The Impact of COVID-19 on Peer Relationships: Insights from Classroom Social Networks*

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Abstract

In the spring of 2020, as the COVID-19 pandemic swept across the globe, governments implemented drastic containment measures, including widespread school closures that deprived millions of children of their primary social environment—the classroom. To understand how the pandemic affected classroom peer relationships, we leverage social network data from 3rd and 4th-grade students in Turkish primary schools, comparing pre-pandemic and pandemic cohorts across three relationship types: friendship, academic support, and emotional support. We document opposing changes across network types: friendship isolation increased by 22%, while academic support nominations rose by 20%. These improvements in academic support were driven entirely by native students; refugee students faced deterioration in both friendship and academic support networks. Our findings show that large-scale disruptions can reshape peer relationships in complex ways, underscoring the vital role of the classroom in building social capital.

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1 Introduction

Peers are central to the education journey of students, contributing both to their academic achievements (Sacerdote, 2011; Epple and Romano, 2011) and to broader outcomes, including socio-emotional skills and mental health (Kochenderfer-Ladd and Ladd, 2019; Kiessling and Norris, 2020; Wentzel, 2017; Bietenbeck, 2020). In this sense, the formation of peer relationships constitutes a key dimension of social capital, generating positive externalities that enhance individual human capital accumulation.

The formation and continuity of these peer networks, however, depend on the stability of the educational environment. Systemic shocks, such as natural disasters, conflict and displacement, or prolonged teacher strikes, can suddenly interrupt classroom dynamics and reshape peer relationships. Among such disruptions, the COVID-19 pandemic stands out for its unprecedented scale and duration: school closures affected more than 90 percent of the world's student population, roughly 1.5 billion students in more than 190 countries, depriving them of their primary social environment.[1] Understanding how peer relationships respond to such shocks is critical for assessing the broader human capital costs of educational disruptions.

In this paper, we investigate how the unprecedented COVID-19 shock impacted peer relationships in the classroom by leveraging detailed data on classroom social networks. We employ a cross-cohort comparison strategy that involves comparing students in the pre-pandemic (2018) and pandemic (2021) cohorts to provide descriptive evidence of the pandemic's impact. Our analysis is guided by three hypotheses. First, prolonged school closures and reduced in-person interaction likely disrupted social bonds. Second, impacts were unlikely to be uniform, with vulnerable groups such as refugees disproportionately affected. Third, the challenges of catching up academically may have increased reliance on peers for academic support.

We address these hypotheses using field data from Mersin, a Turkish province hosting a large refugee population since the Syrian civil war. Our data include two cohorts of primary school students: a pre-pandemic cohort surveyed in October 2018 and a pandemic cohort surveyed in September-October 2021. A key feature of our data is the detailed social network information: we observe nominations of peers across three relationship types: friendship,

[1] Accessed on the UNESCO website https://en.unesco.org/covid19/educationresponse#schoolclosures in November 2022.

academic support, and emotional support. This allows us to construct classroom social networks and examine how different types of relationships responded to the pandemic.

Our empirical analysis shows that the COVID-19 pandemic substantially reshaped peer relationships within classrooms, with effects varying by both relationship type and student characteristics. Friendship networks deteriorated: students in the pandemic cohort received 16% fewer nominations than pre-pandemic students, isolation increased by 22%, and reciprocal friendships declined by 25%. Conversely, academic support networks strengthened: pandemic cohort students received approximately 20% more nominations than pre-pandemic peers, with reduced isolation and increased reciprocity. However, these overall patterns hide differences between native and refugee students. The improvements in academic support were entirely driven by native students, while refugee students experienced deterioration across both friendship and academic support networks.

Our paper makes two main contributions. First, we provide the first systematic evidence on how a major disruption affects peer relationships in classrooms, which is a critical but understudied channel through which shocks affect human capital formation. While prior research documents how disruptions, such as natural disasters (Sacerdote, 2012; Rush, 2018; Zhang, 2025), conflict and displacement (Akresh and de Walque, 2008; Shemyakina, 2011; Sengupta, 2024), and teacher strikes (Baker, 2013; Jaume and Willén, 2019; Alvarado et al., 2021; Lyon et al., 2024), affect educational outcomes, peer relationships have remained largely overlooked. Within the COVID-19 literature specifically, existing work examines learning losses (Kuhfeld et al., 2020; Maldonado and De Witte, 2021; Ardington et al., 2021; Bacher-Hicks et al., 2021; Engzell et al., 2021; Lichand et al., 2022; Agostinelli et al., 2022; Hevia et al., 2022; Betthäuser et al., 2023; Alan and Turkum, 2024), cognitive and socio-emotional skills (Alan and Turkum, 2024; Egan et al., 2021; Linnavalli and Kalland, 2021), and mental health consequences (Loades et al., 2020; de Miranda et al., 2020; Singh et al., 2020), but how the pandemic reshaped peer relationships remains largely unexplored. We address this gap by showing that friendship networks deteriorated while academic support ties strengthened among native students following the pandemic. Critically, refugee students experienced deterioration across both network types, demonstrating how major disruptions amplify pre-existing vulnerabilities among disadvantaged groups.

Second, our findings reveal the broad economic relevance of social capital by linking peer network position to academic outcomes following disruptions. Prior research has established, both theoretically (Calvó-Armengol et al., 2009) and empirically (Lavy and Sand, 2019), that

network position shapes educational outcomes. We extend this literature by demonstrating that networks also serve as a crucial buffer against shocks. Tracking academic recovery in the pandemic cohort, we show that socially isolated students experienced substantially slower catch-up compared to connected students. Our findings underscore that peer relationships are not merely social amenities but critical infrastructure for human capital accumulation (Lavy and Sand, 2019; Alan et al., 2021a; Gauvain, 2016; Gifford-Smith and Brownell, 2003).

The remainder of the paper is organized as follows. Section 2 describes the context. Section 3 presents the data and network measures. Section 4 outlines the empirical strategy. Section 5 presents the main results. Section 6 explores mechanisms. Section 7 concludes.

2 Background and Context for Internal Validity

Turkey has a highly centralized public education system, with key decisions regarding curriculum, teacher appointments, and student assignments made at the national level. Elementary education constitutes the first stage of the country's 12-year mandatory education system, spanning four years. Public schools admit students from designated catchment areas, resulting in schools that reflect the demographic and socioeconomic characteristics of their surrounding neighborhoods. Students are randomly assigned to classrooms, ensuring balance in terms of class size, gender, and refugee status. Teachers are centrally appointed by the Ministry of Education, and each classroom is assigned a teacher who remains the primary educator throughout the school day, teaching most subjects.

In response to the first COVID-19 cases detected on March 11, 2020, the Turkish government swiftly enacted stringent measures, including the temporary closure of schools starting on March 13, 2020. Due to rising cases, the closures extended further, and despite efforts to reopen, schools remained largely closed through the 2019-2020 and 2020-2021 academic years. This resulted in one of the world's longest school closures, totaling 49 weeks—well above the global and OECD averages of approximately 38 and 35 weeks, respectively.[2] During this time, the Ministry of Education, teachers, and parents implemented remote learning through broadcasted lectures, Zoom sessions, and assignments shared via WhatsApp. Alongside school closures, various curfews and social distancing measures further restricted opportunities for peer interaction, amplifying the challenges posed by the absence of in-person

[2]Accessed on the UNESCO website https://en.unesco.org/covid19/educationresponse#schoolclosures in February 2023.

schooling.

Given the extensive disruptions caused by school closures and changes in students' social environments, the comparability of the pre-pandemic and pandemic cohorts is crucial for isolating the impact of COVID-19 on peer relationships. The consistency of centralized regulations, catchment-based school assignments, and centrally appointed teachers ensure that changes in the socio-economic composition of students and teachers are minimal. Additionally, the random allocation of students to classrooms in both cohorts provides the same ground for peer group formation. Statistical evidence in Table 1 supports these claims, showing that the cohorts are quite similar in terms of student, teacher, and classroom characteristics. Moreover, Alan and Turkum (2024) provide supporting evidence using an augmented version of our dataset with earlier cohorts, showing no trends in student, teacher, and classroom characteristics.[3]

Taken together, these features strengthen the comparability of our cohorts. However, since we do not observe classroom networks before 2018, our findings should still be understood as descriptive evidence, given that we are not able to rule out the potential influence of unobserved generational differences or secular trends.

Finally, while school closures and social distancing measures represent the most direct factors influencing peer interactions, we acknowledge that COVID-19 also impacted various aspects of students' lives, including their physical, emotional, and mental health, as well as the health of their parents and teachers. It disrupted work styles, time management, and family financial stability, introducing changes that could influence children's social, cognitive, and socioemotional development. Even if schools had remained open, these broader impacts could still have led to changes in student outcomes. Factors such as parental input, financial stress, and experiences like the loss of a family member may have directly and indirectly shaped peer relationships, often interacting in ways that make it challenging to isolate the specific effects of school closures. Therefore, our findings reflect the collective impact of the pandemic, rather than attributing changes solely to school closures or limited social interaction.

[3]While our study focuses on Mersin schools comparing the 2018–2019 pre-pandemic cohort to the 2021–2022 pandemic cohort, their dataset extends this by incorporating additional pre-pandemic cohorts (2015–2016 and 2019–2020) from other provinces (Sanliurfa, Istanbul, and Sakarya). The authors conducted joint F-tests across all cohorts and found no significant differences in student demographics or classroom characteristics, providing supporting evidence that our cohorts are comparable.

3 Data

3.1 Sample

Our data set includes information from two different cohorts: pre-pandemic and pandemic, drawn from the same schools and grade levels (3rd and 4th graders, aged 8-10). The pre-pandemic cohort data is a subset of a large-scale randomized controlled trial in Turkey, which aimed to evaluate early childhood interventions designed to enhance skill formation and academic performance.[4] We only use the baseline data, which was collected in October 2018, to ensure that the sample has not undergone any form of treatment. Data collection for the pandemic cohort took place immediately after in-person schooling resumed in September and October 2021, in the same schools where pre-pandemic data was collected. Additionally, we collected supplementary data on academic outcomes and social skills of the pandemic cohort in May 2022 to assess students' recovery after a year of in-person schooling. It is important to note that social network variables were not collected at the end of the academic year due to them not being the primary focus of the fieldwork and logistical constraints. As a result, we lack information on the lasting effects of the pandemic on social network outcomes.

For our analysis sample, we initially excluded 6 classrooms due to missing information provided by teachers—1 from the pre-pandemic cohort and 5 from the pandemic cohort. As a result, in some schools, only one classroom remained per cohort, making them singletons. Consequently, we also had to exclude an additional 15 classrooms, corresponding to 5 schools, as they no longer provided any within-school variation. Out of the resulting sample, the pre-pandemic subset includes 5,109 students from 66 primary schools and 174 classes, with 1,208 3rd-grade students and 3,901 4th-grade students and the pandemic cohort includes 5,178 3rd and 4th-grade students from 65 primary schools and 171 classes. Of these students, 1,218 are 3rd-graders, and 3,960 are 4th-graders.

3.2 Variables

The focus of our study is to evaluate the impact of COVID-19 on students' peer relationships using tools from social network theory. To this end, during data collection, we asked

[4]See Appendix A.7 for details on this RCT's design and data collection protocol.

students to nominate up to three classmates[5] for three different layers of peer relationships—friendship, academic support, and emotional support—with overlaps allowed. The academic and emotional support layers were further divided into two categories: classmates to whom the student provides support and classmates from whom the student receives support.[6] Using these self-reported nominations, we first constructed classroom social networks and then derived several social network measures to describe the social ties of each student within these networks.

In the first part of the analysis, we aim to document the changes in the structure of students' friendship, academic support, and emotional support networks. To do this, we summarize students' social networks using four key outcomes: isolate, in-degree ties, reciprocity, and clustering coefficient. The balance of these outcomes among the cohorts is presented in Table 2.

The first two outcomes depend directly on the nominations each student receives from their classmates and measure both the extensive and intensive margins of popularity of a student in the classroom. The first outcome, *Isolate*, is a binary variable that takes the value 1 if the student did not receive any nominations from their classmates and the value 0 if the student received any nominations (Alan et al., 2021b). The second measure, *In-degree ties*, describes the total number of nominations a student receives from their classmates, serving as a measure of a student's popularity within their classroom.

Our third measure, *reciprocity*, looks at the ratio of reciprocal nominations to the total nominations a student has in a given network layer. A nomination is considered reciprocal if a student nominates a classmate in a given layer and that classmate nominates the student in the same layer in return. Reciprocal relationships are expected to be of superior quality, serving as indicators of higher cooperation and trust (Gifford-Smith and Brownell, 2003) . Lavy and Sand (2019) provide causal evidence on the positive impact of reciprocal friendships on both short-term test scores and several long-term outcomes such as test scores and probability of finishing high school.

Lastly, the *clustering coefficient* (Watts and Strogatz, 1998), also known as transitivity,

[5]Before collecting our dataset, we conducted pilot studies several times. Based on the results of these pilot studies, we decided to limit the number of classmates students nominate to three. Although it was feasible to allow students to nominate more than three classmates (4 and 5 nominations were experimented with as well) in the social network elicitation surveys, we opted against it due to concerns about consuming a significant amount of class time and making it challenging for students to fill out larger templates.

[6]The template of survey questions on classmate nominations is given in the Online Appendix Figure B1.

measures how well-connected a student's direct peers are to each other. This measure is calculated at the individual level, representing the ratio of a student's neighbors who are connected with each other to the total number of neighbors the student has. The direction of nominations is ignored when computing this measure. Higher levels of clustering reflect the presence of tightly-knit groups and serve as a proxy for trust (Karlan et al., 2009).[7]

To understand the broader implications of these measures—isolate, in-degree ties, reciprocity, and clustering coefficient—in the context of COVID-19's impact on peer relationships, we also examine their predictive power on academic scores, as detailed in Tables A2, A3, A4, and A5 in the Online Appendix. Across all network layers, being isolated is consistently associated with lower academic scores. In contrast, other network measures—in-degree ties, reciprocity, and clustering coefficient—are positively and significantly associated with academic performance, indicating that students who have higher values in terms of these measures in their networks tend to have higher academic scores.

Besides social network outcomes, we use control variables that fall into three categories: student, teacher, and classroom characteristics. Student characteristics include gender and refugee status. Teacher characteristics comprise gender, age, years of experience, and marital status. Classroom characteristics involve the share of males and refugees in the classroom.

