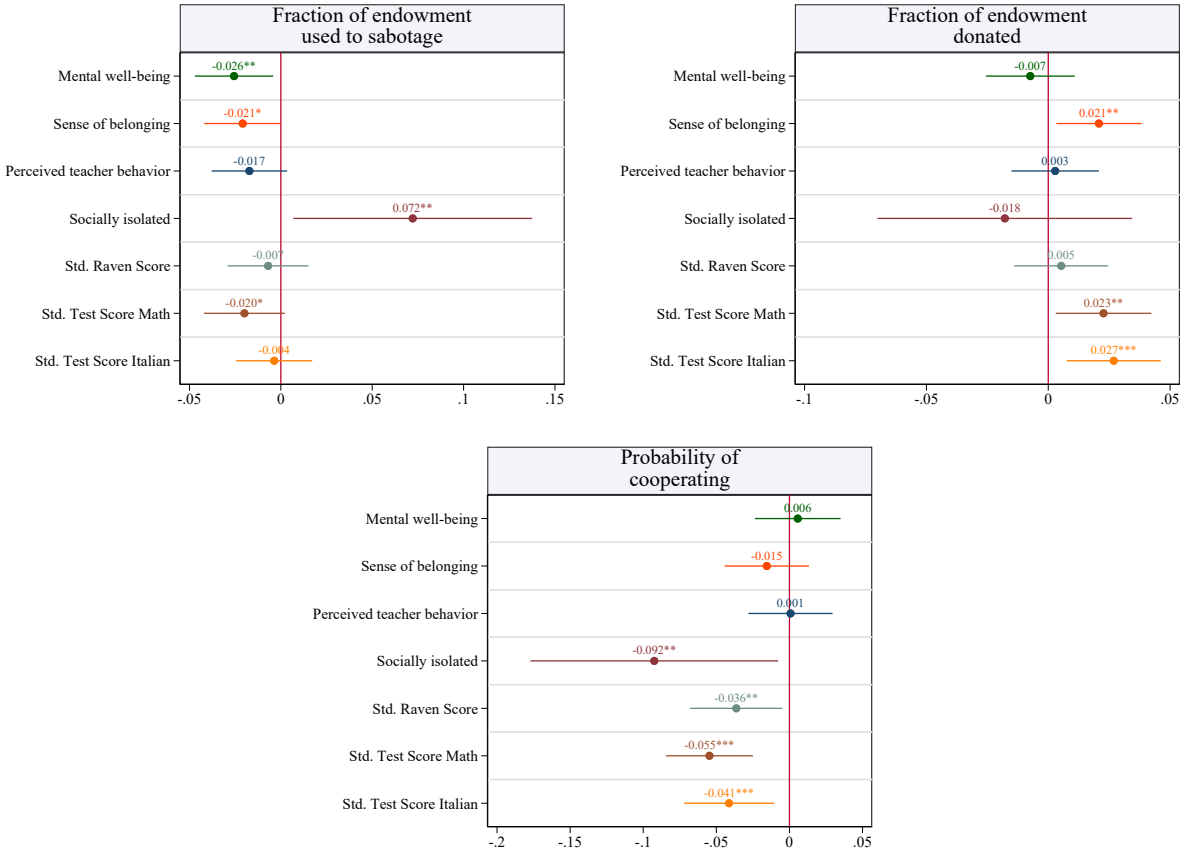


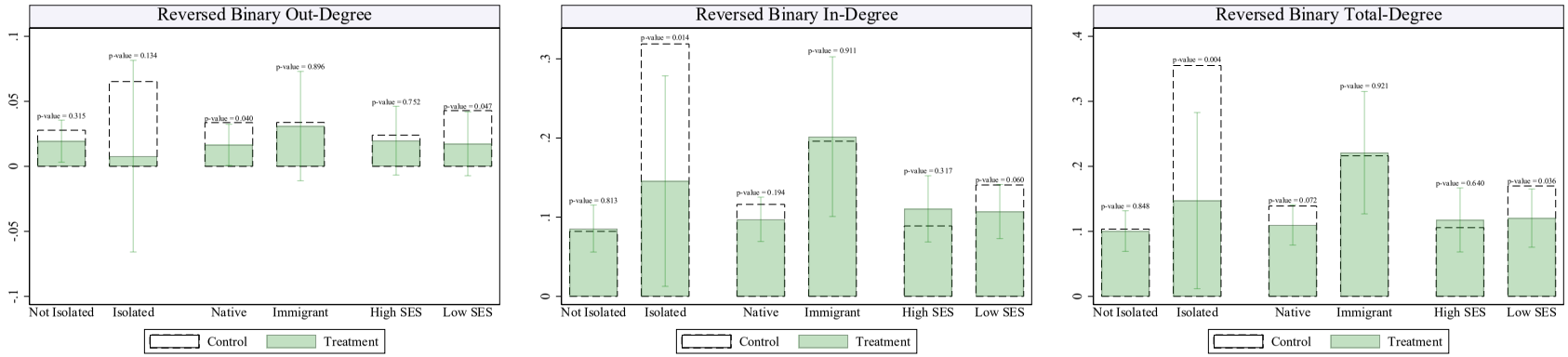
Figure A.2: Predictive validity of the incentivized measures of pro and anti social behavior



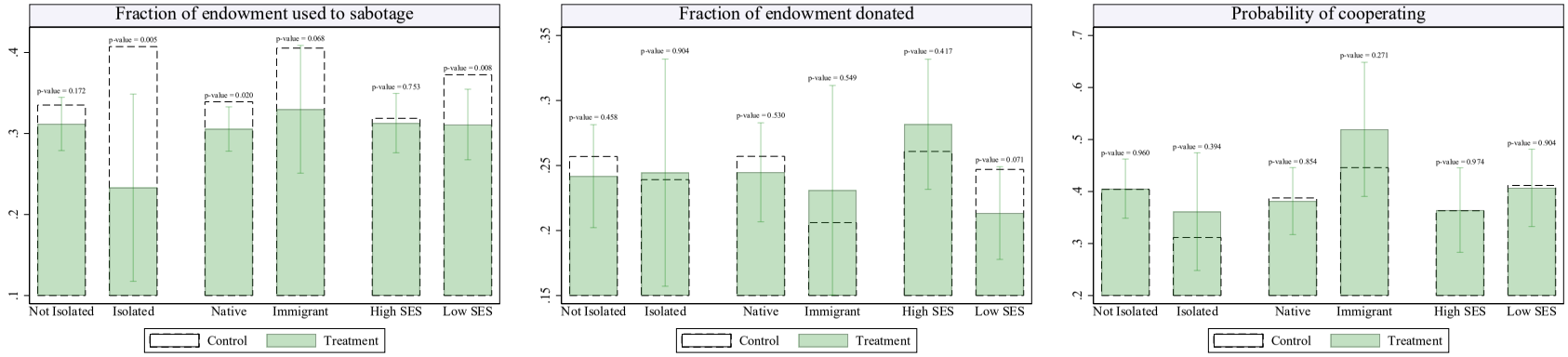
Notes: The figure depicts the predictive power of sabotage, cooperation and donation games, using Raven's scores, standardized test scores, social isolation, mental well-being, sense of belonging, and perception of teacher indices. The sample includes students surveyed at endline and part of the control group. The first panel presents correlations for the fraction of endowment used to sabotage the opponent, the second panel presents correlations for the donation decision, and the third panel presents the correlations for the cooperative decision. Estimates are obtained by regressing the respective decision on each variable shown. 95% confidence intervals are obtained via robust inference.