Our dataset also contains a broader set of variables that we refrain from using as controls, as they are also suspected to be affected by the pandemic. However, we utilize these variables to investigate the mechanisms underlying our results. The first set of variables describes a student's socio-emotional skills, including emotional empathy and impulsivity, along with the socio-cognitive skill of cognitive empathy. Socio-emotional skills are derived using principal component analysis (PCA) on relevant survey items, yielding standardized measures for each skill. Cognitive empathy, in contrast, is measured by standardizing students' correct responses to the Reading the Mind in the Eyes test (RMET) (Baron-Cohen et al., 2001). Sample questions can be found in Table E1 and in Figure B2 in the Online Appendix.[8]

[7]Summary statistics of all social network measures are reported in the Online Appendix in Table A1.

[8]Our data also contain information on socio-economic status (SES) indicators, parenting, and teaching styles, which we use for heterogeneity analysis. SES indicators are elicited from student survey responses. Parenting styles are also derived from student survey responses and they include the following: obedience, warmth, punishment, and reasoning. A sample of these questions is provided in Table E2 in the Online Appendix. Similarly, teaching styles are obtained via survey responses of teachers, capturing dimensions such as growth mindset, extrinsic motivation, inquiry-based pedagogy, modern teaching, and warmth (see Table E3 in the Online Appendix for examples).

Finally, our data also includes information on academic outcomes, math, and verbal test scores. Exceptionally, we have two rounds of data on academic outcomes for the pandemic cohort. The first round is measured at the beginning of the academic year, and the second round is measured at the end of the academic year. We utilize these to uncover associations between peer relationships and recovery in academic scores. Academic outcomes are elicited through standardized tests that we prepared in accordance with the national curricula of the respective grades. We standardize the total number of correct answers in a given test.

4 Empirical Specification

To examine the differences between the pre-pandemic and pandemic cohorts in the outcomes of interest, we use the following empirical specification,

$$y_{isg} = \alpha + \beta COVID19 + X_{isg}\Gamma + \theta_{sg} + \epsilon_{isg}$$

where y_{isg} is the outcome of interest for student i in school s and grade g, which we regress on the $COVID19$, which is a dummy variable for the pandemic cohort (2021), as well as other covariates that are likely to be predictive of the outcome y. The vector of student, teacher, and classroom characteristics is denoted as X_{isg}. θ_{sg} is the school and grade fixed effect which enables us to discard all variation between schools and grades. Standard errors, ϵ_{isg}, are clustered at the school and grade level. The variable of interest in this study is $COVID19$, with the coefficient of interest being $\hat{\beta}$. It represents the collective impact of the COVID-19 pandemic on the outcome variables. [9]

5 Results

This section presents the results of the empirical analysis. First, subsection 5.1 presents the main results derived from the above estimation equation, and then in subsection 5.2, we provide various heterogeneity analyses. Finally, subsection 5.3 details our robustness checks.

[9] While our cross-cohort comparison resembles a natural experiment, we acknowledge that the results are best viewed as descriptive evidence, as we cannot fully rule out the influence of unobserved generational differences or broader time-related factors.

5.1 Main Results

In this section, we present the impact of COVID-19 on a selection of network statistics for each layer of social network elicited in classrooms, namely friendship, academic support (provided), academic support (received), emotional support (provided), and emotional support (received).

In Column 1 of Table 3, we present the impact of the pandemic on social network measures for friendship networks. Across all social network measures, we document a clear pattern of deterioration in friendship relationships in classrooms. Panel 1 of Table 3 shows a substantial increase of 5 percentage points in the likelihood of being isolated within friendship networks, representing a 22% rise in isolation. This indicates that more students were excluded from friendship ties during the pandemic period. Panel 2 highlights a decline in in-degree ties by 0.36 nominations, equivalent to a 16% decrease, suggesting a drop in the average number of friendship nominations students received, thus reflecting a reduction in students' popularity within these networks. Moreover, Panel 3 shows a decline of 10 percentage points in the share of reciprocal ties, a 25% decrease in effect size, indicating a reduction in the quality of friendships as fewer students had mutual relationships. Panel 4 further demonstrates a sharp decrease of around 30% in the clustering coefficient, suggesting that tightly-knit groups in friendship networks became less common after the pandemic.

Next, we discuss the impact of the pandemic on academic support networks, as shown in Column 2 for providing support and Column 3 for receiving support, of Table 3. The pandemic's impact on academic support networks contrasts sharply with that on friendship networks, as the impact of the pandemic is positive for academic support networks. According to Panel 1, the likelihood of being isolated decreased by 3 percentage points for nominations in support provided and by 7 percentage points for nominations in support received, corresponding to an 8% and 16% decline in isolation, respectively. In Panel 2, we observe a rise of 0.22 in in-degree ties in both directions of academic support, leading to an approximately 20% increase, suggesting that students were more likely to seek or receive academic help from their peers. Panel 3 also reveals slight increases in reciprocity—around 3 percentage points for providing and 2 percentage points for receiving academic support—translating into an effect size of about 20%, indicating a higher proportion of mutual academic assistance relationships. In terms of clustering, Panel 4 shows no significant changes, suggesting that the overall structure of tightly-knit academic support groups remained stable despite the pandemic.

We present the results for emotional support networks in Columns 4 and 5. The impact of the pandemic on emotional support networks is more mixed. As shown in Panel 1, the likelihood of isolation increased by 2 percentage points when students were asked about receiving emotional support. Panel 2 shows a statistically significant 7% increase in the number of nominations students received when asked about providing emotional support, indicating that students might have become more willing to offer support to their peers. Reciprocity in emotional support networks declined by 3 percentage points for receiving support, a 14% decrease, indicating that mutual emotional support relationships became less common. Finally, Panel 4 shows reductions in clustering coefficients for emotional support networks—15% for provided support and 24% for received support—suggesting that groups of students providing and receiving emotional support became less interconnected during the pandemic.

In addition to the presented results, we conducted robustness checks by computing Romano-Wolf p-values (Clarke et al., 2020) to assess the validity of our findings under potential concerns of multiple hypothesis testing. The results of these tests support the robustness of our main findings, with the exception of the estimate related to the probability of isolation in the emotional support (received) network, which does not satisfy conventional significance levels ($p = 0.20$).

Overall, COVID-19 had a varied impact on peer relationships, depending on the nature of the relationship. Across all our social network measures, we consistently observe a statistically significant deterioration in friendship networks and a statistically significant improvement in academic support networks.[10]

5.2 Heterogeneities

In this subsection, we briefly examine heterogeneities in the impact of COVID-19 based on students' demographic characteristics. We explore heterogeneities across students' gender and refugee status.[11]

Numerous prior studies (e.g., Smith (2011); Underwood (2004); Schwartz et al. (2021);

[10]Figure B3 and B4 in the Online Appendix illustrate these contrasting trends from example classrooms.

[11]In addition to our main analysis of heterogeneity outlined in this subsection, we further explore variations based on parenting styles, socioeconomic status indicators, and teaching styles. These additional analyses are detailed in the Online Appendix A.4. See Tables C1 , C2, and C3.

Çiçekoğlu et al. (2019); Samara et al. (2020); Due et al. (2016); Bukowski et al. (2020); Bai et al. (2021); Risi et al. (2003); Cavicchiolo et al. (2022)) consistently suggest that these demographic factors significantly contribute to variations in peer relationships.

5.2.1 Heterogeneities based on refugee status

Table 4 highlights intriguing differences in the impact of COVID-19 between native and refugee students. In Columns 1 and 2, we report the differences in friendship networks. Across all network measures, the impact of the pandemic on refugees appears to be stronger in terms of the effect size, but we find statistically significant differences in the probability of isolation; refugees experienced a more pronounced rise, with a 26% increase in social isolation compared to a 20% increase among native students.

Next, we document the differences in academic support networks in Columns 3-6. The effects of COVID-19 on academic support networks varied significantly between native and refugee students, contrasting with the pooled results that suggested overall improvements. Panel 1 indicates that the likelihood of isolation in the academic support (provided) network decreased for native students but increased by 9 percentage points for refugees, representing a 16% increase in isolation for the latter. Panel 2 further highlights these differences in in-degree ties, with natives showing a 24% increase in the number of nominations for providing support, while refugees experienced a 24% decline. A similar pattern is observed in academic support (received) networks, where the 21% increase in the pooled results was driven entirely by native students. These findings suggest that the overall positive changes in academic support networks mask the negative experiences of refugee students, who faced increasing isolation and diminished access to academic support from their peers.

The estimates for emotional support networks are reported in Columns 7-10. We only find statistically significant differences in the impact of COVID-19 on in-degree ties in the emotional support (provided) network, which indicates that the increase that we observed in the pooled results was again entirely driven by native students.

To sum up, we observe considerable differences in the impact of COVID-19 between native and refugee students; however, only some of these disparities yield statistically significant results at conventional levels. We argue that the deterioration in friendship networks is found to be stronger for refugee students. However, what stands out most is that the observed positive change in academic support networks, as reported in the pooled results, is entirely

driven by the impact on native students. In contrast, we contend that the academic support networks of refugee students deteriorated, as evidenced by the increase in the likelihood of isolation, the decline in in-degree ties, and the diminished connectivity to other students.

5.2.2 Heterogeneities based on gender

We present the results from regressions conducted separately for male and female students in Table 5. The differences based on students' gender in the impact of COVID-19 are primarily in terms of the effect sizes rather than direction, in contrast to the results based on heterogeneity in refugee status.

In Columns 1 and 2, we report the estimates for friendship networks for both genders. Estimates slightly differ between genders, except for the estimate for in-degree ties. The estimated decline in in-degree ties was more pronounced for male students, with a 19% decline compared to a 13% decline for female students, indicating that male students faced greater challenges in maintaining friendships.

Results for academic support networks are presented in Columns 3–6 of Table 5. Panel 1 shows that both genders became less likely to be isolated, although the change was larger for males in the network of academic support they received from peers, with an 18% reduction compared to a 12% reduction for females. By contrast, Panel 2 indicates that females gained more as providers of academic support, with in-degree nominations in the support-provided network increasing by 23% compared to 14% for males.

Overall, gender differences are less pronounced than refugee-status differences. Both genders experienced friendship deterioration and academic support gains, though males faced greater friendship losses while females gained more as providers of academic support. These patterns suggest gender-specific responses to disruption rather than the compounding disadvantage observed for refugees.

5.3 Robustness Checks

In this section, we address potential concerns that could affect our estimates. A key challenge in applied network analysis is missing data, where some ties remain unobserved.[12] In our

[12]See Kossinets (2006) and Chandrasekhar and Lewis (2016) for more details.

study, missing data arise from student absenteeism: students absent on the day of data collection could not nominate peers, although their incoming ties from present students remain observable. Moreover, absenteeism differed between our cohorts, as data for the pandemic cohort were collected shortly after schools reopened, when many parents were hesitant to send their children (Zhan et al., 2022; Limbers, 2021; Hageman, 2020; Khattab et al., 2020). The absence rate increased from 8.6% in the pre-pandemic cohort to about 20% in the pandemic cohort (see Table B1 in the Online Appendix for the detailed summary statistics), with significant increases observed across all student subgroups.

To ensure the robustness of our results against potential biases from missing nominations, we conduct several checks. First, we replicate our analyses for classrooms with lower absenteeism. Based on the distribution of classrooms in the sample, we generate a subsample of classrooms that have less than 40% absenteeism (which corresponds to the 80th percentile). This sample restriction leaves us with 281 classrooms. Results obtained from this subsample are reported in the Online Appendix A.3.1.[13]

Second, we construct induced subgraphs by removing absent students and any nominations they received from present students, then repeat our analyses. Table B2 reports the balance of the student characteristics across cohorts for the restricted sample of present students and indicates that this sample is balanced. We report the results obtained from induced subgraphs in the Online Appendix A.3.2.[14]

Third, we address non-random absenteeism and compositional differences through reweighting, constructing three sets of weights. The first set adjusts for refugee–native composition: we reweight the pandemic cohort so that the refugee share within each school-grade cell matches the pre-pandemic baseline. The second set implements inverse probability weighting to account for non-random absenteeism. We estimate each student's probability of being present using gender, ethnicity, cohort indicators, and their interactions, then weight observed students by the inverse of their predicted presence probability. The third set combines both approaches, simultaneously correcting for cohort composition and differential attendance. For the second and third approaches, we use subgraphs of present students since absenteeism is corrected through reweighting. Results using all three weighting schemes are reported in Sections A.3.3, A.3.4, and A.3.5 of the Online Appendix.[15]

[13]See Tables B3, B4, and B5.

[14]See Tables B6, B7, and B8.

[15]See Tables B9-B17.

Our main findings remain robust across all specifications. The deterioration of friendship networks, improvements in academic support among native students, and disparities between native and refugee students remain consistent. In specifications where we restrict the sample, estimates for refugee students' academic support provision networks lose statistical significance, though point estimates remain in the same direction as the main results. Despite this loss of precision, the overall pattern of divergent network results and compounding refugee disadvantage remains evident across approaches. The consistency across these checks confirms that results are not driven by differential absenteeism or compositional shifts.

6 Discussion of Mechanisms

Children's opportunities to form and sustain peer relationships are shaped by various factors at home and in school. The ways children interact with peers emerge from a dynamic interplay between their social skills, the parenting and socioeconomic environments they grow up in, and the teachers they encounter in the classroom. The pandemic may have affected these channels, helping to explain the changes we observe in both friendship and academic support networks. Our data capture several of these dimensions directly: we measure children's empathy and self-regulation, collect information on parenting and teaching practices, and document household socioeconomic indicators. In what follows, we examine how these factors are associated with peer relationships in our setting. While we cannot provide a causal decomposition of our estimates, we aim to provide descriptive evidence that offers suggestive insights into the processes underlying the observed shifts in children's social networks.

One possible channel behind the deterioration of friendship networks may be the pandemic's impact on children's socio-cognitive and socio-emotional skills. Prior research underscores the strong link between these skills and peer interactions. For example, Peterson et al. (2016), Hughes and Leekam (2004), and Caputi et al. (2012) highlight the role of cognitive empathy in greater social competence and friendship quality. Similarly, Portt et al. (2020), Van der Graaff et al. (2014), and Van der Graaff et al. (2018) provide evidence that emotional empathy fosters positive peer connections. Other work emphasizes self-regulation: Bagwell et al. (2001) finds that impulsive children face higher risks of peer rejection, while Parker et al. (2015) shows that patience, as an aspect of self-regulation, supports more favorable peer relationships. Taken together, these studies provide a foundation for our hypothesis that changes in social skills may have contributed to the weakening of friendship networks

during the pandemic.

Our data is rich enough to test the above associations. In Panel 1 of Table 6, consistent with the literature, we find that both cognitive and emotional empathy are negatively correlated with social isolation and positively correlated with in-degree ties, reciprocity, and the clustering coefficient. Impulsivity, by contrast, is associated with greater isolation and fewer in-degree ties, reciprocal ties, and clustering. Table 7 further shows the impact of COVID-19 on these skills: we document a 0.05 SD decline in cognitive empathy, a 0.39 SD decline in emotional empathy, and a 0.27 SD increase in impulsivity. The estimates for emotional empathy and impulsivity are statistically significant at the 1% level, while the decline in cognitive empathy does not reach significance. Taken together with prior evidence on the role of these skills in peer interactions, these findings suggest that the weakening of friendship networks during the pandemic may be partly associated with declines in socio-cognitive and socio-emotional skills.

As opposed to the decline in friendships, we observe an improvement in the academic support networks after the pandemic, as shown in Table 3. A plausible explanation for the pandemic cohort's increased engagement in forming academic support networks could be their effort to compensate for the academic setbacks they experienced. To examine this channel, we first demonstrate that the pandemic cohort experienced academic losses, amounting to 0.24 SD in math scores and 0.16 SD in verbal scores, as shown in Column 1 of Table 8.[16] Next, we focus solely on the pandemic cohort and evaluate the change in their academic outcomes from the beginning to the end of the 2021-2022 academic year. Table 9 presents the academic recovery observed in the pandemic cohort. We find that the academic losses due to COVID-19 are partly recovered after approximately one (academic) year of schooling, with an increase of 0.41 SD in math score and 0.38 SD in verbal score, as reported in Column 1 of Table 9. Having established that there were academic losses that were partially recovered, we next examine whether the extent of this recovery differs between students who held weak positions in their classroom social networks at the beginning of the 2021-2022 academic year and those who did not. To do this, we conducted the same analysis separately for students who were isolated—meaning they did not receive any nominations from their classmates—and those who were not isolated. In columns 2 and 3, we present

[16]In Columns 2 and 3, we present the results from the same analysis conducted separately for native students and refugee students. Our findings indicate that the overall impact of COVID-19 on academic scores is primarily driven by a decline in the scores of native students, as the coefficient is significant only for this group. However, when testing for differences in coefficients, we find significant differences between native and refugee students only in verbal scores.

the results based on friendship networks, while columns 4 and 5 show the results based on academic support (received) networks. Our findings suggest that being isolated in either network layer is associated with a disadvantage for academic recovery. Isolated students exhibit smaller levels of recovery in both math and verbal scores.

These findings suggest that the pandemic cohort may have invested greater effort in forming academic support networks to mitigate the academic setbacks caused by the pandemic. Their active engagement in these networks may contribute to a reduction in academic losses, particularly for students who were not isolated within their social networks. This pattern is suggestive of a link between network position and academic recovery. At the same time, we cannot rule out the role of selection into networks. For instance, academically stronger students may have been more likely to form peer relationships. We therefore interpret these results as descriptive evidence rather than causal mechanisms.

Beyond these patterns, we further showed that refugee students not only experienced greater deterioration in friendships but also faced a decline in academic support, contrasting with the improvement observed among native students. In what follows, we argue that the differences in the home environment between native and refugee students may help explain the differences in the impact of the pandemic.

One possible explanation for the observed differences may be linked to the parenting styles adopted by refugee parents. Parenting styles shape children's social and emotional development (Carlo et al., 2018), and therefore differences in parenting approaches can translate into variations in socialization patterns within the classroom. Table D1 in the Online Appendix reveals that refugee students are more often exposed to less favorable styles: lower warmth and reasoning, higher obedience and punishment. Table C1 in the Online Appendix shows that these parenting styles may have an influence on peer interactions: higher levels of parental reasoning are associated with reduced isolation in friendship networks, greater parental warmth is linked to more in-degree ties within academic support networks, and increased reliance on punishment is associated with lower reciprocity in academic support ties. Taken together, differences in parenting practices may have contributed to the sharper deterioration of refugee students' classroom networks during the pandemic.

Another potential explanation for these observed heterogeneities could be associated with the socioeconomic conditions of refugee households. Socioeconomic resources shape children's opportunities for social interaction and skill development, influencing both the quantity and quality of their peer relationships within the classroom (Veland et al., 2009).

Table D1 in the Online Appendix shows that refugee students have significantly lower socioeconomic conditions than native students across most indicators, including larger numbers of siblings, lower parental employment, and less access to a computer at home. Furthermore, Table C2 indicates that having higher socioeconomic conditions may be associated with more favorable peer relationships. For instance, having a working mother is linked to greater reciprocity in friendship networks. In contrast, within academic support networks, a higher number of siblings is associated with greater isolation, fewer in-degree ties, and lower reciprocity. By comparison, access to a computer at home is associated with more in-degree ties in academic support networks. Given that refugee students have lower socioeconomic conditions, these factors may partially explain the disparities in our findings.

Regarding gender heterogeneity, we do not find an overall distinct variation in the pandemic's effect on peer relationships. Male students, however, show a greater decline in the friendship network, with a 19% decrease in in-degree ties compared to a 13% decrease for females. To account for this pattern, Table 7 compares changes in socio-emotional and socio-cognitive skills across genders. We find no significant gender differences in cognitive empathy or impulsivity, but the decline in emotional empathy is more pronounced for males (0.44 SD vs. 0.34 SD). This gap may help explain the observed gender disparities in the pandemic's impact on peer relationships.

Finally, we examined whether teaching styles moderated the impact of the pandemic on peer relationships. As detailed in Table C3 in the Online Appendix, we find limited evidence of systematic associations between teaching styles and changes in network outcomes. Given that students spent extended periods away from school during the pandemic, it is perhaps unsurprising that teaching styles, which operate primarily within the classroom context, show little moderating effect on the observed changes in peer relationships.

7 Conclusion

In this study, we examine the impact of the COVID-19 pandemic on peer relationships within the classroom. Our investigation is motivated by the critical role that peer interactions play in children's development of human and social capital, and by their potential vulnerability in the face of major disruptions to schooling. Our analysis shows that peer interactions are highly sensitive to exogenous shocks such as COVID-19. Specifically, we observe a significant deterioration of friendships and a notable increase in academic support among peers.

These findings underscore the complex nature of peer relationships and their susceptibility to external shocks.

Our analysis of heterogeneity reveals distinct patterns in the impact of the pandemic across different student demographics, particularly evident in the experiences of refugees and native students. We observe a pronounced worsening in the friendship networks of refugee students compared to their native counterparts. Additionally, our analysis unveils a decline in the academic support network among refugee students, contrasting with the situation among native students. Understanding these distinctions between refugee and native students is crucial for developing targeted interventions to support vulnerable student populations.

Moreover, we show that students who were isolated within their networks experienced slower recovery in academic outcomes following school reopening. This finding highlights that peer interactions are not only socially important but also economically consequential, as access to supportive peer networks enhances skill acquisition and learning resilience. The results underscore the critical role of onsite education and the need to foster strong peer connections and inclusive classroom environments to mitigate the adverse effects of shocks on the development of both human and social capital.

Our study considers a specific setting that involves public primary schools with large refugee populations in a middle-income country. While this setting may restrict the generalizability of our findings, there is a considerable number of regions that have already experienced or are expected to experience large population movements, and are also vulnerable to major disruptions to schooling due to factors such as natural disasters, epidemics, or conflicts. Importantly, the school closures examined in this study were unusually long compared to typical disruptions such as teacher strikes, which likely amplified their impact on peer relationships. In contrast, shorter disruptions would be expected to have more limited effects on peer relationships and to allow for a faster recovery. While the COVID-19 pandemic provides a distinct case of widespread school closures, the dynamics we identify may extend to other forms of exogenous shocks that interrupt classroom environments and therefore influence the development of human and social capital of children.

Overall, our study highlights the need for post-crisis education policies that address not only academic recovery but also the rebuilding of social capital in schools. This need is especially evident in the disproportionate deterioration of peer relationships among refugee students, which suggests that school closures can amplify existing vulnerabilities and deepen

social exclusion. To address these challenges, policymakers should design targeted interventions that promote inclusion within peer networks, both during post-crisis recovery and in preparation for future disruptions. Initiatives such as structured peer-mentoring, cooperative learning activities linking native and refugee students, and teacher training on inclusive pedagogies can play a key role in restoring and sustaining social cohesion in schools. By strengthening peer relationships, schools can protect vulnerable groups from long-term isolation while enhancing the resilience of human capital formation in the face of future crises.

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8 Tables

Table 1: Balance of Covariates

	(1) Mean of Pre-pandemic Cohort	(2) Mean of Pandemic Cohort	(3) Difference	(4) p-value	(5) N
Student characteristics:					
Male	0.51	0.52	0.01	0.55	10287
Refugee	0.16	0.19	0.03	0.01	10287
Classroom characteristics:					
Share of males	0.51	0.52	0.01	0.58	345
Share of refugees	0.16	0.19	0.03	0.02	345
Teacher characteristics:					
Male	0.33	0.37	0.04	0.48	345
Age	42.88	43.46	0.58	0.45	345
Experience in years	18.98	19.60	0.62	0.45	345
Married	0.83	0.82	-0.01	0.89	345

Note: All variables are obtained via survey answers from students and teachers. Differences are calculated by subtracting the pre-pandemic cohort from the mean of the pandemic cohort. Associated p-values are obtained by regressing the outcome variable on the COVID dummy, which takes the value 0 for the pre-pandemic cohort and the value 1 for the pandemic cohort, controlling for school and grade fixed effects.

Table 2: Balance of Social Network Outcomes

	(1) Mean of Pre-pandemic Cohort	(2) Mean of Pandemic Cohort	(3) Difference	(4) p-value	(5) N
Friendship:					
Isolate	0.23	0.29	0.06	0.00	10287
In-degree ties	2.23	1.84	-0.39	0.00	10287
Reciprocity	0.38	0.28	-0.10	0.00	10287
Clustering coef.	0.36	0.25	-0.11	0.00	10287
Academic Support (provided):					
Isolate	0.37	0.34	-0.03	0.06	10287
In-degree ties	1.19	1.40	0.21	0.00	10287
Reciprocity	0.14	0.17	0.03	0.01	10287
Clustering coef.	0.15	0.15	-0.00	0.94	10287
Academic Support (received):					
Isolate	0.46	0.39	-0.07	0.00	10287
In-degree ties	1.11	1.31	0.20	0.00	10287
Reciprocity	0.12	0.14	0.02	0.01	10287
Clustering coef.	0.15	0.15	-0.00	0.65	10287
Emotional Support (provided):					
Isolate	0.32	0.32	0.00	0.96	10287
In-degree ties	1.51	1.59	0.08	0.06	10287
Reciprocity	0.19	0.19	-0.00	0.94	10287
Clustering coef.	0.22	0.19	-0.03	0.00	10287
Emotional Support (received):					
Isolate	0.31	0.34	0.03	0.01	10287
In-degree ties	1.58	1.51	-0.07	0.07	10287
Reciprocity	0.22	0.19	-0.03	0.01	10287
Clustering coef.	0.24	0.18	-0.06	0.00	10287

Note: All social network measures are elicited via students' self-reported nominations for given social network types. Differences are calculated by subtracting the mean of the pre-pandemic cohort from the mean of the pandemic cohort. Associated p-values are obtained by regressing the outcome variable on the COVID dummy, which takes the value 0 for the cohort of pre-pandemic and the value 1 for the cohort of pandemic, controlling for school and grade fixed effects.

Table 3: Main Results

	(1) Friendship	(2) AS Provided	(3) AS Received	(4) ES Provided	(5) ES Received
Panel 1: Isolates					
COVID	0.05***	-0.03**	-0.07***	-0.01	0.02*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Mean of Pre-pandemic Cohort	0.23	0.37	0.46	0.32	0.31
Effect Size	0.22	-0.08	-0.16	-0.03	0.07
Romano-Wolf p-Value	0.00	0.10	0.00	0.92	0.25
N	10287	10287	10287	10287	10287
R-Squared	0.09	0.07	0.09	0.09	0.10
Panel 2: In-degree ties					
COVID	-0.35***	0.22***	0.22***	0.10**	-0.05
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Mean of Pre-pandemic Cohort	2.22	1.18	1.10	1.51	1.58
Effect Size	-0.16	0.19	0.20	0.07	-0.03
Romano-Wolf p-Value	0.00	0.00	0.00	0.09	0.79
N	10287	10287	10287	10287	10287
R-Squared	0.09	0.09	0.10	0.09	0.10
Panel 3: Reciprocity					
COVID	-0.10***	0.03**	0.02**	0.00	-0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Mean of Pre-pandemic Cohort	0.38	0.14	0.11	0.19	0.22
Effect Size	-0.25	0.19	0.20	0.01	-0.14
Romano-Wolf p-Value	0.00	0.03	0.03	0.95	0.09
N	10287	10287	10287	10287	10287
R-Squared	0.09	0.05	0.05	0.06	0.07
Panel 4: Clustering coef.					
COVID	-0.11***	-0.01	-0.01	-0.03***	-0.06***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Mean of Pre-pandemic Cohort	0.36	0.15	0.15	0.22	0.23
Effect Size	-0.30	-0.04	-0.05	-0.15	-0.24
Romano-Wolf p-Value	0.00	0.96	0.96	0.02	0.00
N	10287	10287	10287	10287	10287
R-Squared	0.09	0.06	0.06	0.06	0.07

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row and for the network type specified on top of columns. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table 4: Main Results by Refugee Status