Figure A.3: Heterogeneous Treatment Effects

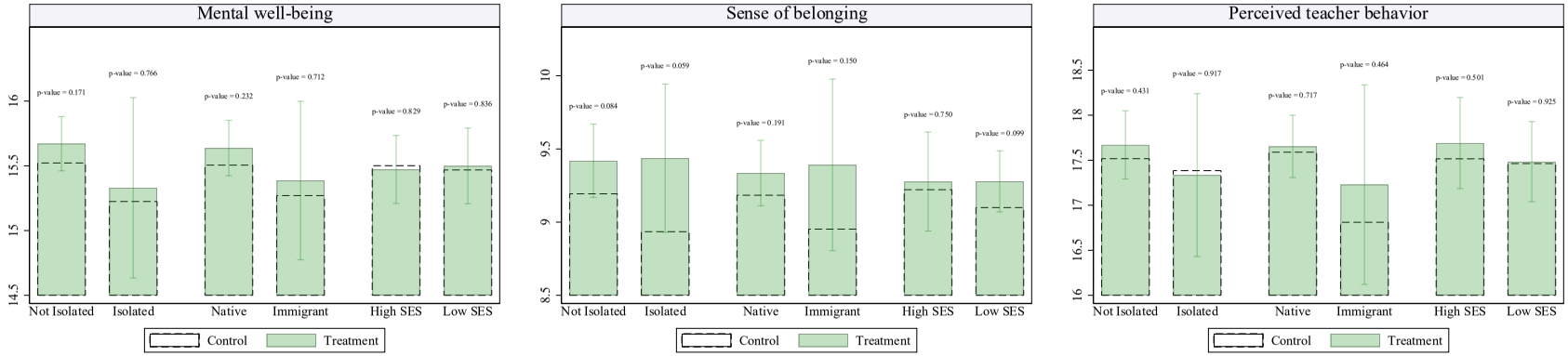
(a) Network Isolation Outcomes



(b) Experimental Outcomes



(c) Well-being Outcomes



Notes: The figure depicts heterogeneous effects of the treatment on the respective outcome based on social isolation status, native vs migrant, and low vs high SES. High SES is a binary indicator equal to one if at least one parent has a university degree. The white bars show the control mean of the outcome for a specific group. The green bars show treatment effect estimates. Regressions (OLS) include strata fixed effects (FE), enumerator FE, the share of immigrants in the class, Raven's score, standardized test scores, gender, immigrant status and parental education controls (when relevant in the model), age in months, binary variables identifying students with a reported disability or learning disorder, students who were not autonomous during the survey data collection, students with a special teacher support, students who were absent at baseline or new in the school at endline, class size, binary indicators identifying whether the teacher is a math, Italian, or other subject teacher, as well as their gender, age, years of experience, level of education, eye test score, and binary indicators for holding a full-time or fixed-term contract. Standard errors are clustered at the school level (unit of randomization).

Table A.1: Correlation between social isolation and students' characteristics at baseline

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Immigrant	0.186***						
	(0.028)						
Both parents have no university degree		0.056***					
		(0.016)					
Mental well-being			-0.040***				
			(0.008)				
Sense of belonging				-0.042***			
				(0.009)			
Perceived teacher behaviour					-0.007		
					(0.007)		
Std. Test Score Math						-0.040***	
						(0.008)	
Std. Test Score Italian							-0.045***
							(0.008)
Constant	0.125***	0.112***	0.150***	0.151***	0.152***	0.139***	0.137***
	(0.008)	(0.011)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Observations	2176	2009	2173	2175	2175	1922	1947
Raw Correlation	0.181	0.077	0.113	0.114	0.019	0.109	0.131

Notes: The table reports the coefficients from a uni-variate OLS regression of social isolation on respective outcome, all measured at baseline. The social isolation variable is a dummy which takes the value 1 if the student does not nominate a friend or is not nominated by any classmate in the classroom (total-degree isolation). Robust standard errors are in parentheses and raw correlations are presented at the bottom of the table.

Online Appendix-Not for Publication

B Additional Tables and Figures

Table B.1: Balance Table

	(1) N	(2) Control Mean	(3) Treatment Mean	(4) Difference (T-C)	(5) SE	(6) p-value
Panel A: Student Demographics						
Female	2536	0.483	0.483	0.001	0.016	0.940
Immigrant	2536	0.143	0.163	0.029	0.026	0.274
Age in months	2482	106.453	106.361	-0.040	0.158	0.801
Any learning difficulty/disability	2536	0.206	0.213	0.007	0.021	0.736
Not autonomous during the survey	2536	0.008	0.010	0.002	0.005	0.766
Absent at baseline	2536	0.138	0.129	-0.022	0.030	0.470
New student in the school	2536	0.014	0.028	0.015*	0.009	0.089
Father has a university degree	2232	0.286	0.200	-0.083	0.064	0.201
Mother has a university degree	2254	0.352	0.284	-0.068	0.063	0.283
Panel B: Social Isolation						
Out-Degree (Binary - Reversed)	2176	0.028	0.023	-0.009	0.007	0.178
In-Degree (Binary - Reversed)	2176	0.128	0.140	0.004	0.017	0.804
Total-Degree (Binary - Reversed)	2176	0.149	0.153	-0.007	0.020	0.739
Panel C: Social Inclusion						
Out-Degree (Continuous)	2482	0.000	-0.006	0.052	0.110	0.641
In-Degree (Continuous)	2482	0.000	-0.004	0.034	0.072	0.641
Total-Degree (Continuous)	2482	-0.000	-0.005	0.048	0.103	0.641
Panel D: Prosocial Games						
Probability of cooperating	2174	0.480	0.494	0.018	0.026	0.489
Fraction of endowment donated	2176	0.223	0.194	-0.034	0.021	0.119
Panel E: Socioemotional Well-being						
Mental Health Index	2173	0.006	-0.019	-0.035	0.049	0.476
Belonging to school Index	2175	0.018	-0.011	0.002	0.041	0.965
Perception of Teacher Index	2175	0.016	0.086	0.050	0.145	0.734
Panel F: Cognitive Measures						
Std. Raven score	2176	-0.000	-0.070	-0.043	0.052	0.410
Std. Test Score Italian (Invalsi)	2198	0.000	-0.038	-0.005	0.123	0.965
Std. Test Score Math (Invalsi)	2172	-0.000	-0.120	-0.115	0.120	0.344
Panel G: Classroom Characteristics:						
Classroom Size	135	19.152	19.594	0.418	0.736	0.572
Immigrant Share	135	0.151	0.164	0.021	0.026	0.416
Panel H: Teacher Characteristics:						
Female Teacher	239	0.982	0.984	0.001	0.015	0.960
Teaches Math	229	0.383	0.311	-0.084	0.061	0.174
Teaches Italian	229	0.505	0.516	0.012	0.065	0.851
Fixed Term	235	0.833	0.827	-0.006	0.067	0.930
Full time	235	0.880	0.906	0.026	0.048	0.585
Age	231	50.065	50.669	0.489	1.410	0.730
Years of experience	233	18.953	19.764	1.278	1.691	0.454
Has university degree	224	0.505	0.420	-0.121	0.075	0.113
Eye test score	228	22.477	23.711	1.268**	0.554	0.027

Notes: The table presents the randomization balance at baseline. Social inclusion outcomes, cognitive test scores and survey measures are standardized to have a zero mean and a unit standard deviation for the control group. The Difference (T-C), standard errors (SE) and p-values of the equality test are obtained by controlling for randomization strata and clustering standard errors at the school level (unit of randomization).

Table B.2: Balance Table - Restricted to being present at endline

	(1) N	(2) Control Mean	(3) Treatment Mean	(4) Difference (T-C)	(5) SE	(6) p-value
Panel A: Student Demographics						
Female	2219	0.488	0.489	0.002	0.018	0.913
Immigrant	2219	0.138	0.154	0.023	0.027	0.406
Age in months	2172	106.512	106.252	-0.202	0.147	0.176
Any learning difficulty/disability	2219	0.199	0.197	-0.001	0.019	0.972
Not autonomous during the survey	2219	0.008	0.010	0.001	0.005	0.898
Absent at baseline	2219	0.124	0.117	-0.023	0.030	0.451
New student in the school	2219	0.016	0.032	0.018*	0.010	0.081
Father has a university degree	1975	0.286	0.210	-0.071	0.066	0.281
Mother has a university degree	1994	0.350	0.293	-0.057	0.066	0.393
Panel B: Social Isolation						
Out-Degree (Binary - Reversed)	1936	0.027	0.022	-0.009	0.008	0.235
In-Degree (Binary - Reversed)	1936	0.129	0.132	-0.005	0.018	0.797
Total-Degree (Binary - Reversed)	1936	0.148	0.144	-0.015	0.021	0.481
Panel C: Social Inclusion						
Out-Degree (Continuous)	2165	0.041	0.020	0.042	0.111	0.711
In-Degree (Continuous)	2165	0.034	0.028	0.035	0.075	0.639
Total-Degree (Continuous)	2165	0.043	0.030	0.045	0.105	0.673
Panel D: Prosocial Games						
Probability of cooperating	1935	0.481	0.499	0.020	0.028	0.476
Fraction of endowment donated	1936	0.224	0.187	-0.042**	0.020	0.039
Panel E: Socioemotional Well-being						
Mental Health Index	1933	0.006	-0.017	-0.030	0.047	0.525
Belonging to school Index	1935	0.033	-0.012	-0.013	0.043	0.770
Perception of Teacher Index	1935	0.004	0.082	0.063	0.141	0.658
Panel F: Cognitive Measures						
Std. Raven score	1936	0.006	-0.052	-0.029	0.055	0.600
Std. Test Score Italian (Invalsi)	1967	0.021	-0.030	-0.013	0.125	0.917
Std. Test Score Math (Invalsi)	1946	0.026	-0.104	-0.123	0.120	0.312
Panel G: Classroom Characteristics:						
Classroom Size	135	19.152	19.594	0.418	0.736	0.572
Immigrant Share	135	0.151	0.164	0.021	0.026	0.416
Panel H: Teacher Characteristics:						
Female Teacher	163	0.987	0.977	-0.017	0.022	0.463
Teaches Math	153	0.397	0.325	-0.097	0.087	0.271
Teaches Italian	153	0.589	0.525	-0.050	0.075	0.511
Fixed Term	162	0.921	0.860	-0.057	0.045	0.207
Full time	162	0.934	0.930	-0.004	0.037	0.913
Age	159	51.447	50.807	-0.221	1.692	0.897
Years of experience	160	21.189	20.453	0.344	1.746	0.845
Has university degree	156	0.493	0.383	-0.134	0.084	0.119
Eye test score	153	23.274	23.875	0.555	0.538	0.309

Notes: The table presents the randomization balance at baseline when the sample is restricted to be at endline. Social inclusion outcomes, cognitive test scores and survey measures are standardized to have a zero mean and a unit standard deviation for the control group. The Difference (T-C), standard errors (SE) and P-values of the equality test are obtained by controlling for randomization strata and clustering standard errors at the school level (unit of randomization).