	Friendship		AS Provided		AS Received		ES Provided		ES Received	
	(1) Native	(2) Refugee	(3) Native	(4) Refugee	(5) Native	(6) Refugee	(7) Native	(8) Refugee	(9) Native	(10) Refugee
Panel 1: Isolates										
COVID	0.04***	0.11***	-0.05***	0.09**	-0.08***	-0.02	-0.01	0.02	0.01	0.05
	(0.01)	(0.03)	(0.01)	(0.04)	(0.01)	(0.03)	(0.01)	(0.04)	(0.01)	(0.03)
Mean of Pre-pandemic Cohort	0.18	0.44	0.33	0.55	0.41	0.70	0.27	0.57	0.26	0.56
Effect Size	0.20	0.26	-0.16	0.16	-0.20	-0.03	-0.05	0.04	0.06	0.09
p-Value (Native=Refugee)	0.05		0.01		0.13		0.38		0.31	
N	8490	1797	8490	1797	8490	1797	8490	1797	8490	1797
R-Squared	0.03	0.12	0.04	0.10	0.05	0.09	0.03	0.09	0.03	0.08
Panel 2: In-degree ties										
COVID	-0.33***	-0.48***	0.30***	-0.18**	0.26***	0.00	0.14***	-0.07	-0.03	-0.09
	(0.04)	(0.09)	(0.04)	(0.08)	(0.05)	(0.06)	(0.04)	(0.08)	(0.04)	(0.07)
Mean of Pre-pandemic Cohort	2.43	1.16	1.27	0.73	1.23	0.49	1.66	0.74	1.75	0.69
Effect Size	-0.13	-0.41	0.24	-0.24	0.21	0.01	0.08	-0.10	-0.02	-0.13
p-Value (Native=Refugee)	0.19		0.00		0.00		0.03		0.49	
N	8490	1797	8490	1797	8490	1797	8490	1797	8490	1797
R-Squared	0.02	0.11	0.06	0.10	0.06	0.07	0.04	0.07	0.05	0.07
Panel 3: Reciprocity										
COVID	-0.09***	-0.13***	0.04***	-0.02	0.03**	0.01	0.01	-0.01	-0.03**	-0.03
	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)
Mean of Pre-pandemic Cohort	0.41	0.24	0.15	0.08	0.13	0.05	0.20	0.11	0.24	0.12
Effect Size	-0.22	-0.53	0.25	-0.21	0.21	0.12	0.03	-0.13	-0.12	-0.26
p-Value (Native=Refugee)	0.18		0.05		0.17		0.40		0.90	
N	8490	1797	8490	1797	8490	1797	8490	1797	8490	1797
R-Squared	0.05	0.13	0.04	0.10	0.05	0.07	0.05	0.10	0.06	0.13
Panel 4: Clustering coef.										
COVID	-0.10***	-0.14***	-0.00	-0.03**	-0.00	-0.02*	-0.03***	-0.04*	-0.06***	-0.03
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)
Mean of Pre-pandemic Cohort	0.37	0.28	0.16	0.09	0.17	0.08	0.24	0.12	0.26	0.12
Effect Size	-0.27	-0.50	-0.00	-0.35	-0.03	-0.30	-0.13	-0.35	-0.23	-0.28
p-Value (Native=Refugee)	0.18		0.09		0.32		0.71		0.21	
N	8490	1797	8490	1797	8490	1797	8490	1797	8490	1797
R-Squared	0.08	0.14	0.06	0.10	0.05	0.08	0.05	0.10	0.06	0.09

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row, for the network type, and for the subgroup of the sample specified on top of columns. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table 5: Main Results by Gender

	Friendship		AS Provided		AS Received		ES Provided		ES Received	
	(1) Male	(2) Female	(3) Male	(4) Female	(5) Male	(6) Female	(7) Male	(8) Female	(9) Male	(10) Female
Panel 1: Isolates										
COVID	0.05***	0.05***	-0.04**	-0.02	-0.10***	-0.05***	0.00	-0.01	0.01	0.04**
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)
Mean of Pre-pandemic Cohort	0.25	0.20	0.41	0.32	0.53	0.39	0.36	0.29	0.37	0.25
Effect Size	0.21	0.23	-0.10	-0.06	-0.18	-0.12	0.00	-0.05	0.03	0.14
p-Value (Male = Female)	0.75		0.25		0.03		0.50		0.18	
N	5276	5011	5276	5011	5276	5011	5276	5011	5276	5011
R-Squared	0.09	0.11	0.06	0.08	0.08	0.10	0.08	0.10	0.08	0.11
Panel 2: In-degree ties										
COVID	-0.42***	-0.29***	0.15***	0.30***	0.24***	0.19***	0.06	0.13**	-0.02	-0.08
	(0.05)	(0.05)	(0.04)	(0.06)	(0.05)	(0.06)	(0.04)	(0.07)	(0.04)	(0.06)
Mean of Pre-pandemic Cohort	2.15	2.30	1.05	1.32	0.85	1.37	1.30	1.73	1.30	1.87
Effect Size	-0.19	-0.13	0.14	0.23	0.28	0.14	0.05	0.08	-0.01	-0.04
p-Value (Male = Female)	0.07		0.04		0.54		0.38		0.38	
N	5276	5011	5276	5011	5276	5011	5276	5011	5276	5011
R-Squared	0.09	0.09	0.08	0.09	0.08	0.08	0.08	0.09	0.07	0.10
Panel 3: Reciprocity										
COVID	-0.09***	-0.10***	0.02**	0.03*	0.03***	0.02	0.01	-0.00	-0.00	-0.06***
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)
Mean of Pre-pandemic Cohort	0.35	0.41	0.11	0.16	0.08	0.15	0.15	0.22	0.16	0.28
Effect Size	-0.26	-0.24	0.20	0.18	0.39	0.10	0.05	-0.01	-0.03	-0.20
p-Value (Male = Female)	0.74		0.64		0.41		0.59		0.01	
N	5276	5011	5276	5011	5276	5011	5276	5011	5276	5011
R-Squared	0.09	0.10	0.05	0.06	0.05	0.06	0.05	0.07	0.05	0.09
Panel 4: Clustering coef.										
COVID	-0.12***	-0.10***	-0.01	-0.00	-0.01	-0.01	-0.03***	-0.04***	-0.06***	-0.06***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Mean of Pre-pandemic Cohort	0.34	0.37	0.13	0.17	0.12	0.18	0.19	0.25	0.21	0.27
Effect Size	-0.35	-0.26	-0.10	-0.00	-0.07	-0.03	-0.16	-0.14	-0.28	-0.22
p-Value (Male = Female)	0.32		0.47		0.85		0.81		0.96	
N	5276	5011	5276	5011	5276	5011	5276	5011	5276	5011
R-Squared	0.11	0.09	0.07	0.07	0.06	0.07	0.07	0.07	0.08	0.08

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row, for the network type, and for the subgroup of the sample specified on top of columns. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table 6: Associations between Social Network Measures and Socio-emotional Skills

	(1) Isolate	(2) In-degree Ties	(3) Reciprocity	(4) Clustering coef.
Panel 1: Friendship				
Cognitive Empathy	-0.05***	0.33***	0.05***	0.02***
	(0.01)	(0.03)	(0.01)	(0.01)
Emotional Empathy	-0.02***	0.19***	0.03***	0.01***
	(0.01)	(0.02)	(0.00)	(0.00)
Impulsivity	0.02***	-0.19***	-0.03***	-0.02***
	(0.00)	(0.02)	(0.00)	(0.00)
N	7616	7616	7616	7616
R-Squared	0.07	0.10	0.08	0.06
Panel 2: AS Provided				
Cognitive Empathy	-0.02***	0.11***	0.02***	0.01**
	(0.01)	(0.02)	(0.00)	(0.01)
Emotional Empathy	-0.02***	0.09***	0.01***	0.00
	(0.01)	(0.02)	(0.00)	(0.00)
Impulsivity	0.02***	-0.08***	-0.01***	-0.01***
	(0.01)	(0.02)	(0.00)	(0.00)
N	7616	7616	7616	7616
R-Squared	0.05	0.07	0.04	0.06
Panel 3: AS Received				
Cognitive Empathy	-0.07***	0.27***	0.03***	0.02***
	(0.01)	(0.03)	(0.01)	(0.00)
Emotional Empathy	-0.02**	0.13***	0.01***	0.01
	(0.01)	(0.02)	(0.00)	(0.00)
Impulsivity	0.05***	-0.19***	-0.01***	-0.01***
	(0.01)	(0.02)	(0.00)	(0.00)
N	7616	7616	7616	7616
R-Squared	0.09	0.11	0.06	0.06

Note: Each cell reports the OLS estimates of the association between socio-emotional skills and network measures specified at the top of the column for the respective network typed specified at the beginning of the row. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table 7: Impact of COVID-19 on Socio-cognitive and Socio-emotional Skills

	(1) Pooled	(2) Natives	(3) Refugees	(4) Males	(5) Females
Panel 1: Cognitive Empathy					
COVID	-0.05	-0.03	-0.14	-0.05	-0.05
	(0.04)	(0.04)	(0.09)	(0.05)	(0.04)
Mean of Pre-pandemic Cohort	0.00	0.11	-0.64	0.12	-0.12
p-Value (Native = Refugee)		0.28			
p-Value (Male = Female)				0.91	
N	8762	7552	1210	4300	4462
R-Squared	0.16	0.12	0.11	0.18	0.14
Panel 2: Emotional Empathy					
COVID	-0.40***	-0.38***	-0.44***	-0.44***	-0.34***
	(0.03)	(0.03)	(0.10)	(0.05)	(0.04)
Mean of Pre-pandemic Cohort	0.00	0.06	-0.41	0.16	-0.16
p-Value (Native = Refugee)		0.62			
p-Value (Male = Female)				0.05	
N	8146	7137	1009	4012	4134
R-Squared	0.11	0.09	0.18	0.12	0.08
Panel 3: Impulsivity					
COVID	0.27***	0.27***	0.27***	0.26***	0.28***
	(0.03)	(0.03)	(0.08)	(0.04)	(0.04)
Mean of Pre-pandemic Cohort	0.00	-0.08	0.53	-0.14	0.14
p-Value (Native = Refugee)		1.00			
p-Value (Male = Female)				0.68	
N	7779	6817	962	3820	3959
R-Squared	0.10	0.08	0.16	0.11	0.09

Note: Each cell reports the OLS estimates of the effect of COVID-19 on outcomes that are specified at the beginning of the row for the samples that are given at the top of the columns. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table 8: Impact of COVID-19 on Academic Outcomes

	(1) Pooled Sample	(2) Natives	(3) Refugees
Panel 1: Math scores			
COVID	-0.24***	-0.25***	-0.12
	(0.03)	(0.04)	(0.08)
Mean of Pre-pandemic Cohort	-0.00	0.10	-0.57
p-Value (Native = Refugee)		0.26	
N	8762	7552	1210
R-Squared	0.26	0.26	0.20
Panel 2: Verbal scores			
COVID	-0.16***	-0.18***	0.05
	(0.03)	(0.03)	(0.07)
Mean of Pre-pandemic Cohort	-0.00	0.12	-0.74
p-Value (Native = Refugee)		0.03	
N	8762	7552	1210
R-Squared	0.23	0.19	0.15

Note: Each cell reports the OLS estimates of the effect of COVID-19 on outcomes that are specified at the beginning of the row for the samples that are given at the top of the columns. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table 9: Associations between Networks and Academic Recovery

		Friendship		AS Received	
	(1)	(2)	(3)	(4)	(5)
	All	Non-Isolated	Isolated	Non-Isolated	Isolated
Panel 1: Math scores					
Post	0.41***	0.44***	0.37***	0.45***	0.37***
	(0.02)	(0.02)	(0.04)	(0.03)	(0.03)
Mean of Pre-pandemic Cohort	0.00	0.08	-0.41	0.12	-0.30
p-Value (Isolated = Non-isolated)		0.09		0.02	
N	7079	5760	1319	4924	2155
R-Squared	0.26	0.26	0.30	0.29	0.28
Panel 2: Verbal scores					
Post	0.38***	0.42***	0.27***	0.41***	0.34***
	(0.02)	(0.02)	(0.04)	(0.02)	(0.03)
Mean of Pre-pandemic Cohort	0.00	0.08	-0.39	0.13	-0.33
p-Value (Isolated = Non-isolated)		0.00		0.02	
N	7079	5760	1319	4924	2155
R-Squared	0.23	0.23	0.25	0.24	0.26

Note: Each cell reports the OLS estimates of the effect of COVID-19 on outcomes that are specified at the beginning of the row for the samples that are given at the top of the columns. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

A Online Appendix

A.1 Summary Statistics of Social Network Measures

Table A1: Summary Statistics for Network Outcomes

	(1) Mean	(2) SD	(3) Min	(4) Max
Friendship:				
Isolate	0.25	0.44	0	1
In-degree ties	2.03	1.97	0	17
Reciprocity	0.33	0.37	0	1
Clustering coef.	0.30	0.31	0	1
Academic Support (provided):				
Isolate	0.35	0.48	0	1
In-degree ties	1.30	1.38	0	12
Reciprocity	0.15	0.30	0	1
Clustering coef.	0.15	0.26	0	1
Academic Support (received):				
Isolate	0.43	0.49	0	1
In-degree ties	1.21	1.52	0	11
Reciprocity	0.13	0.28	0	1
Clustering coef.	0.15	0.27	0	1
Emotional Support (provided):				
Isolate	0.32	0.47	0	1
In-degree ties	1.55	1.62	0	12
Reciprocity	0.19	0.31	0	1
Clustering coef.	0.20	0.29	0	1
Emotional Support (received):				
Isolate	0.33	0.47	0	1
In-degree ties	1.55	1.65	0	13
Reciprocity	0.20	0.33	0	1
Clustering coef.	0.21	0.29	0	1

Note: This table reports summary statistics of social network measures constructed based on students' self-reported nominations.