Table B.3: Treatment Effects on Antisocial Behaviors (Ethnic Reference)

	Antisocial Behaviours Ethnic Reference	
	(1) Probability of Cancelling	(2) Fraction of endowment used
Treatment	-0.090***	-0.050***
	(0.029)	(0.017)
Control Mean	0.64	0.30
Observations	2217	2217
Wild bootstrapped p-values	0.014	0.010

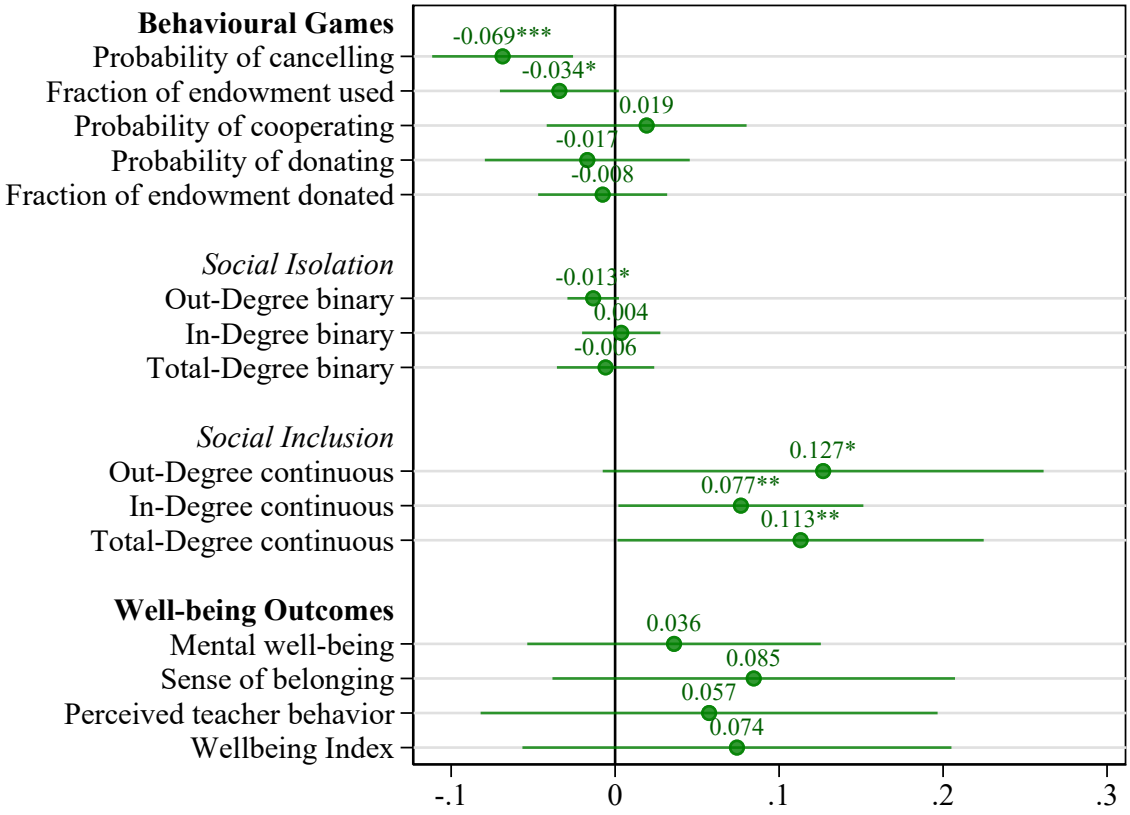
Notes: The table reports the estimated treatment effects on antisocial behavior, measured using the decisions in the sabotage game with ethnic reference. The dependent variable in column 1 is the binary indicator that takes the value 1 if the child chooses to cancel her opponent's correct answers and zero otherwise; in column 2 is the fraction of sabotage endowment used (out of 5 tokens) for canceling. Children were informed that their opponent might have foreign-born parents. Regressions (OLS) include strata fixed effects (FE), enumerator FE, the share of immigrants in the class, Raven's score, standardized test scores, gender, immigrant status, parental education, age in months, binary variables identifying students with a reported disability or learning disorder, students who were not autonomous during the survey data collection, students with a special teacher support, students who were absent at baseline or new in the school at endline, class size, binary indicators identifying whether the teacher is a math, Italian, or other subject teacher, as well as their gender, age, years of experience, level of education, eye test score, and binary indicators for holding a full-time or fixed-term contract. Standard errors are in parentheses and clustered at the school level (unit of randomization). The last row reports wild cluster bootstrap p-values calculated following Cameron et al. (2008).

Table B.4: Treatment effects on simulated differences in classroom payoffs

	(1) Payoff	(2) Gini	(3) Min. Payoff	(4) Max. Payoff
Panel A: Ideal World				
Treatment	-0.006	-0.002	-0.022	-0.280
	(0.118)	(0.003)	(0.022)	(0.328)
Control Mean	11.60	0.25	5.08	21.91
Observations	135	135	135	135
Wild bootstrapped p-values	0.948	0.362	0.374	0.452
Panel B: Actual World				
Treatment	0.367*	-0.026***	0.718***	-0.115
	(0.193)	(0.008)	(0.256)	(0.384)
Control Mean	9.05	0.28	2.75	18.03
Observations	135	135	135	135
Wild bootstrapped p-values	0.072	0.002	0.018	0.716
Panel C: Actual World (Ethnic Reference)				
Treatment	0.349*	-0.018**	0.565**	0.128
	(0.186)	(0.007)	(0.234)	(0.362)
Control Mean	9.44	0.27	3.17	18.52
Observations	135	135	135	135
Wild bootstrapped p-values	0.074	0.016	0.026	0.644

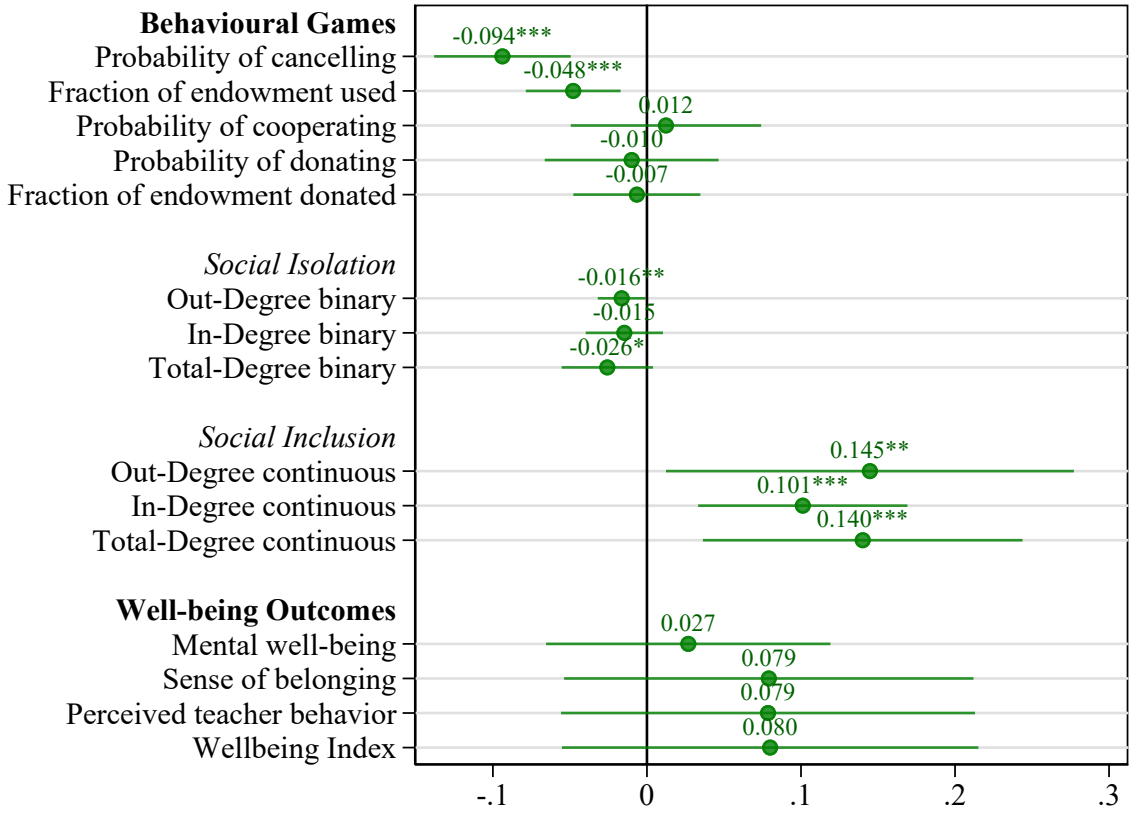
Notes: This table reports OLS estimates of the Figure 1. The dependent variables in columns (1) to (4) are respectively the average simulated payoff, Gini coefficient, minimum and maximum simulated payoff of the classroom. Regressions (OLS) include strata fixed effects (FE), enumerator FE, the share of immigrants in the class, Raven's score, standardized test scores, gender, parental education, age in months, binary variables identifying students with a reported disability or learning disorder, students who were not autonomous during the survey data collection, students with a special teacher support, students who were absent at baseline or new in the school at endline, class size, binary indicators identifying whether the teacher is a math, Italian, or other subject teacher, as well as their gender, age, years of experience, level of education, eye test score, and binary indicators for holding a full-time or fixed-term contract. Since the regressions are conducted at the class level, individual-level controls are averaged at the class level. Standard errors are in parentheses and clustered at the school level (unit of randomization). The last row reports wild cluster bootstrap p-values calculated following Cameron et al. (2008).

Figure B.1: Estimated treatment effects with basic controls



Notes: The figure reports the estimated treatment effects on the main outcomes. Regressions (OLS) include strata FE, enumerator FE, class size and the share of immigrants in the class. 95% confidence intervals are calculated via standard errors clustered at the school level (unit of randomization).

Figure B.2: Estimated treatment effects with Inverse Probability Weighting



Notes: The figure reports Weighted Least Square (WLS) of the treatment on the main outcomes. The weights are computed as the inverse of the predicted probability of being in the endline sample, estimated with a logit model that includes: strata FE, enumerator FE, the value of the outcome collected at baseline (when collected), the share of immigrants in the class, Raven's score, standardized test scores, gender, immigrant status, parental education, age in months, binary variables identifying students with a reported disability or learning disorder, students with a special teacher support, students who were absent at baseline, class size, binary indicators identifying whether the teacher is a math, Italian, or other subject teacher, as well as their gender, age, years of experience, level of education, eye test score, and binary indicators for holding a full-time or fixed-term contract. The WLS model includes the same controls used in the logit model, a binary indicator for new students present only at endline and a binary indicator for students who were not autonomous during the survey data collection at endline. 95% confidence intervals are calculated via standard errors clustered at the school level (unit of randomization).

C A Summary of Treatment Content

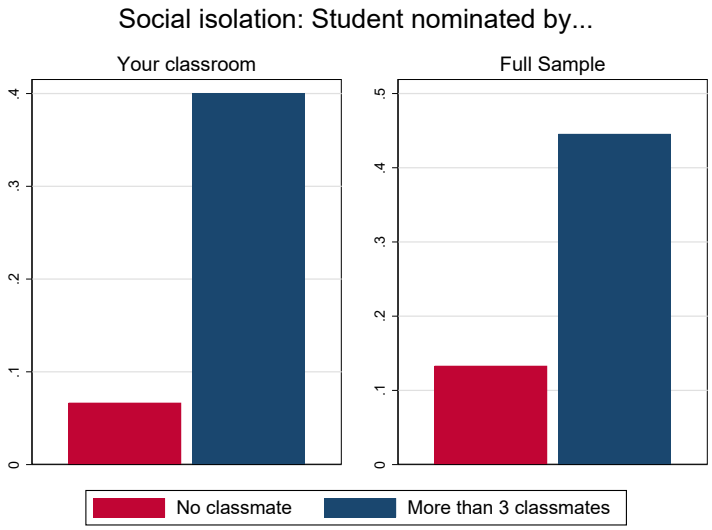
C.1 Summary and extracts of an exemplary classroom report

Introduction. This report is intended for teachers who participated in the DeSS "Development of Social Skills" Project starting from the academic year 2021-2022. The purpose of the report is to present some information on social isolation in the classroom and its effects on the socio-emotional development of students. Each report has the following six sections.

(i) Social Isolation in the classroom. This section reports the degree of isolation in each class and of the entire sample. Figure C.1 is an example. We report below an extract of the explanation provided for the figure.

> ... We report below the **degree of isolation** in your class (left) and the entire sample (right). The first vertical (red) bar shows the percentage of children who are not mentioned by any peers (the most "**isolated**"). The second vertical (blue) bar shows the percentage of children mentioned by more than three classmates (the most "**popular**"). The graph for the *entire sample* shows that there are some children who are mentioned by more than 3 peers, and others who are not mentioned by any peers. For the latter, the average in our sample is around 13%...

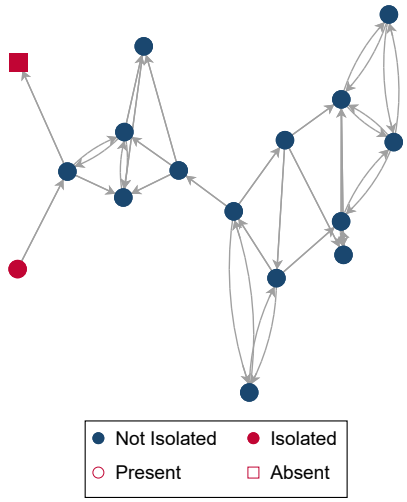
Figure C.1: Degree of social isolation in your class and the entire sample



Notes: The figure is an extract from a teacher report. The figure shows the share of students nominated by none among her classmates (blue bar) and the share of students nominated by more than three classmates (red bar).

(ii) The classroom social network. The report then presents the visual representation of the friendship network of the class. Figure C.2 is an example.

Figure C.2: Network of your class



Notes: The figure is an extract from a teacher report. The figure shows the network composition of a classroom, highlighting isolated (red dots) and not isolated students (blue dots).

We provide careful instructions on how to read each figure. Below an example:

How to read Figure C.2?

Each circle or square represents a student in your class. Outgoing arrows indicate that the child has named one (or more) children. Incoming arrows indicate that the child has been named by other children (one or more). The colored circles represent students who participated in the activities and were present in class, while squares represent absent students or those who did not participate in the activities. These students could not name any peers (due to absence or lack of parental consent) and therefore cannot have an outgoing arrow. However, these students could still be named by their peers (incoming arrow). The blue color represents children who have been mentioned by at least one classmate ("not isolated"). The red color represents "isolated" children: those who were not mentioned by any classmates.

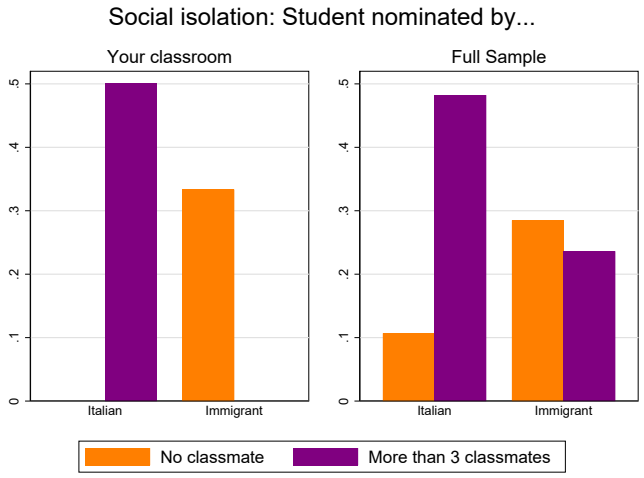
Note

It is possible that there are no "isolated" children in your class (children not mentioned by anyone). This is positive. However, some children may still be more isolated than others in the class.

(iii) Who are the most socially excluded children? The report then highlights and illustrates that there are some categories of children who tend to be more socially excluded than others (mostly migrant children and from lower socio-economic status). Figures C.3 and C.4 are examples. The report also includes the visual representation of the class network

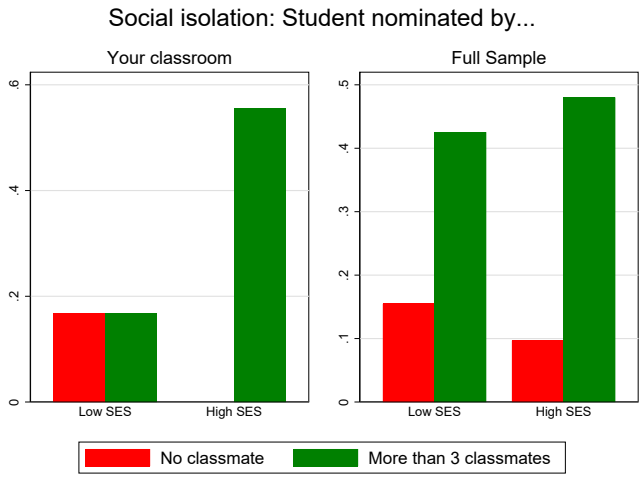
with a distinction between native and foreign children and the degree of isolation and another with a distinction between children with high or low educated parents (see Figure C.5 below). Also for all these figures we provide detailed instructions on how to read them.[7]

Figure C.3: Degree of social isolation in your class and the entire sample, distinction between natives and foreigners



Notes: The figure is an extract from a teacher report. The figure shows the share of students nominated by none among her classmates (orange bar) and the share of students nominated by more than three classmates (purple).