A.2 Predictive Power of Social Network Measures

Table A2: Predictive Power of Social Network Measures: Isolate

	(1)	(2)	(3)	(4)	(5)
Panel 1: Math Scores					
Isolate (Friendship)	-0.41***				
	(0.03)				
Isolate (AS Provided)		-0.15***			
		(0.02)			
Isolate (AS Received)			-0.39***		
			(0.02)		
Isolate (ES Provided)				-0.28***	
				(0.02)	
Isolate (ES Received)					-0.36***
					(0.02)
N	8762	8762	8762	8762	8762
R-Squared	0.27	0.25	0.28	0.26	0.27
Panel 2: Turkish Scores					
Isolate (Friendship)	-0.38***				
	(0.02)				
Isolate (AS Provided)		-0.17***			
		(0.02)			
Isolate (AS Received)			-0.38***		
			(0.02)		
Isolate (ES Provided)				-0.27***	
				(0.02)	
Isolate (ES Received)					-0.35***
					(0.02)
N	8762	8762	8762	8762	8762
R-Squared	0.24	0.22	0.25	0.23	0.24

Note: Each cell reports the OLS estimates of the association between the social network measure that is specified on the left and the academic score that is specified at the beginning of the panels. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade level. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table A3: Predictive Power of Social Network Measures: In-degree ties

	(1)	(2)	(3)	(4)	(5)
Panel 1: Math Scores					
In-degree ties (Friendship)	0.13***				
	(0.01)				
In-degree ties (AS Provided)		0.07***			
		(0.01)			
In-degree ties (AS Received)			0.16***		
			(0.01)		
In-degree ties (ES Provided)				0.11***	
				(0.01)	
In-degree ties (ES Received)					0.13***
					(0.01)
N	8762	8762	8762	8762	8762
R-Squared	0.31	0.26	0.31	0.28	0.29
Panel 2: Turkish Scores					
In-degree ties (Friendship)	0.13***				
	(0.01)				
In-degree ties (AS Provided)		0.08***			
		(0.01)			
In-degree ties (AS Received)			0.16***		
			(0.01)		
In-degree ties (ES Provided)				0.12***	
				(0.01)	
In-degree ties (ES Received)					0.13***
					(0.01)
N	8762	8762	8762	8762	8762
R-Squared	0.28	0.23	0.28	0.25	0.26

Note: Each cell reports the OLS estimates of the association between the social network measure that is specified on the left and the academic score that is specified at the beginning of the panels. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade level. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table A4: Predictive Power of Social Network Measures: Reciprocity

	(1)	(2)	(3)	(4)	(5)
Panel 1: Math Scores					
Reciprocity (Friendship)	0.51***				
	(0.03)				
Reciprocity (AS Provided)		0.22***			
		(0.04)			
Reciprocity (AS Received)			0.43***		
			(0.04)		
Reciprocity (ES Provided)				0.37***	
				(0.03)	
Reciprocity (ES Received)					0.42***
					(0.03)
N	8762	8762	8762	8762	8762
R-Squared	0.28	0.25	0.27	0.26	0.27
Panel 2: Turkish Scores					
Reciprocity (Friendship)	0.49***				
	(0.03)				
Reciprocity (AS Provided)		0.24***			
		(0.04)			
Reciprocity (AS Received)			0.45***		
			(0.04)		
Reciprocity (ES Provided)				0.35***	
				(0.04)	
Reciprocity (ES Received)					0.41***
					(0.04)
N	8762	8762	8762	8762	8762
R-Squared	0.25	0.22	0.24	0.23	0.24

Note: Each cell reports the OLS estimates of the association between the social network measure that is specified on the left and the academic score that is specified at the beginning of the panels. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade level. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table A5: Predictive Power of Social Network Measures: Clustering coef.

	(1)	(2)	(3)	(4)	(5)
Panel 1: Math Scores					
Clustering coef. (Friendship)	0.27***				
	(0.03)				
Clustering coef. (AS Provided)		0.21***			
		(0.04)			
Clustering coef. (AS Received)			0.20***		
			(0.04)		
Clustering coef. (ES Provided)				0.29***	
				(0.04)	
Clustering coef. (ES Received)					0.29***
					(0.03)
N	8762	8762	8762	8762	8762
R-Squared	0.26	0.25	0.25	0.26	0.26
Panel 2: Turkish Scores					
Clustering coef. (Friendship)	0.23***				
	(0.04)				
Clustering coef. (AS Provided)		0.20***			
		(0.04)			
Clustering coef. (AS Received)			0.22***		
			(0.04)		
Clustering coef. (ES Provided)				0.25***	
				(0.03)	
Clustering coef. (ES Received)					0.28***
					(0.03)
N	8762	8762	8762	8762	8762
R-Squared	0.22	0.22	0.22	0.22	0.23

Note: Each cell reports the association between the social network measure that is specified on the left and the academic score that is specified at the beginning of the panels. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade level. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

A.3 Robustness checks

Table B1: Balance of Absence Rates

	(1) Mean of Pre-pandemic Cohort	(2) Mean of Pandemic Cohort	(3) Difference	(4) p-value	(5) N
Absence rate	0.09	0.21	0.12	0.00	345
Absence rate of native students	0.06	0.15	0.09	0.00	345
Absence rate of refugee students	0.19	0.40	0.21	0.00	312
Absence rate of male students	0.08	0.21	0.13	0.00	345
Absence rate of female students	0.09	0.19	0.10	0.00	345

Note: A student is considered absent if they were not present on the day of our classroom visit. Differences are calculated by subtracting the mean of the pre-pandemic cohort from the mean of the pandemic cohort. Associated p-values are obtained by regressing the outcome variable on the COVID dummy, which takes the value 0 for the cohort of pre-pandemic and the value 1 for the cohort of pandemic, controlling for school and grade fixed effects.

Table B2: Balance of Covariates (Present Students)

	(1) Mean of Pre-pandemic Cohort	(2) Mean of Pandemic Cohort	(3) Difference	(4) p-value	(5) N
Student characteristics:					
Male	0.51	0.50	-0.01	0.52	8826
Refugee	0.14	0.14	-0.00	0.92	8826

Note: The sample is restricted to students who were present on the day of classroom visits. Differences are calculated by subtracting the mean of pre-pandemic cohort from the mean of pandemic cohort. Associated p-values are obtained by regressing the outcome variable on the COVID dummy, which takes the value 0 for the cohort of pre-pandemic and the value 1 for the cohort of pandemic, controlling for school and grade fixed effects.

A.3.1 Results on classrooms with lower absenteeism

Table B3: Main Results

	(1) Friendship	(2) AS Provided	(3) AS Received	(4) ES Provided	(5) ES Received
Panel 1: Isolates					
COVID	0.05***	-0.04**	-0.07***	-0.00	0.03**
	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)
Mean of Pre-pandemic Cohort	0.21	0.37	0.45	0.30	0.29
Effect Size	0.23	-0.12	-0.16	-0.01	0.11
N	8383	8383	8383	8383	8383
R-Squared	0.09	0.07	0.09	0.08	0.10
Panel 2: In-degree ties					
COVID	-0.33***	0.24***	0.22***	0.11**	-0.06
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Mean of Pre-pandemic Cohort	2.26	1.20	1.13	1.55	1.63
Effect Size	-0.15	0.20	0.20	0.07	-0.04
N	8383	8383	8383	8383	8383
R-Squared	0.08	0.09	0.10	0.09	0.10
Panel 3: Reciprocity					
COVID	-0.10***	0.02*	0.02*	0.00	-0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Mean of Pre-pandemic Cohort	0.39	0.15	0.12	0.19	0.23
Effect Size	-0.25	0.14	0.15	0.01	-0.17
N	8383	8383	8383	8383	8383
R-Squared	0.08	0.05	0.06	0.06	0.07
Panel 4: Clustering coef.					
COVID	-0.11***	-0.01	-0.01	-0.03***	-0.06***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Mean of Pre-pandemic Cohort	0.36	0.15	0.15	0.22	0.24
Effect Size	-0.30	-0.07	-0.06	-0.15	-0.26
N	8383	8383	8383	8383	8383
R-Squared	0.08	0.06	0.06	0.06	0.07

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row and for the network type specified on top of columns. The sample is restricted to classrooms with less than 40% absence on the day of the classroom visit. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table B4: Main Results by Refugee Status

	Friendship		AS Provided		AS Received		ES Provided		ES Received	
	(1) Native	(2) Refugee	(3) Native	(4) Refugee	(5) Native	(6) Refugee	(7) Native	(8) Refugee	(9) Native	(10) Refugee
Panel 1: Isolates										
COVID	0.04***	0.12***	-0.06***	0.07	-0.08***	-0.03	-0.01	0.03	0.03**	0.07
	(0.01)	(0.04)	(0.02)	(0.05)	(0.02)	(0.04)	(0.01)	(0.04)	(0.01)	(0.04)
Mean of Pre-pandemic Cohort	0.18	0.44	0.33	0.56	0.41	0.71	0.26	0.56	0.25	0.56
Effect Size	0.21	0.28	-0.17	0.12	-0.19	-0.04	-0.03	0.05	0.10	0.13
p-Value (Native=Refugee)	0.12		0.13		0.31		0.55		0.53	
N	7102	1281	7102	1281	7102	1281	7102	1281	7102	1281
R-Squared	0.03	0.12	0.04	0.10	0.05	0.09	0.03	0.09	0.04	0.09
Panel 2: In-degree ties										
COVID	-0.31***	-0.44***	0.30***	-0.14	0.26***	0.00	0.14***	-0.10	-0.04	-0.14
	(0.05)	(0.12)	(0.05)	(0.10)	(0.05)	(0.07)	(0.05)	(0.10)	(0.05)	(0.10)
Mean of Pre-pandemic Cohort	2.46	1.12	1.28	0.70	1.24	0.47	1.69	0.75	1.79	0.71
Effect Size	-0.13	-0.39	0.24	-0.20	0.21	0.01	0.09	-0.14	-0.02	-0.20
p-Value (Native=Refugee)	0.34		0.00		0.01		0.05		0.47	
N	7102	1281	7102	1281	7102	1281	7102	1281	7102	1281
R-Squared	0.02	0.12	0.06	0.11	0.06	0.07	0.04	0.09	0.05	0.08
Panel 3: Reciprocity										
COVID	-0.09***	-0.14***	0.03**	-0.02	0.02*	0.00	0.01	-0.04*	-0.04***	-0.06**
	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.03)
Mean of Pre-pandemic Cohort	0.41	0.25	0.16	0.08	0.13	0.05	0.21	0.12	0.25	0.15
Effect Size	-0.22	-0.56	0.17	-0.25	0.15	0.00	0.04	-0.36	-0.14	-0.42
p-Value (Native=Refugee)	0.24		0.29		0.37		0.30		0.60	
N	7102	1281	7102	1281	7102	1281	7102	1281	7102	1281
R-Squared	0.05	0.15	0.04	0.11	0.05	0.08	0.04	0.12	0.06	0.14
Panel 4: Clustering coef.										
COVID	-0.10***	-0.14***	-0.01	-0.03*	-0.01	-0.03	-0.03***	-0.05	-0.06***	-0.04*
	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.03)	(0.01)	(0.03)
Mean of Pre-pandemic Cohort	0.38	0.29	0.16	0.09	0.17	0.08	0.24	0.13	0.26	0.13
Effect Size	-0.27	-0.49	-0.05	-0.34	-0.04	-0.33	-0.13	-0.41	-0.24	-0.34
p-Value (Native=Refugee)	0.48		0.50		0.62		0.70		0.61	
N	7102	1281	7102	1281	7102	1281	7102	1281	7102	1281
R-Squared	0.07	0.16	0.06	0.11	0.06	0.10	0.05	0.12	0.06	0.11

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row, for the network type, and for the subgroup of the sample specified on top of columns. The sample is restricted to classrooms with less than 40% absence on the day of the classroom visit. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table B5: Main Results by Gender

	Friendship		AS Provided		AS Received		ES Provided		ES Received	
	(1) Male	(2) Female	(3) Male	(4) Female	(5) Male	(6) Female	(7) Male	(8) Female	(9) Male	(10) Female
Panel 1: Isolates										
COVID	0.05***	0.05***	-0.05***	-0.03	-0.10***	-0.04**	0.01	-0.01	0.02	0.04***
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)
Mean of Pre-pandemic Cohort	0.24	0.19	0.41	0.32	0.53	0.37	0.34	0.26	0.35	0.23
Effect Size	0.22	0.24	-0.12	-0.10	-0.18	-0.12	0.02	-0.02	0.06	0.19
p-Value (Male = Female)	0.74		0.30		0.02		0.61		0.25	
N	4316	4067	4316	4067	4316	4067	4316	4067	4316	4067
R-Squared	0.08	0.11	0.06	0.07	0.07	0.10	0.08	0.09	0.08	0.11
Panel 2: In-degree ties										
COVID	-0.40***	-0.25***	0.15***	0.33***	0.22***	0.22***	0.07	0.14*	-0.02	-0.10
	(0.06)	(0.06)	(0.05)	(0.07)	(0.06)	(0.07)	(0.05)	(0.07)	(0.05)	(0.07)
Mean of Pre-pandemic Cohort	2.19	2.35	1.06	1.34	0.87	1.40	1.34	1.78	1.34	1.94
Effect Size	-0.18	-0.11	0.14	0.25	0.25	0.15	0.05	0.08	-0.02	-0.05
p-Value (Male = Female)	0.06		0.01		0.95		0.34		0.29	
N	4316	4067	4316	4067	4316	4067	4316	4067	4316	4067
R-Squared	0.08	0.08	0.07	0.09	0.07	0.08	0.07	0.08	0.06	0.09
Panel 3: Reciprocity										
COVID	-0.10***	-0.09***	0.02	0.02	0.03**	0.01	0.01	-0.00	-0.01	-0.07***
	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Mean of Pre-pandemic Cohort	0.36	0.42	0.12	0.17	0.08	0.16	0.16	0.23	0.17	0.30
Effect Size	-0.27	-0.22	0.15	0.13	0.36	0.04	0.04	-0.01	-0.05	-0.23
p-Value (Male = Female)	0.83		0.74		0.21		0.70		0.01	
N	4316	4067	4316	4067	4316	4067	4316	4067	4316	4067
R-Squared	0.09	0.09	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0.08
Panel 4: Clustering coef.										
COVID	-0.12***	-0.10***	-0.01	-0.01	-0.01	-0.01	-0.03**	-0.04**	-0.06***	-0.06***
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)
Mean of Pre-pandemic Cohort	0.35	0.38	0.13	0.18	0.12	0.19	0.20	0.25	0.21	0.27
Effect Size	-0.35	-0.25	-0.09	-0.06	-0.08	-0.04	-0.14	-0.15	-0.30	-0.23
p-Value (Male = Female)	0.29		0.94		0.96		0.61		0.95	
N	4316	4067	4316	4067	4316	4067	4316	4067	4316	4067
R-Squared	0.10	0.09	0.07	0.08	0.06	0.07	0.07	0.07	0.08	0.08

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row, for the network type, and for the subgroup of the sample specified on top of columns. The sample is restricted to classrooms with less than 40% absence on the day of the classroom visit. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