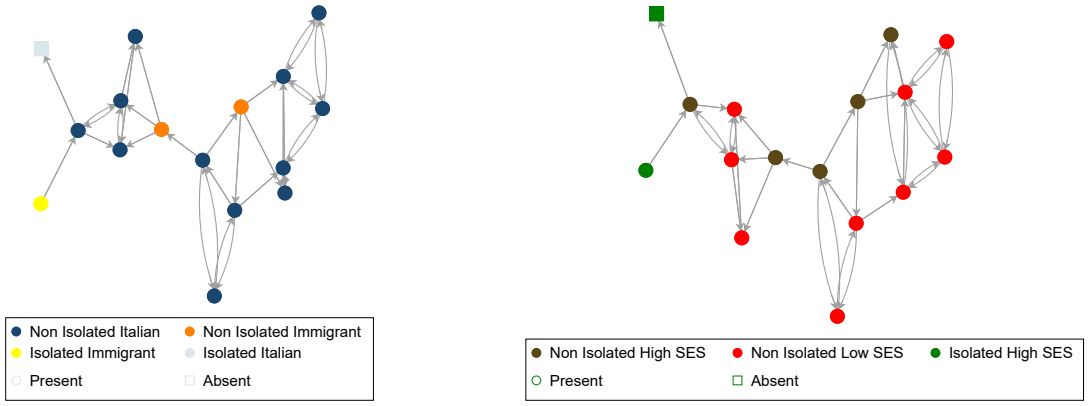
Figure C.4: Degree of social isolation in your class and the entire sample, distinction by parents' education level



Notes: The figure is an extract from a teacher report. The figure shows the share of students nominated by none among her classmates (red bar) and the share of students nominated by more than three classmates (green). High SES is a binary indicator equal to one if at least one parent has a university degree.

[7]For example for Figure C.3 we explain that if there are no children in one of the categories, the corresponding bar will not be represented in the figure.

Figure C.5: Network of your class, distinction between natives and foreigners and between high and low educated parents



Notes: The figure is an extract from a teacher report. The figure shows the network composition of a classroom, highlighting isolated and not isolated students. The figure on the left distinguishes between native and foreign students, while the figure on the right distinguishes between students with high and low educated parents. High SES is a binary indicator equal to one if at least one parent has a university degree.

(iv) Why is it so important? This section highlights the reasons why it is crucial to prevent social exclusion and isolation. We first reference neuroscientific research that shows social exclusion causes pain in individuals who experience it—pain that is comparable to physical pain. This is because the part of the brain called the "Dorsal Anterior Cingulate Cortex" (DACC) is responsible for activating pain. This same region is also activated when one feels socially excluded.

The report then emphasizes that the perception of social exclusion during childhood has significant negative consequences, both in the short and long term, impacting mental health, perceptions of the school environment, and a sense of belonging to the school. Continuous exposure to social exclusion can make this pain permanent, leading to negative effects in adulthood on mental and physical health, the likelihood of adopting aggressive behaviors, and self-confidence and self-esteem. The negative impact of social exclusion can also be reflected in academic performance, the probability of attending university, and the likelihood of success in the labor market.

We then mention that our analysis of the entire sample shows that more isolated children exhibit poorer socio-emotional states, a more negative perception of the school environment, and a lower sense of belonging to the school. The analysis also reveals that the effects on these indicators are more pronounced for foreign children and those from lower socioeconomic backgrounds. In each report, we include a visual representation of all these relationships for each class.

(v) The role of teachers: children's perception. The report reiterates that each teacher plays a fundamental role in the emotional development and formation of social skills in their students. It emphasizes that data analysis for the entire sample shows that the most socially isolated students feel less supported and observed by their teachers. The document then provides visual representation of the relationship between children's perceptions of their teachers' behavior and their degree of social isolation, both within their class and across the entire sample.

We further emphasize how teachers' actions influence the perceptions that children have of them, highlighting that the more teachers engage in behaviors that specifically address the needs of socially isolated students, the more they can contribute to improving these children's socio-emotional well-being and, more broadly, to the development of socio-emotional skills across the entire class.

(vi) What actions can you put into practice every day? The last section of the report includes practical suggestions on which actions and behaviors to adopt to ensure that every child is included in the relational system and in activities implemented every day in class. Below we provide a short summary of the practical tips included in the report:

- Regularly ask to children how they feel, particularly to the most isolated ones.
- Try to get all the children invited to birthday parties (provided concrete suggestions)
- Play the game "How would I feel in his /her place if...". Give examples of exclusion situations.
- Assign homework to a group, giving a role of responsibility to each child (spokesperson, note taker, ..) and make sure that everyone tries out different roles during various activities.
- Ensure that groups formed during activities consist of students with diverse characteristics, skills and abilities.
- Pay attention to how students are sitting and make sure to make them interact by varying where they are sitting.

C.2 Online meeting with teachers: Summary

Each online meeting followed in general the same structure of the personalized report. We provide below a short summary of the central elements of the meeting. We started with an

introduction of the project and then highlighted the great importance of teacher's role for the socio-emotional development of students ("*You are role models for your students and your actions have a significant impact not only at the cognitive level but also on the non-cognitive development of each child.*"). We emphasized how important their role is in the formation and functioning of **social relationships** within their classes ("*the way children interact with each other and spread information and knowledge can have permanent consequences on the cognitive and non-cognitive development of the child*") and how these effects can persist into adolescence and adulthood and manifest in various areas, such as academic performance, the likelihood of continuing education, labor market outcomes, and physical and mental health. We then asked teachers to indicate how many students in their classes might not have been mentioned by any peers. Figure C.6 shows the responses and indicates that 81% of the teachers present at the meeting believed that there were less than 10% isolated students in their class. One in four teachers believed there were no isolated children in their class. We then immediately revealed teachers that their perception of isolation was well below the sample average and provided visual representation of this figure (see Figure C.7).

Figure C.6: Perception of the degree of isolation by teachers present at the online meeting on 11/17/22

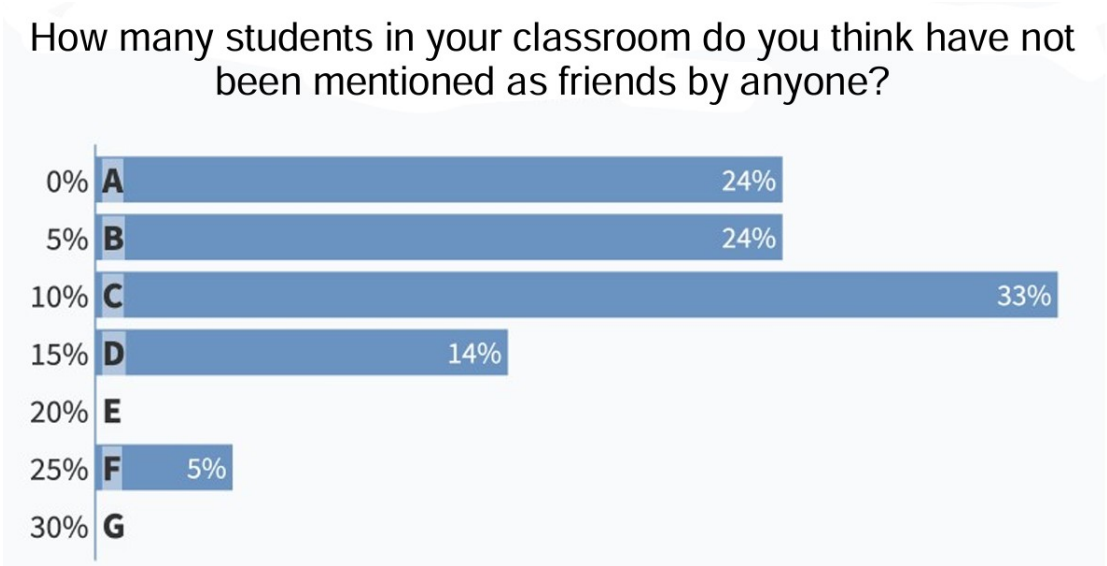
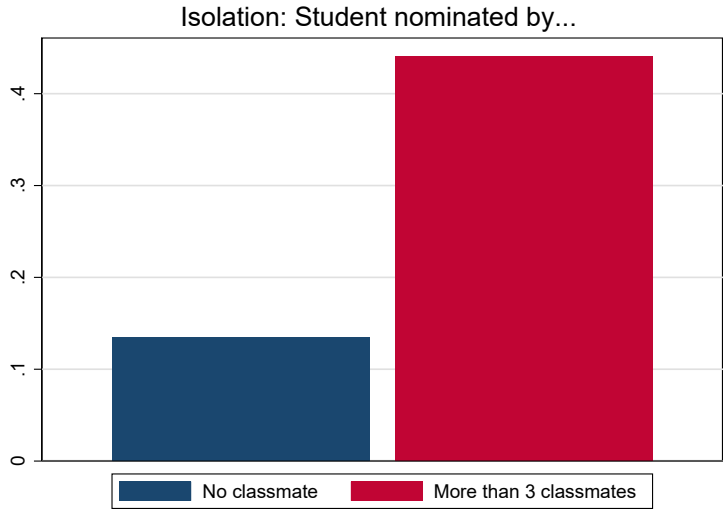


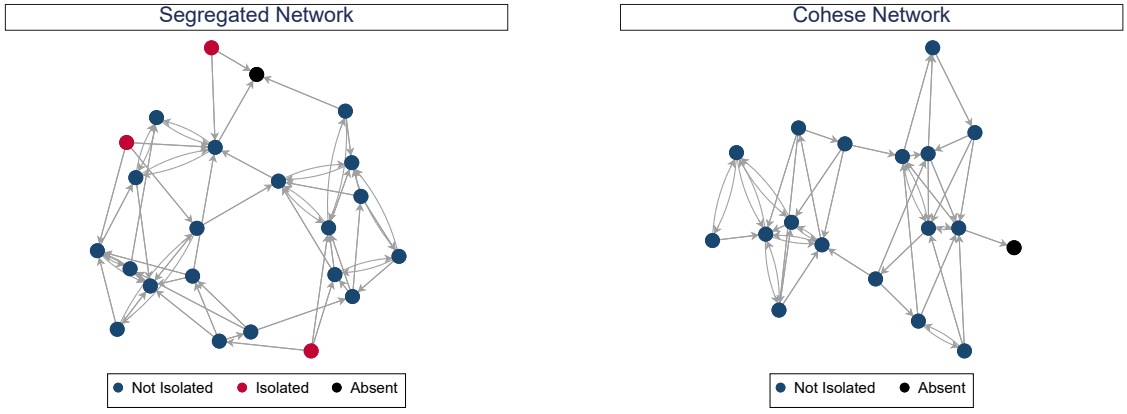
Figure C.7: Social Isolation (whole sample)



Notes: The figure shows the share of students nominated by none among her classmates (blue bar) and the share of students nominated by more than three classmates (red bar). To create this figure it was used the whole sample at baseline.

Classroom networks. We then provided a visual representation of examples of segregated and cohesive networks of selected classes (see figure C.8).

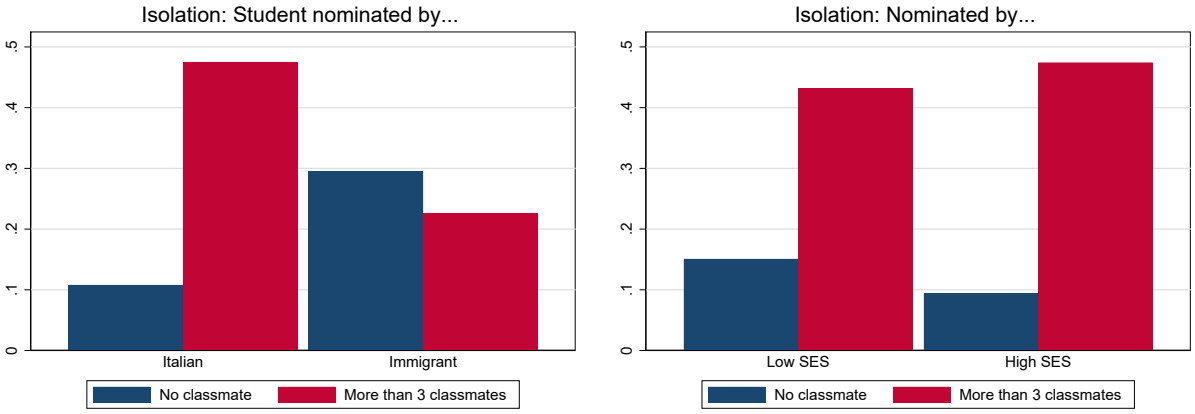
Figure C.8: Network of selected classrooms



Notes: The figure shows the network of students in two specific classrooms. Each node is a student in the classroom. Each edge represents whether the student is nominated as best friend the classmate.

Social isolation by migrant status and socioeconomic background. We showed that on average in our sample social isolation is more prevalent among immigrant students and students with a lower socio-economic background (see Figure C.9). We also provided visual representation of segregated and cohesive networks of selected classes highlighting how in segregated networks the most isolated are immigrants and lower SES students.

Figure C.9: Social isolation of selected classrooms by immigration status and by parents' socioeconomic status



Notes: The figure on the left shows the share of students nominated by none among her classmates (blue bar) and the share of students nominated by more than three classmates (red bar). Moreover, the sample is split in two groups: italian students and immigrant students. To create this figure it was used the whole sample at baseline. The figure on the right shows the share of students nominated by none among her classmates (blue bar) and the share of students nominated by more than three classmates (red bar). Moreover, the sample is split in two groups: low socio-economic status (SES) students and high SES students. The SES is proxied by a dummy equal to one if at least one parent has a university degree. To create this figure it was used the whole sample at baseline.

Social isolation and student well-being. As in the personalized report we highlighted the reasons why preventing social isolation and social exclusion is crucial. We explain the adverse consequences these can have both in the short term and in the longer-term on several later-life outcomes (e.g., health, education, employment). We then showed using our data the correlation between social isolation and our indicators of students well-being (mental well-being, sense of belonging to school and perceived teacher behavior).

Practical tips: we concluded the meeting by providing some practical suggestions of inclusive practices summarizing those included in each personalized report (see above).

D Experimental Instructions and Implementation of Games

Hi everybody. My name is [Name]. We come from a university. Do you remember us? Great!! Do you remember us or our friends? Our colleagues came last year to do activities together and now that it is Spring we are back to do new games all together. You remember that we are from the university, the school of the grown-ups.

Well, we are here today again to do some activities with you. You already know some of these activities so it will be super easy! But we have also some new ones for you. All will be fun.

Now, let me tell you a few things before we start:

1. We brought some gifts for you today. You will all get some. How many each will get will depend on your decisions in our games. Yes, we will play some games again before giving you any gift.

2. I need you to follow some important rules OK?

   (a) Everything will be secret. You are like spies. Do good spies reveal secrets? No! You will not show what you do to your friends OK?

   (b) You won't talk to your friends during the activities OK?

   (c) Absolute silence... If you follow these rules, you will have lots of gifts from us OK?

   (d) We will give you your gift at the end of our visit. After everything is finished. OK? Can you wait? Yes! Great!

Also, for the activities we will do together today we will give you tablets [show one]. There are two very important things to remember though:

1. We will now hand out the tablets, but don't touch anything! It is very important that we all go ahead together in these games. If you go on by yourself, then you don't know what to do and we have to start all over again from the beginning and it becomes a bit boring, while we want to have fun. Right? So please don't press any buttons on the tablet until we tell you to do so.

2. Please remember that tablets are very very delicate objects, so we ask you to be very careful because we have to bring them back in one piece to our university. Please always keep them on your desk.

Are we ready?

Now, first we hand out slips of paper [Enumerator 2 (E2) or Enumerator 3 (E3) can hand out game sheets while Enumerator 1 (E1) is talking]. Let's write our first and last name on the game sheet we gave you. But don't write anything else on it, OK? I will explain what we are going to do with it.

So let's distribute the tablets.

Then let's distribute the tablets and the piece of papers (experiment decision papers). [all assistants and the experimenter together distribute everything].

Now, find our names in the menu. [help kids to find their names from dropdown menu].

Then let's write our name and last name on that little paper we gave you. But don't write anything else on it OK? I will explain what we will do with it. [make sure kids are ready]

Today, we will first play 2 games. Game 1, Game 2 [write exactly like this on the board].

I will explain all of them. Very easy. In fact, you know one of them perfectly well! But listen carefully. You will earn gift TOKENS for all games. There are no real tokens but imagine small tokens OK? What are these tokens for? You can get gifts from our bag using these tokens. In the game we will play you may collect more tokens. More tokens you collect, more gifts you will have. We have different gifts. Some you can get with 1 token, some you need to pay 2, 3 or 4 tokens. They are more valuable. Understand?