A.3.2 Results on induced subgraphs

Table B6: Main Results

	(1) Friendship	(2) AS Provided	(3) AS Received	(4) ES Provided	(5) ES Received
Panel 1: Isolates					
COVID	0.03***	-0.05***	-0.10***	-0.03***	0.00
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Mean of Pre-pandemic Cohort	0.18	0.33	0.43	0.28	0.27
Effect Size	0.14	-0.16	-0.22	-0.12	0.02
N	8826	8826	8826	8826	8826
R-Squared	0.05	0.05	0.06	0.05	0.05
Panel 2: In-degree ties					
COVID	-0.27***	0.30***	0.30***	0.19***	0.02
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Mean of Pre-pandemic Cohort	2.37	1.25	1.18	1.61	1.68
Effect Size	-0.11	0.24	0.25	0.12	0.01
N	8826	8826	8826	8826	8826
R-Squared	0.05	0.06	0.06	0.05	0.05
Panel 3: Reciprocity					
COVID	-0.07***	0.05***	0.04***	0.03***	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Mean of Pre-pandemic Cohort	0.42	0.15	0.13	0.21	0.24
Effect Size	-0.16	0.34	0.36	0.14	-0.04
N	8826	8826	8826	8826	8826
R-Squared	0.06	0.04	0.04	0.04	0.04
Panel 4: Clustering coef.					
COVID	-0.09***	0.01	0.01	-0.02	-0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Mean of Pre-pandemic Cohort	0.38	0.16	0.16	0.24	0.25
Effect Size	-0.24	0.05	0.04	-0.07	-0.18
N	8826	8826	8826	8826	8826
R-Squared	0.06	0.05	0.05	0.04	0.05

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row and for the network type specified on top of columns. The sample is restricted to students present on the day of the classroom visits and the subset of their nominations who were also present on the day of the classroom visits. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table B7: Main Results by Refugee Status

	Friendship		AS Provided		AS Received		ES Provided		ES Received	
	(1) Native	(2) Refugee	(3) Native	(4) Refugee	(5) Native	(6) Refugee	(7) Native	(8) Refugee	(9) Native	(10) Refugee
Panel 1: Isolates										
COVID	0.01	0.09**	-0.07***	0.04	-0.10***	-0.07*	-0.03***	-0.04	0.00	0.02
	(0.01)	(0.04)	(0.01)	(0.05)	(0.02)	(0.04)	(0.01)	(0.04)	(0.01)	(0.04)
Mean of Pre-pandemic Cohort	0.16	0.34	0.31	0.47	0.39	0.64	0.25	0.49	0.24	0.48
Effect Size	0.09	0.27	-0.22	0.09	-0.25	-0.11	-0.14	-0.09	0.00	0.03
p-Value (Native=Refugee)	0.10		0.13		0.61		0.83		0.77	
N	7604	1222	7604	1222	7604	1222	7604	1222	7604	1222
R-Squared	0.02	0.13	0.04	0.12	0.06	0.12	0.03	0.11	0.03	0.10
Panel 2: In-degree ties										
COVID	-0.23***	-0.47***	0.36***	-0.08	0.33***	0.10	0.21***	0.04	0.02	0.01
	(0.04)	(0.11)	(0.05)	(0.10)	(0.05)	(0.08)	(0.04)	(0.10)	(0.04)	(0.10)
Mean of Pre-pandemic Cohort	2.53	1.39	1.32	0.87	1.28	0.59	1.73	0.88	1.82	0.83
Effect Size	-0.09	-0.34	0.28	-0.09	0.26	0.16	0.12	0.04	0.01	0.01
p-Value (Native=Refugee)	0.07		0.00		0.03		0.11		0.93	
N	7604	1222	7604	1222	7604	1222	7604	1222	7604	1222
R-Squared	0.02	0.11	0.07	0.12	0.07	0.10	0.05	0.09	0.05	0.07
Panel 3: Reciprocity										
COVID	-0.06***	-0.11***	0.06***	0.01	0.05***	0.04*	0.03**	0.02	-0.01	-0.01
	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.03)	(0.01)	(0.03)
Mean of Pre-pandemic Cohort	0.44	0.30	0.16	0.11	0.14	0.07	0.22	0.14	0.25	0.15
Effect Size	-0.14	-0.38	0.38	0.13	0.34	0.63	0.13	0.16	-0.03	-0.05
p-Value (Native=Refugee)	0.19		0.24		0.89		0.83		1.00	
N	7604	1222	7604	1222	7604	1222	7604	1222	7604	1222
R-Squared	0.04	0.14	0.05	0.14	0.06	0.11	0.05	0.14	0.06	0.16
Panel 4: Clustering coef.										
COVID	-0.08***	-0.13***	0.01	-0.01	0.01	-0.01	-0.02*	-0.02	-0.05***	-0.00
	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.03)	(0.01)	(0.03)
Mean of Pre-pandemic Cohort	0.39	0.34	0.16	0.12	0.17	0.10	0.25	0.15	0.27	0.15
Effect Size	-0.22	-0.38	0.07	-0.12	0.04	-0.06	-0.06	-0.15	-0.18	-0.03
p-Value (Native=Refugee)	0.24		0.47		0.66		0.90		0.12	
N	7604	1222	7604	1222	7604	1222	7604	1222	7604	1222
R-Squared	0.07	0.15	0.06	0.15	0.06	0.12	0.05	0.13	0.06	0.14

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row, for the network type, and for the subgroup of the sample specified on top of columns. The sample is restricted to students present on the day of the classroom visits and the subset of their nominations who were also present on the day of the classroom visits. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table B8: Main Results by Gender

	Friendship		AS Provided		AS Received		ES Provided		ES Received	
	(1) Male	(2) Female	(3) Male	(4) Female	(5) Male	(6) Female	(7) Male	(8) Female	(9) Male	(10) Female
Panel 1: Isolates										
COVID	0.02*	0.03***	-0.07***	-0.04**	-0.12***	-0.06***	-0.03*	-0.04**	-0.01	0.02
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)
Mean of Pre-pandemic Cohort	0.21	0.16	0.38	0.28	0.50	0.35	0.32	0.24	0.34	0.21
Effect Size	0.10	0.21	-0.18	-0.12	-0.24	-0.18	-0.08	-0.15	-0.02	0.09
p-Value (Male = Female)	0.55		0.06		0.02		0.66		0.23	
N	4501	4325	4501	4325	4501	4325	4501	4325	4501	4325
R-Squared	0.05	0.07	0.05	0.06	0.07	0.08	0.06	0.06	0.05	0.07
Panel 2: In-degree ties										
COVID	-0.32***	-0.21***	0.22***	0.38***	0.31***	0.27***	0.14***	0.22***	0.05	-0.02
	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.06)	(0.05)	(0.07)	(0.05)	(0.06)
Mean of Pre-pandemic Cohort	2.28	2.46	1.11	1.41	0.90	1.47	1.38	1.85	1.38	2.00
Effect Size	-0.14	-0.09	0.20	0.27	0.35	0.18	0.10	0.12	0.03	-0.01
p-Value (Male = Female)	0.12		0.04		0.55		0.38		0.33	
N	4501	4325	4501	4325	4501	4325	4501	4325	4501	4325
R-Squared	0.06	0.06	0.07	0.08	0.07	0.07	0.06	0.07	0.05	0.07
Panel 3: Reciprocity										
COVID	-0.06***	-0.07***	0.05***	0.06***	0.05***	0.04**	0.03***	0.02	0.02	-0.04**
	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Mean of Pre-pandemic Cohort	0.38	0.45	0.12	0.18	0.09	0.17	0.17	0.25	0.18	0.30
Effect Size	-0.16	-0.17	0.38	0.32	0.60	0.22	0.19	0.09	0.11	-0.12
p-Value (Male = Female)	0.60		0.55		0.44		0.63		0.01	
N	4501	4325	4501	4325	4501	4325	4501	4325	4501	4325
R-Squared	0.06	0.07	0.05	0.07	0.06	0.06	0.05	0.06	0.05	0.07
Panel 4: Clustering coef.										
COVID	-0.10***	-0.08***	0.00	0.01	0.01	0.01	-0.01	-0.02	-0.04***	-0.05***
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Mean of Pre-pandemic Cohort	0.37	0.40	0.13	0.18	0.13	0.20	0.21	0.27	0.22	0.29
Effect Size	-0.27	-0.21	0.01	0.07	0.04	0.04	-0.06	-0.08	-0.19	-0.17
p-Value (Male = Female)	0.43		0.55		0.90		0.62		0.70	
N	4501	4325	4501	4325	4501	4325	4501	4325	4501	4325
R-Squared	0.09	0.08	0.07	0.07	0.06	0.08	0.07	0.07	0.07	0.07

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row, for the network type, and for the subgroup of the sample specified on top of columns. The sample is restricted to students present on the day of the classroom visits and the subset of their nominations who were also present on the day of the classroom visits. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

A.3.3 Results with weighting for sample composition

Table B9: Main Results

	(1) Friendship	(2) AS Provided	(3) AS Received	(4) ES Provided	(5) ES Received
Panel 1: Isolates					
COVID	0.05***	-0.03*	-0.07***	-0.01	0.02*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Control Mean	0.23	0.37	0.46	0.32	0.31
Effect Size	0.23	-0.07	-0.15	-0.02	0.07
N	10287	10287	10287	10287	10287
R-Squared	0.09	0.08	0.09	0.09	0.09
Panel 2: In-degree ties					
COVID	-0.36***	0.22***	0.22***	0.10**	-0.05
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Control Mean	2.22	1.18	1.10	1.51	1.58
Effect Size	-0.16	0.18	0.19	0.07	-0.03
N	10287	10287	10287	10287	10287
R-Squared	0.08	0.09	0.10	0.09	0.10
Panel 3: Reciprocity					
COVID	-0.10***	0.03**	0.02**	0.00	-0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Control Mean	0.38	0.14	0.11	0.19	0.22
Effect Size	-0.25	0.18	0.19	0.00	-0.14
N	10287	10287	10287	10287	10287
R-Squared	0.08	0.05	0.06	0.06	0.07
Panel 4: Clustering coef.					
COVID	-0.11***	-0.01	-0.01	-0.03***	-0.06***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Control Mean	0.36	0.15	0.15	0.22	0.23
Effect Size	-0.30	-0.04	-0.05	-0.15	-0.24
N	10287	10287	10287	10287	10287
R-Squared	0.09	0.06	0.06	0.06	0.07

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row and for the network type specified on top of columns. The pandemic cohort is weighted to match the composition of the pre-pandemic cohort. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table B10: Main Results by Refugee Status

	Friendship		AS Provided		AS Received		ES Provided		ES Received	
	(1) Native	(2) Refugee	(3) Native	(4) Refugee	(5) Native	(6) Refugee	(7) Native	(8) Refugee	(9) Native	(10) Refugee
Panel 1: Isolates										
COVID	0.04***	0.13***	-0.05***	0.10**	-0.08***	-0.02	-0.02	0.03	0.01	0.06*
	(0.01)	(0.03)	(0.01)	(0.04)	(0.01)	(0.03)	(0.01)	(0.04)	(0.01)	(0.03)
Control Mean	0.18	0.44	0.33	0.55	0.41	0.70	0.27	0.57	0.26	0.56
Effect Size	0.19	0.28	-0.16	0.18	-0.20	-0.03	-0.06	0.06	0.05	0.10
p-Value (Native=Refugee)	0.00		0.00		0.04		0.14		0.17	
N	8490	1797	8490	1797	8490	1797	8490	1797	8490	1797
R-Squared	0.026	0.131	0.037	0.132	0.051	0.108	0.029	0.108	0.035	0.098
Panel 2: In-degree ties										
COVID	-0.33***	-0.50***	0.30***	-0.21***	0.26***	-0.02	0.14***	-0.09	-0.03	-0.12*
	(0.04)	(0.09)	(0.04)	(0.08)	(0.05)	(0.06)	(0.04)	(0.07)	(0.04)	(0.07)
Control Mean	2.43	1.16	1.27	0.73	1.23	0.49	1.66	0.74	1.75	0.69
Effect Size	-0.13	-0.43	0.24	-0.28	0.21	-0.03	0.08	-0.12	-0.02	-0.17
p-Value (Native=Refugee)	0.04		0.00		0.00		0.00		0.13	
N	8490	1797	8490	1797	8490	1797	8490	1797	8490	1797
R-Squared	0.022	0.126	0.063	0.124	0.065	0.078	0.044	0.085	0.051	0.080
Panel 3: Reciprocity										
COVID	-0.09***	-0.13***	0.04***	-0.02	0.03**	0.01	0.01	-0.02	-0.03**	-0.04*
	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)
Control Mean	0.41	0.24	0.15	0.08	0.13	0.05	0.20	0.11	0.24	0.12
Effect Size	-0.22	-0.55	0.25	-0.26	0.21	0.09	0.03	-0.14	-0.12	-0.29
p-Value (Native=Refugee)	0.06		0.00		0.15		0.34		0.84	
N	8490	1797	8490	1797	8490	1797	8490	1797	8490	1797
R-Squared	0.050	0.136	0.043	0.116	0.052	0.071	0.045	0.127	0.059	0.146
Panel 4: Clustering coef.										
COVID	-0.10***	-0.14***	-0.00	-0.03**	-0.00	-0.02*	-0.03***	-0.05**	-0.06***	-0.04*
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)
Control Mean	0.37	0.28	0.16	0.09	0.17	0.08	0.24	0.12	0.26	0.12
Effect Size	-0.27	-0.50	-0.00	-0.32	-0.02	-0.31	-0.13	-0.37	-0.23	-0.32
p-Value (Native=Refugee)	0.16		0.03		0.15		0.90		0.19	
N	8490	1797	8490	1797	8490	1797	8490	1797	8490	1797
R-Squared	0.075	0.149	0.055	0.137	0.055	0.094	0.048	0.096	0.059	0.097

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row, for the network type, and for the subgroup of the sample specified on top of columns. The pandemic cohort is weighted to match the composition of the pre-pandemic cohort. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table B11: Main Results by Gender