BUT.... At the end of our visit, we will draw one game at random for the class and everyone will be paid according to that game only.

What I mean is gift tokens will not accumulate as you play more games. You will play all the games but will receive the gifts of only one game. Why do we do that? Well, we don't want you to think, I did Game 1, I don't need to do Game 2. Well, maybe Game 2 will come from the random draw and you will get gifts from this game. So, we want you to do all the games as carefully as possible to earn as many gift tokens as you can. OK? REMEMBER Only one game will be paid and you don't know which one!!! Be careful for all two games.

Now, I will explain Game 1. Very easy. Many of you have already played this game before.

Game 1

[EXPERIMENTER 2 draws the payoff matrix on the blackboard, but without filling it with the value of the payoffs. If there is an overhead projector in the classroom, use the colours orange and green to colour the matrix. When you enter the classroom E2 or E3 make sure to turn on the overhead projector or ask the teacher to do so while E1 is presenting.

This saves time.]

For this game we will give you 3 tokens [draw 3 circles on the board]. There are no real tokens but imagine small tokens OK? Everyone has 3. What are these tokens for? You can get gifts from our bag using these tokens. In the game we will play, you may collect more tokens. More tokens you collect, more gifts you will have. We have different gifts. Some you can get with 1 token, some you need to pay 2, 3 or 4 tokens. They are more valuable. Understand?

For this game we have coupled you up with one of your classmate. We will not tell you which classmate, but all of you have a partner. It could be anyone in this class. Before beginning the game, we will give you 3 tokens. We will not actually give you tokens, it's like a videogame score and we are keeping the points. Each of you has 3 tokens. They are important because before we leave we will give you some presents – everyone will receive something – but how many presents and how beautiful they are will depend on how many tokens you have gained in the game.

The game consists of picking a card, it's very easy. There is an orange card and a green card. Again, it's like a videogame, we will not really give you the card, but imagine an orange card and a green card. Each of you will have to pick one of these two cards, everyone will choose at the same time and we will all do it in secret. None of your classmates will know what you chose! It's very important that your decision stays a secret, imagine of being spies. A good spy never reveals their secrets, right?

Table D.1: Payoff Matrix for cooperation game

You	**Classmate**	
A	A	You: 3 tokens Classmate: 3 tokens
A	V	You: 9 tokens Classmate: 0 tokens
V	A	You: 0 tokens Classmate: 9 tokens
V	V	You: 6 tokens Classmate: 6 tokens

So, now don't forget, everyone starts with 3 tokens. Let me explain our game. Listen carefully.

Okay, now I will tell you what happens when you choose the cards. At the end of the

game, my friends will see your answers. I told you before that we have paired you up with a classmate, do you remember? Yes? Amazing. But do you know who your partner is? No? Great, you understood well. I was saying, at the end of the game my friends will see what you and your partner have picked.

[When explaining the game, E1 must be careful not to give hints or clues such as: "watch out, there's a trick" or judgements of morality, etc.]

If both you and your partner have picked orange, you will not gain any tokens, but you will not lose any: both of you will still have the initial 3 tokens at the end of the game.

If you pick orange, and your partner picks green, you will take all of the tokens of your partner and we will also give you some more. So, if you pick orange and your partner happens to pick green, you will have 9 tokens at the end of the game. You will take everything from your partner, though, and they will have 0 tokens. That means that you will have a lot of presents at the end of the game, but your partner will not.

If you pick green and your partner happens to pick orange you will lose all of your tokens! Your partner will take all of them from you. At the end of the game, you will be left with 0 tokens while your partner will have 9 of them and a lot of presents.

If both you and your partner have picked green, however, both of you will double your tokens. So at the end of the game each of you will have 6 tokens. This means double presents! But only if you both picked green.

[Ask several questions and make sure the students understand the game. Review the pay table again and again if necessary, always following the order of presentation]. So, we all chose in secret at the same time and you do not know who your partner is. Is it all clear? Any questions?

Now you are ready to choose. Be very careful, think of what you can choose and what your classmate might choose. You do not know which classmate is your partner, but you know all of them, so you can think of what they might choose to do. Now press the arrow on your tablet.

There are two options: green and orange. Do not show anyone what you choose: you are spies, remember? Now let's all choose at the same time: 3, 2, 1... go!

Now, mark your decision on that paper too! [paper has orange and green option] Then turn the page. [Allow the students to make their choices and go around the desks to check that they are writing on their game sheets and not going on with their tablet].

Game 2

Now, if Game 1 comes in the coin toss, we will pay you based on Game 1. But, may be

Game 2 will come out of the coin toss. What is game 2? Let's see...

In this game we will ask you to do some additions.

For example 10 + 7 = ? What is the correct answer? [let them tell you what is the correct answer]

Write it on the tablet too, but be careful: write the numbers only in numbers, not in letters or words! Do you know where to find the numbers on the tablet keyboard? If not, call us and we will help you. [rectangle, red , .. show how to make the number keyboard appear on the tablet. The difficult thing here is to make sure that they don't start all the addition. So tell the children to put their hands on their knees as soon as they have written the first example].

Did we all write 17 in the tablet? Did you all understand how to do that? So now let's all press the forward button together.

['Now it's your turn' appears: E2 - E3 must go around the classroom to make sure that no one starts addition just yet!!!].

Now, if Game 1 comes in the coin toss, we will pay you based on Game 1. But, may be Game 2 will come out of the coin toss. What is game 2? Let's see...

In this game we will ask you to do some additions.

For example 10 + 7 = ? What is the correct answer? [let them tell you what is the correct answer]

Write it on the tablet too, but be careful: write the numbers only in numbers, not in letters or words! Do you know where to find the numbers on the tablet keyboard? If not, call us and we will help you. [rectangle, red , .. show how to make the number keyboard appear on the tablet. The difficult thing here is to make sure that they don't start all the addition. So tell the children to put their hands on their knees as soon as they have written the first example].

Did we all write 17 in the tablet? Did you all understand how to do that? So now let's all press the forward button together.

['Now it's your turn' appears: E2 - E3 must go around the classroom to make sure that no one starts addition just yet!!!].

There will be lots of questions like this. You will find the correct answer and type the answer and move forward to the next question. You will only have 2 minutes. Each correct answer will get you 1 token! So, you should do your best and do as many additions as you can in two minutes.

But you will play this game against an opponent, a paired classmate. Just like in the

other game, we paired all of you with someone in your classroom. Not the same people in the first game of course! You have a pair, but you don't know who that is. All you know is she/he is here in this classroom, your classmate. It can be anybody in the classroom!

After 2 minutes, we will stop the game. Then here is what is going to happen. If you did more than your pair, you will get the tokens you earn, but your pair will get ZERO. But if your pair did more than you, he/she will get all the tokens he/she earned, you will get zero. Lets see some examples: Say

EXAMPLE 1 Player 1 did 8 correct. Player 2 did 7 correct. Who won? Yes, Player 1 did. So Player 1 get 8 tokens because they did 8 correct, but their pair gets ZERO! Not 7. Because they lost the game. What they did, disappears!!!

EXAMPLE 2 Say Player 1 did 9 correct. But Player 2 did 10 correct. Who won? Yes, Player 2 won. So, they gets 10 tokens, Player 1 get ZERO even though they did 9. All disappears when you lose the game.

EXAMPLE 3 Say Player 1 did 10, Player 2 did 10? Then we will toss a coin, pick a winner. Winner will get 10 tokens; loser will get ZERO.

So, in this game, there will always be a winner and a loser. Understand? OK. [PLEASE MAKE SURE KIDS SEE HOW BAD THE END CAN BE IN THIS GAME].

Are you ready? OK - let's begin! Please do your best as before! You now have two minutes to do all the additions. As soon as I say go ahead on the tablet and as soon as you see the addition list, write the answer as I showed you before and continue until the time runs out. Be sure to scroll with your finger and see lots of them appear. [Let them do the additions until the time runs out. As they complete the additions, E2 writes a matrix on the blackboard with just the titles for the examples]

STOP**** [Hands on your knees]

Now, you all finished. But you don't know if you won or lost right? No idea. Maybe you won, maybe you lost... You don't even know how many correct you did for sure.

Now, we will do something about this. We will give all of you 5 extra tokens!!! Yes. Even if you lost, you would have 5 tokens!! Guaranteed in your pocket. NO MATTER WHAT HAPPENS.

But you can do something else with those tokens.

If you find it correct in your heart, you can cancel some of your pair's correct answers to increase your chances to win using these tokens. How? This is how: [E1: be careful and always use "cancel" as a verb.]

EXAMPLE 1:

Say you (P1) did 13 correct and your opponent (P2) did 14 correct. That means you lost this game (But you don't know). But we gave you extra 5 tokens, so you end up with only 5 tokens.

Table D.2: Example for sabotage game

	NUM OF CORRECT ANSWERS	ADDITIONAL TOKEN	DECISION TO CANCEL THE OPPONENT'S CORRECT QUESTION	FINAL TOKEN
PLAYER 1: YOU	13	5	0	LOSE 0+5=5
PLAYER 2: YOUR PARTNER	14	5	0	WIN: 14+5=19

But let's say this happened as an example:

You can cancel your pair's correct answers using the 5 extra tokens we gave you. But cancelling your pair's correct answers is not easy, there is a cost. For each correct answer you cancel, you have to pay one token from those extra 5 we gave you.

Let's go back to our example:

Table D.3: Example for sabotage game (Continuation)

	NUM OF CORRECT ANSWERS	ADDITIONAL TOKEN	DECISION TO CANCEL THE OPPONENT'S CORRECT QUESTION	FINAL TOKEN
PLAYER 1: YOU	13	5	2	WIN 13+3=16
PLAYER 2: YOUR PARTNER	14 (-2 = 12)	5	0	LOSE 0+5=5

But remember cancelling your pair's correct answers is not easy, there is a cost. For each correct answer you cancel, you have to pay one token from those extra 5 we gave you. To cancel 2, you have to give us back 2.

In this example, say you take 2 correct from your pair, but you need to spend 2 tokens for this action, so you have 3 left. Now you have 13 plus 3 left from what we gave you. Total of 16 tokens. Your pair lost so he will only have 5 tokens.

But don't forget, your pair can cancel your answers as well. You don't know who your

pair is. You don't know what they will do. But you know she is in this classroom. One of your classmates.

EXAMPLE 2:

Table D.4: Example for sabotage game

	NUM OF CORRECT ANSWERS	ADDITIONAL TOKEN	DECISION TO CANCEL THE OPPONENT'S CORRECT QUESTION	FINAL TOKEN
PLAYER 1: YOU	9	5	0	LOSE 0+5=5
PLAYER 2: YOUR PARTNER	14	5	4	WIN: 14+1=15

Player 2 did 14, Player 1 did 9. Winner makes a move takes 4. (Doesn't know they won, so). Still wins, spend 4 tokens. Nothing changes. Winner gets 14+1, loser gets 5.

[The game has many possible scenarios, so it is not easy to give examples: we have to make sure that kids understand the possible consequences. Repeat the same examples over and over if they have not understood.]

It's a tough decision! You need to decide whether you cancel the correct answer of your opponent. Is all clear?

[In this game, we have to invite them to think about the 'morality' of their choice in a very delicate way: strictly follow the text in the passages 'if you think it (is) not OK to delete the correct answers to try to win at all costs, then ...'].

Guys, you don't know what your pair will do. You don't know whether you lost, or you won. You have to make decisions without knowing these all at the same time. You don't have to cancel answers from your pair. But if you do, you have to spend tokens. You have 5 tokens, that means you can cancel maximum 5 correct answers from your pair. Because you don't know you won or you lose, you may want to change your luck by cancelling correct answers from your pair. If you think this is OK to cancel someone else's correct answers for your gain. Or you may choose to leave things as they are if you do not think it is okay to cancel someone else's correct answers for your own gain. It is really your decision. Everyone will decide at the same time so no one will know what the others do. You do this if you think it is OK to do so to your classmate. [a little morality push is OK]

Now, you have to make your decision. On your tablet, you will now see two questions on the tablet, only one of them will be applied to you but you will answer both because we

don't know which one. We will pick one of the two to pay you. You have 5 tokens. Secretly decide whether you want to cancel your pair's correct answer. If so, how many. You can choose to take 0,1,2 3, 4 or 5.

On my go, we all go ahead on the tablet and read two questions together. Be careful: spies have a super power - super memory and remember the answer to both questions! Now read what the question asks and decide carefully. Let's all go ahead on the tablet: go!

Question 1: How many correct answers from your partner do you want to delete? Indicate your choice on the tablet.

Done? Good. [Go around the desks and check that they have answered on the tablet].

When everyone is here, we can move on. Now answer the second question as well.

Question 2: The classmate you are paired with could be someone whose parents are not Italian. How many correct answers from your partner do you want to delete? [If they say there is no one matching this description, they must select the same number as they put in before].

Done? Good.

[According to the day's file, ask them to write down the answer to the first or second question on the sheet]. Now copy your answers also on the sheet you have. It is the game with the moon, put an x above the corresponding number.

Be careful not to be seen.

[Check that everyone has also answered the second question and written the answers to the two questions on the paper before moving on.]

When I say so, press the forward button on the tablet. You will see how many right answers you got. Remember that it is a secret. When you see it, take the slip of paper again and turn the page. At the top where the moon symbol is written: "Number of correct answers", enter the number of correct answers you see on the tablet. Do this without being seen. When you are done, put your hands on your knees. Go!

Done? [End of the second game].

Game 3

There's a surprise for you: one last game! We give you 4 tokens. [draw 4 circles on the board]. These are not related to our previous game. You will get that game's gifts at the end of our visit. Don't worry!

These 4 tokens are yours as well. You can get gifts from our bag with these tokens. But before, listen to me very carefully:

There are many students that you don't know from other schools. They are your age and

they all come from a different country. Their parents do not speak Italian.

Now look at your tablet again. There is a secret question for you about these 4 tokens. Press continue and read the question.

[The question they will read on the tablet is the following: How many tokens would you give to a student that you don't know and come from a foreign country?]

Don't forget! You don't have to give away your tokens. This is all a secret. If you don't want to give away mark "I want to keep all my tokens". If you want to give away some, decide how many you want to give. 1, 2, 3 or 4. Whatever you decide is OK. Whatever you decide, we will do exactly what you want. If you want to keep them all, we will give them to you, if you give away 1, we will take 1 and give it to those students we cannot visit, if you want to give away 2, we will take 2 from you and give them to those students ....

[Always state all 5 options. Repeat that they do not necessarily have to give the tokens away. If they give them, we will take away the tokens they give away to someone else. This is important! They must understand that we will implement their decision. Emphasize that we will implement what they do - "if you donate 2 tokens, we will take these 2 tokens and bring them to a foreign child in another school" (don't just ask if they understand how many they donate and how many they have left)].

Now, don't show anything to anyone and mark your decision on the tablet. Secret!

And mark the same decision on the piece of paper in front of you. All done!!

[EXPERIMENTER 3/2 - Pick up the game sheets now. Don't wait. Make sure their names are on the sheets and that they have put ticks on the choices and entered the token numbers]

[EXPERIMENTER 2/3 leaves the classroom and goes to calculate the payoffs of the games. They will use a coin to take one of the two games (cooperation or sabotage) randomly, calculate each child's payoff (the payoff is at the end of this document) and prepare the envelope with each child's label and the gifts]

We now move on to our next activity.

E Survey Items

Table E.1: Student Survey Inventories

Inventory	Items	Baseline	Endline
Choose how often you have felt this way during the last week (Never/ Rarely, Sometimes, Often, Always)			
Mental Well-Being	I am happy	✓	✓
	I get upset quickly	✓	✓
	I feel lonely	✓	✓
	I enjoy a lot of things	✓	✓
How often do these things happen in your class? (Never/ Rarely, Sometimes, Often, Always)			
Italian teacher's perceived behaviour	My Italian language teacher notices when I am sad	✓	✓
	My Italian language teacher praises me for good work.	✓	✓
	My Italian language teacher screams or yells at me.	✓	✓
Math teacher's perceived behaviour	My math teacher notices when I am sad	✓	✓
	My math teacher praises me for good work.	✓	✓
	My math teacher screams or yells at me	✓	✓
Thinking of your school: How often do these things happen? (Never/Rarely, Sometimes,Often, Always)			
Sense of belonging at school	I prefer not to come to school if I could	✓	Reversed
	I feel my classmates like me	✓	✓
	I feel lonely at school	✓	✓

Table E.2: Network Elicitation Templates

	None	1	2	3
My best friends in the class				

Notes: The respondent can select at most 3 classmates she considers as best friends

Table E.3: Teacher Survey Inventories

Inventory	Exemplary Items	Baseline	Endline
Teaching experience	Which of the following subjects do you currently teach? (Select all that apply)	✓	✓
	How many years of teaching experience do you have in primary and/or secondary school?	✓	✓
	What is your highest level of education (excluding teacher training)?	✓	✓
	What is your current employment status as a teacher?	✓	✓
	What type of contract do you have?	✓	✓
Socio-demographic characteristics	What is your gender?	✓	✓
	What is your date of birth?	✓	✓
Teacher's emotional intelligence	Eyes Test	✓	✓
5-point likert scale: Strongly disagree/Disagree/Neither agree or disagree/Agree/Strongly agree.			
Teaching styles and practices	I allow students to choose on their own friends for group activities.	✓	✓
	I group students with the same ability level and assign different tasks to each group based on their ability levels.	✓	✓
	Even if some students don't understand a specific topic, I must move on with the program with the rest of the class.	✓	✓