	Friendship		AS Provided		AS Received		ES Provided		ES Received	
	(1) Male	(2) Female	(3) Male	(4) Female	(5) Male	(6) Female	(7) Male	(8) Female	(9) Male	(10) Female
Panel 1: Isolates										
COVID	0.06***	0.05***	-0.04**	-0.01	-0.09***	-0.04**	0.00	-0.01	0.01	0.04**
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)
Control Mean	0.25	0.20	0.41	0.32	0.53	0.39	0.36	0.29	0.37	0.25
Effect Size	0.23	0.23	-0.09	-0.04	-0.17	-0.11	0.01	-0.04	0.03	0.14
p-Value (Native=Refugee)	0.40		0.38		0.04		0.48		0.14	
N	5276	5011	5276	5011	5276	5011	5276	5011	5276	5011
R-Squared	0.088	0.112	0.069	0.086	0.081	0.104	0.081	0.097	0.075	0.112
Panel 2: In-degree ties										
COVID	-0.43***	-0.29***	0.14***	0.29***	0.23***	0.19***	0.06	0.13**	-0.02	-0.08
	(0.05)	(0.05)	(0.04)	(0.06)	(0.05)	(0.06)	(0.04)	(0.07)	(0.04)	(0.06)
Control Mean	2.15	2.30	1.05	1.32	0.85	1.37	1.30	1.73	1.30	1.87
Effect Size	-0.20	-0.13	0.14	0.22	0.27	0.14	0.05	0.08	-0.02	-0.04
p-Value (Native=Refugee)	0.00		0.00		0.84		0.26		0.48	
N	5276	5011	5276	5011	5276	5011	5276	5011	5276	5011
R-Squared	0.088	0.083	0.075	0.095	0.080	0.084	0.072	0.089	0.069	0.099
Panel 3: Reciprocity										
COVID	-0.09***	-0.10***	0.02*	0.03*	0.03***	0.02	0.00	-0.00	-0.01	-0.06***
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)
Control Mean	0.35	0.41	0.11	0.16	0.08	0.15	0.15	0.22	0.16	0.28
Effect Size	-0.26	-0.25	0.19	0.18	0.36	0.11	0.03	-0.02	-0.04	-0.20
p-Value (Native=Refugee)	0.75		0.46		0.75		0.89		0.02	
N	5276	5011	5276	5011	5276	5011	5276	5011	5276	5011
R-Squared	0.087	0.097	0.047	0.061	0.051	0.060	0.050	0.066	0.054	0.084
Panel 4: Clustering coef.										
COVID	-0.12***	-0.10***	-0.01	0.00	-0.01	-0.01	-0.03***	-0.03***	-0.06***	-0.06***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Control Mean	0.34	0.37	0.13	0.17	0.12	0.18	0.19	0.25	0.21	0.27
Effect Size	-0.35	-0.26	-0.11	0.00	-0.08	-0.03	-0.17	-0.14	-0.27	-0.22
p-Value (Native=Refugee)	0.05		0.21		0.58		0.88		0.72	
N	5276	5011	5276	5011	5276	5011	5276	5011	5276	5011
R-Squared	0.104	0.094	0.066	0.071	0.059	0.074	0.073	0.073	0.078	0.084

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row, for the network type, and for the subgroup of the sample specified on top of columns. The pandemic cohort is weighted to match the composition of the pre-pandemic cohort. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

A.3.4 Results with weighting for absenteeism

Table B12: Main Results

	(1) Friendship	(2) AS Provided	(3) AS Received	(4) ES Provided	(5) ES Received
Panel 1: Isolates					
COVID	0.03***	-0.05***	-0.09***	-0.03***	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Control Mean	0.19	0.34	0.43	0.29	0.28
Effect Size	0.16	-0.15	-0.22	-0.12	0.02
N	8826	8826	8826	8826	8826
R-Squared	0.06	0.06	0.08	0.06	0.07
Panel 2: In-degree ties					
COVID	-0.28***	0.29***	0.29***	0.18***	0.01
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Control Mean	2.34	1.25	1.17	1.59	1.66
Effect Size	-0.12	0.23	0.25	0.11	0.01
N	8826	8826	8826	8826	8826
R-Squared	0.07	0.08	0.09	0.08	0.09
Panel 3: Reciprocity					
COVID	-0.06***	0.06***	0.05***	0.04***	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Control Mean	0.42	0.15	0.13	0.21	0.24
Effect Size	-0.14	0.38	0.42	0.18	0.00
N	8826	8826	8826	8826	8826
R-Squared	0.06	0.06	0.06	0.06	0.06
Panel 4: Clustering coef.					
COVID	-0.09***	0.01	0.01	-0.01	-0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Control Mean	0.38	0.16	0.16	0.23	0.25
Effect Size	-0.23	0.08	0.07	-0.05	-0.16
N	8826	8826	8826	8826	8826
R-Squared	0.06	0.06	0.06	0.05	0.07

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row and for the network type specified on top of columns. The sample and nominations are restricted to present students and then weighted to match the composition of the full sample of students. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table B13: Main Results by Refugee Status

	Friendship		AS Provided		AS Received		ES Provided		ES Received	
	(1) Native	(2) Refugee	(3) Native	(4) Refugee	(5) Native	(6) Refugee	(7) Native	(8) Refugee	(9) Native	(10) Refugee
Panel 1: Isolates										
COVID	0.01*	0.09**	-0.07***	0.04	-0.10***	-0.07**	-0.03***	-0.05	0.00	0.01
	(0.01)	(0.04)	(0.01)	(0.04)	(0.01)	(0.04)	(0.01)	(0.04)	(0.01)	(0.04)
Control Mean	0.16	0.34	0.31	0.47	0.39	0.64	0.25	0.48	0.24	0.48
Effect Size	0.09	0.28	-0.22	0.09	-0.25	-0.12	-0.14	-0.11	0.00	0.02
p-Value (Native=Refugee)	0.01		0.02		0.68		0.77		0.50	
N	7604	1222	7604	1222	7604	1222	7604	1222	7604	1222
R-Squared	0.019	0.132	0.042	0.121	0.055	0.124	0.026	0.110	0.033	0.096
Panel 2: In-degree ties										
COVID	-0.23***	-0.48***	0.36***	-0.09	0.33***	0.10	0.21***	0.05	0.02	0.02
	(0.04)	(0.11)	(0.04)	(0.09)	(0.05)	(0.08)	(0.04)	(0.10)	(0.04)	(0.10)
Control Mean	2.53	1.40	1.32	0.87	1.28	0.60	1.73	0.88	1.82	0.83
Effect Size	-0.09	-0.34	0.28	-0.10	0.26	0.17	0.12	0.06	0.01	0.03
p-Value (Native=Refugee)	0.02		0.00		0.00		0.03		0.56	
N	7604	1222	7604	1222	7604	1222	7604	1222	7604	1222
R-Squared	0.016	0.112	0.070	0.116	0.071	0.095	0.047	0.086	0.052	0.072
Panel 3: Reciprocity										
COVID	-0.05***	-0.11***	0.07***	0.02	0.05***	0.05**	0.04***	0.04	0.00	0.00
	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.04)	(0.01)	(0.03)
Control Mean	0.44	0.31	0.16	0.11	0.14	0.07	0.22	0.14	0.26	0.15
Effect Size	-0.11	-0.35	0.43	0.17	0.40	0.69	0.18	0.25	0.01	0.02
p-Value (Native=Refugee)	0.07		0.05		0.81		0.86		0.95	
N	7604	1222	7604	1222	7604	1222	7604	1222	7604	1222
R-Squared	0.042	0.137	0.057	0.140	0.063	0.126	0.053	0.145	0.058	0.152
Panel 4: Clustering coef.										
COVID	-0.08***	-0.12***	0.01	0.00	0.01	0.01	-0.01	-0.01	-0.05***	0.00
	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.03)	(0.01)	(0.03)
Control Mean	0.39	0.34	0.16	0.12	0.18	0.10	0.25	0.14	0.27	0.14
Effect Size	-0.20	-0.36	0.08	0.02	0.06	0.09	-0.05	-0.07	-0.17	0.02
p-Value (Native=Refugee)	0.37		0.99		0.87		0.46		0.06	
N	7604	1222	7604	1222	7604	1222	7604	1222	7604	1222
R-Squared	0.066	0.145	0.064	0.166	0.060	0.101	0.048	0.129	0.060	0.141

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row, for the network type, and for the subgroup of the sample specified on top of columns. The sample and nominations are restricted to present students and then weighted to match the composition of the full sample of students. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table B14: Main Results by Gender

	Friendship		AS Provided		AS Received		ES Provided		ES Received	
	(1) Male	(2) Female	(3) Male	(4) Female	(5) Male	(6) Female	(7) Male	(8) Female	(9) Male	(10) Female
Panel 1: Isolates										
COVID	0.02*	0.04***	-0.07***	-0.03	-0.12***	-0.06***	-0.03*	-0.04**	-0.01	0.02
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)
Control Mean	0.21	0.16	0.38	0.28	0.50	0.35	0.32	0.24	0.34	0.21
Effect Size	0.11	0.24	-0.18	-0.10	-0.25	-0.17	-0.09	-0.15	-0.02	0.10
p-Value (Native=Refugee)	0.30		0.03		0.01		0.86		0.05	
N	4501	4325	4501	4325	4501	4325	4501	4325	4501	4325
R-Squared	0.060	0.081	0.055	0.066	0.071	0.086	0.060	0.065	0.058	0.076
Panel 2: In-degree ties										
COVID	-0.33***	-0.23***	0.22***	0.35***	0.31***	0.25***	0.14***	0.21***	0.05	-0.02
	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.07)	(0.04)	(0.06)
Control Mean	2.28	2.46	1.11	1.41	0.90	1.47	1.38	1.85	1.38	2.00
Effect Size	-0.14	-0.09	0.20	0.25	0.34	0.17	0.10	0.11	0.03	-0.01
p-Value (Native=Refugee)	0.05		0.02		0.52		0.45		0.30	
N	4501	4325	4501	4325	4501	4325	4501	4325	4501	4325
R-Squared	0.072	0.071	0.075	0.086	0.077	0.080	0.065	0.078	0.057	0.087
Panel 3: Reciprocity										
COVID	-0.05***	-0.07***	0.05***	0.07***	0.06***	0.04***	0.04***	0.03*	0.03**	-0.03
	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Control Mean	0.39	0.46	0.12	0.18	0.09	0.17	0.17	0.25	0.18	0.31
Effect Size	-0.13	-0.14	0.42	0.37	0.70	0.26	0.23	0.13	0.17	-0.09
p-Value (Native=Refugee)	0.37		0.38		0.59		0.94		0.01	
N	4501	4325	4501	4325	4501	4325	4501	4325	4501	4325
R-Squared	0.065	0.075	0.054	0.073	0.057	0.069	0.048	0.069	0.049	0.074
Panel 4: Clustering coef.										
COVID	-0.09***	-0.08***	0.00	0.02	0.01	0.01	-0.01	-0.02	-0.03**	-0.05***
	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
Control Mean	0.36	0.40	0.13	0.18	0.13	0.20	0.21	0.27	0.22	0.29
Effect Size	-0.26	-0.20	0.03	0.11	0.07	0.06	-0.03	-0.06	-0.15	-0.16
p-Value (Native=Refugee)	0.23		0.32		0.80		0.39		0.48	
N	4501	4325	4501	4325	4501	4325	4501	4325	4501	4325
R-Squared	0.084	0.077	0.069	0.072	0.058	0.083	0.068	0.075	0.072	0.072

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row, for the network type, and for the subgroup of the sample specified on top of columns. The sample and nominations are restricted to present students and then weighted to match the composition of the full sample of students. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

A.3.5 Results with weighting for sample composition and absenteeism

Table B15: Main Results

	(1) Friendship	(2) AS Provided	(3) AS Received	(4) ES Provided	(5) ES Received
Panel 1: Isolates					
COVID	0.03***	-0.05***	-0.09***	-0.03**	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Control Mean	0.19	0.34	0.43	0.29	0.28
Effect Size	0.16	-0.13	-0.20	-0.11	0.02
N	8826	8826	8826	8826	8826
R-Squared	0.06	0.06	0.08	0.06	0.07
Panel 2: In-degree ties					
COVID	-0.28***	0.28***	0.29***	0.18***	0.01
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Control Mean	2.34	1.25	1.17	1.59	1.66
Effect Size	-0.12	0.23	0.25	0.11	0.01
N	8826	8826	8826	8826	8826
R-Squared	0.07	0.09	0.10	0.08	0.09
Panel 3: Reciprocity					
COVID	-0.06***	0.06***	0.05***	0.03***	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Control Mean	0.42	0.15	0.13	0.21	0.24
Effect Size	-0.14	0.38	0.40	0.17	-0.00
N	8826	8826	8826	8826	8826
R-Squared	0.06	0.06	0.06	0.06	0.07
Panel 4: Clustering coef.					
COVID	-0.09***	0.01	0.01	-0.01	-0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Control Mean	0.38	0.16	0.16	0.23	0.25
Effect Size	-0.23	0.08	0.07	-0.05	-0.16
N	8826	8826	8826	8826	8826
R-Squared	0.07	0.07	0.06	0.05	0.07

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row and for the network type specified on top of columns. The sample and nominations are restricted to present students and then weighted to match the composition of the full sample of students while matching the composition of the pre-pandemic cohort. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table B16: Main Results by Refugee Status

	Friendship		AS Provided		AS Received		ES Provided		ES Received	
	(1) Native	(2) Refugee	(3) Native	(4) Refugee	(5) Native	(6) Refugee	(7) Native	(8) Refugee	(9) Native	(10) Refugee
Panel 1: Isolates										
COVID	0.01	0.10***	-0.07***	0.05	-0.10***	-0.07*	-0.03***	-0.04	-0.00	0.02
	(0.01)	(0.04)	(0.01)	(0.04)	(0.01)	(0.04)	(0.01)	(0.04)	(0.01)	(0.04)
Control Mean	0.16	0.34	0.31	0.47	0.39	0.64	0.25	0.48	0.24	0.48
Effect Size	0.09	0.30	-0.22	0.10	-0.25	-0.10	-0.14	-0.07	-0.00	0.04
p-Value (Native=Refugee)	0.01		0.00		0.32		0.96		0.78	
N	7604	1222	7604	1222	7604	1222	7604	1222	7604	1222
R-Squared	0.019	0.135	0.042	0.146	0.056	0.131	0.026	0.118	0.033	0.108
Panel 2: In-degree ties										
COVID	-0.23***	-0.49***	0.36***	-0.11	0.33***	0.07	0.21***	0.02	0.02	-0.01
	(0.04)	(0.10)	(0.04)	(0.09)	(0.05)	(0.08)	(0.04)	(0.09)	(0.04)	(0.09)
Control Mean	2.53	1.40	1.32	0.87	1.28	0.60	1.73	0.88	1.82	0.83
Effect Size	-0.09	-0.35	0.28	-0.13	0.26	0.12	0.12	0.03	0.01	-0.02
p-Value (Native=Refugee)	0.01		0.00		0.00		0.03		0.67	
N	7604	1222	7604	1222	7604	1222	7604	1222	7604	1222
R-Squared	0.016	0.121	0.072	0.132	0.073	0.095	0.047	0.094	0.051	0.080
Panel 3: Reciprocity										
COVID	-0.05***	-0.11***	0.07***	0.01	0.05***	0.05**	0.04***	0.03	0.00	-0.00
	(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.04)	(0.01)	(0.03)
Control Mean	0.44	0.31	0.16	0.11	0.14	0.07	0.22	0.14	0.26	0.15
Effect Size	-0.11	-0.36	0.43	0.12	0.40	0.66	0.17	0.24	0.01	-0.01
p-Value (Native=Refugee)	0.03		0.02		0.56		0.81		0.96	
N	7604	1222	7604	1222	7604	1222	7604	1222	7604	1222
R-Squared	0.041	0.142	0.058	0.154	0.063	0.116	0.052	0.170	0.057	0.180
Panel 4: Clustering coef.										
COVID	-0.08***	-0.12***	0.01	0.01	0.01	0.01	-0.01	-0.01	-0.05***	0.00
	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.03)	(0.01)	(0.03)
Control Mean	0.39	0.34	0.16	0.12	0.18	0.10	0.25	0.14	0.27	0.14
Effect Size	-0.20	-0.37	0.09	0.08	0.07	0.08	-0.05	-0.07	-0.17	0.01
p-Value (Native=Refugee)	0.33		0.90		0.98		0.40		0.04	
N	7604	1222	7604	1222	7604	1222	7604	1222	7604	1222
R-Squared	0.066	0.152	0.065	0.184	0.061	0.113	0.048	0.125	0.061	0.146

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row, for the network type, and for the subgroup of the sample specified on top of columns. The sample and nominations are restricted to present students and then weighted to match the composition of the full sample of students while matching the composition of the pre-pandemic cohort. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table B17: Main Results by Gender

	Friendship		AS Provided		AS Received		ES Provided		ES Received	
	(1) Male	(2) Female	(3) Male	(4) Female	(5) Male	(6) Female	(7) Male	(8) Female	(9) Male	(10) Female
Panel 1: Isolates										
COVID	0.02*	0.04***	-0.07***	-0.02	-0.12***	-0.05***	-0.03	-0.03*	-0.01	0.02
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)
Control Mean	0.21	0.16	0.39	0.29	0.51	0.36	0.33	0.25	0.34	0.21
Effect Size	0.12	0.24	-0.17	-0.08	-0.23	-0.15	-0.08	-0.14	-0.03	0.10
p-Value (Native=Refugee)	0.22		0.01		0.01		0.85		0.04	
N	4501	4325	4501	4325	4501	4325	4501	4325	4501	4325
R-Squared	0.059	0.079	0.057	0.073	0.076	0.091	0.059	0.066	0.054	0.075
Panel 2: In-degree ties										
COVID	-0.34***	-0.23***	0.22***	0.35***	0.31***	0.26***	0.14***	0.20***	0.04	-0.03
	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.07)	(0.04)	(0.06)
Control Mean	2.26	2.43	1.10	1.40	0.89	1.45	1.37	1.82	1.36	1.97
Effect Size	-0.15	-0.09	0.20	0.25	0.34	0.18	0.10	0.11	0.03	-0.01
p-Value (Native=Refugee)	0.07		0.02		0.56		0.46		0.25	
N	4501	4325	4501	4325	4501	4325	4501	4325	4501	4325
R-Squared	0.068	0.069	0.075	0.091	0.081	0.081	0.062	0.077	0.054	0.085
Panel 3: Reciprocity										
COVID	-0.05***	-0.07***	0.05***	0.07***	0.06***	0.04***	0.04***	0.03*	0.03*	-0.03
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Control Mean	0.39	0.46	0.12	0.18	0.09	0.17	0.17	0.25	0.18	0.30
Effect Size	-0.13	-0.15	0.41	0.36	0.66	0.27	0.21	0.13	0.16	-0.09
p-Value (Native=Refugee)	0.34		0.38		0.79		0.82		0.01	
N	4501	4325	4501	4325	4501	4325	4501	4325	4501	4325
R-Squared	0.066	0.075	0.058	0.076	0.059	0.072	0.048	0.070	0.054	0.074
Panel 4: Clustering coef.										
COVID	-0.09***	-0.08***	0.00	0.02	0.01	0.01	-0.01	-0.02	-0.03**	-0.05***
	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)
Control Mean	0.36	0.40	0.13	0.18	0.13	0.20	0.21	0.26	0.21	0.29
Effect Size	-0.26	-0.20	0.02	0.11	0.07	0.07	-0.05	-0.06	-0.15	-0.16
p-Value (Native=Refugee)	0.25		0.25		0.69		0.52		0.55	
N	4501	4325	4501	4325	4501	4325	4501	4325	4501	4325
R-Squared	0.082	0.079	0.069	0.079	0.059	0.085	0.069	0.073	0.073	0.077

Note: Each cell reports the OLS estimates of the effect of COVID-19 on the respective network measure at the beginning of the row, for the network type, and for the subgroup of the sample specified on top of columns. The sample and nominations are restricted to present students and then weighted to match the composition of the full sample of students while matching the composition of the pre-pandemic cohort. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

A.4 Additional Heterogeneity Analyses

Table C1: Associations between Social Network Measures and Parenting Styles

	(1) Friendship	(2) AS Provided	(3) AS Received	(4) ES Provided	(5) ES Received
Panel 1: Isolates					
COVID x Obedience	-0.01	-0.00	0.00	0.00	-0.02*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Warmth	-0.00	-0.01	0.01	0.01	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Punishment	-0.01	0.00	-0.02	-0.01	0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Reasoning	-0.02*	-0.02	-0.00	-0.00	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N	7373	7373	7373	7373	7373
R-Squared	0.06	0.06	0.08	0.06	0.07
Panel 2: In-degree Ties					
COVID x Obedience	0.01	-0.05	-0.02	0.06	0.06
	(0.06)	(0.04)	(0.04)	(0.04)	(0.05)
COVID x Warmth	0.00	0.07**	-0.01	-0.01	-0.01
	(0.05)	(0.03)	(0.04)	(0.04)	(0.04)
COVID x Punishment	0.06	-0.02	-0.00	0.00	-0.04
	(0.05)	(0.04)	(0.04)	(0.05)	(0.04)
COVID x Reasoning	0.06	0.04	-0.00	0.07*	0.00
	(0.06)	(0.04)	(0.04)	(0.04)	(0.04)
N	7373	7373	7373	7373	7373
R-Squared	0.08	0.09	0.11	0.09	0.10
Panel 3: Reciprocity					
COVID x Obedience	-0.00	0.01	0.01	0.00	0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Warmth	-0.00	-0.00	-0.01	0.00	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Punishment	0.00	-0.02**	-0.02***	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Reasoning	0.00	0.00	-0.00	-0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N	7373	7373	7373	7373	7373
R-Squared	0.07	0.06	0.07	0.06	0.07
Panel 4: Clustering coef.					
COVID x Obedience	-0.00	0.00	-0.01	-0.00	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Warmth	0.01	0.00	0.00	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Punishment	-0.01	0.00	-0.00	-0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Reasoning	-0.01	0.00	-0.00	-0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N	7373	7373	7373	7373	7373
R-Squared	0.07	0.06	0.07	0.06	0.07

Note: Each cell reports the OLS estimates of the effect of COVID-19 interacted with a given parenting style on outcomes that are specified at the beginning of the row for the samples that are given at the top of the columns. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table C2: Associations between Social Network Measures and SES Indicators

	(1) Friendship	(2) AS Provided	(3) AS Received	(4) ES Provided	(5) ES Received
Panel 1: Isolates					
COVID x Number of Siblings	0.01*	0.01***	0.00	0.00	-0.00
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
COVID x Father Working	0.06*	-0.03	-0.00	-0.02	0.04
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
COVID x Mother Working	-0.01	0.01	0.01	0.01	-0.02
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
COVID x Computer at Home	0.00	-0.03	-0.02	0.01	0.04
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
COVID x Internet at Home	-0.02	-0.02	-0.03	-0.00	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
N	7945	7945	7945	7945	7945
R-Squared	0.07	0.06	0.09	0.06	0.08
Panel 2: In-degree Ties					
COVID x Number of Siblings	-0.03	-0.07***	-0.03**	-0.03**	-0.01
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Father Working	-0.10	0.18*	-0.00	0.19*	0.02
	(0.14)	(0.10)	(0.11)	(0.11)	(0.11)
COVID x Mother Working	0.07	-0.01	-0.03	0.07	-0.01
	(0.09)	(0.06)	(0.06)	(0.07)	(0.08)
COVID x Computer at Home	-0.01	0.13**	0.05	-0.02	-0.21**
	(0.08)	(0.06)	(0.07)	(0.08)	(0.08)
COVID x Internet at Home	0.10	0.00	0.09	-0.02	0.08
	(0.11)	(0.08)	(0.08)	(0.08)	(0.08)
N	7945	7945	7945	7945	7945
R-Squared	0.09	0.09	0.11	0.09	0.10
Panel 3: Reciprocity					
COVID x Number of Siblings	-0.01	-0.01**	-0.01	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
COVID x Father Working	0.01	0.02	0.02	-0.01	-0.01
	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)
COVID x Mother Working	0.04***	0.02	-0.03*	0.01	0.04***
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
COVID x Computer at Home	-0.01	0.00	0.01	-0.01	-0.04**
	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
COVID x Internet at Home	0.01	-0.00	-0.01	0.00	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
N	7945	7945	7945	7945	7945
R-Squared	0.07	0.06	0.07	0.06	0.07
Panel 4: Clustering coef.					
COVID x Number of Siblings	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
COVID x Father Working	0.07**	-0.01	0.01	0.02	0.00
	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
COVID x Mother Working	0.02	-0.01	0.01	-0.00	-0.02
	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)
COVID x Computer at Home	0.00	-0.01	0.00	0.00	-0.00
	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
COVID x Internet at Home	0.02	0.02	0.04***	-0.00	-0.00
	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)
N	7945	7945	7945	7945	7945
R-Squared	0.07	0.06	0.07	0.06	0.07

Note: Each cell reports the OLS estimates of the effect of COVID-19 interacted with a given SES indicator on outcomes that are specified at the beginning of the row for the samples that are given at the top of the columns. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table C3: Associations between Social Network Measures and Teaching Styles

	(1) Friendship	(2) AS Provided	(3) AS Received	(4) ES Provided	(5) ES Received
Panel 1: Isolates					
COVID x Growth Mindset	0.00	-0.02	-0.02	-0.01	-0.01
	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)
COVID x Extrinsic Motivation	0.00	0.00	0.01	0.03**	0.01
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
COVID x Inquiry-based Pedagogy	-0.00	0.00	-0.01	0.01	-0.01
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
COVID x Modern Teaching	0.01	0.01	0.02	-0.02	0.01
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
COVID x Warmth	-0.01	0.02	0.01	0.02	0.02
	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)
N	9553	9553	9553	9553	9553
R-Squared	0.09	0.08	0.09	0.09	0.10
Panel 2: In-degree Ties					
COVID x Growth Mindset	0.01	0.08*	0.09**	0.04	0.05
	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)
COVID x Extrinsic Motivation	-0.02	-0.01	-0.03	-0.04	-0.01
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
COVID x Inquiry-based Pedagogy	0.06	-0.04	-0.04	0.01	-0.02
	(0.04)	(0.04)	(0.05)	(0.05)	(0.04)
COVID x Modern Teaching	-0.06	-0.04	-0.03	0.02	0.01
	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
COVID x Warmth	0.00	-0.04	-0.04	-0.04	-0.06
	(0.05)	(0.05)	(0.06)	(0.06)	(0.05)
N	9553	9553	9553	9553	9553
R-Squared	0.09	0.10	0.10	0.10	0.11
Panel 3: Reciprocity					
COVID x Growth Mindset	-0.01	0.01	0.01	-0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Extrinsic Motivation	-0.01	0.00	-0.00	0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Inquiry-based Pedagogy	-0.00	0.02	-0.01	-0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Modern Teaching	0.02	-0.02	-0.02*	0.03***	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Warmth	-0.01	-0.01	0.00	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N	9553	9553	9553	9553	9553
R-Squared	0.09	0.05	0.06	0.07	0.08
Panel 4: Clustering coef.					
COVID x Growth Mindset	0.00	0.01	0.00	0.00	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Extrinsic Motivation	-0.01	-0.01	0.00	-0.00	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Inquiry-based Pedagogy	-0.00	-0.00	0.00	-0.01	-0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
COVID x Modern Teaching	0.01	0.01	-0.00	0.02	0.01
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
COVID x Warmth	-0.00	-0.01	0.00	-0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N	9553	9553	9553	9553	9553
R-Squared	0.09	0.07	0.07	0.07	0.08

Note: Each cell reports the OLS estimates of the effect of COVID-19 interacted with a given teaching style on outcomes that are specified at the beginning of the row for the samples that are given at the top of the columns. All regressions use fully specified models that control for school and grade fixed effects, student, teacher, and classroom characteristics. Standard errors, given in parentheses, are clustered at the school and grade. *, **, or *** indicates significance at the 10%, 5%, and 1% levels, respectively.

A.5 Additional Balance Test

Table D1: Balance of SES Indicators and Parenting Styles Across Ethnicities

	(1) Natives	(2) Refugees	(3) Difference	(4) p-value	(5) N
SES Indicators:					
Number of Siblings	2.70	4.38	1.68	0.00	8316
Father working	0.93	0.83	-0.10	0.00	8356
Mother working	0.31	0.28	-0.03	0.19	8494
Computer at Home	0.52	0.37	-0.15	0.00	8499
Internet at Home	0.73	0.76	0.03	0.07	8436
Parenting styles:					
Obedience	-0.03	0.12	0.15	0.00	7954
Warmth	0.03	-0.22	-0.25	0.00	7945
Punishment	-0.02	0.27	0.29	0.00	8108
Reasoning	-0.00	-0.21	-0.21	0.00	8129

Note: All variables are obtained via survey answers from students. Differences are calculated by subtracting the mean of natives from the mean of refugees. Associated p-values are obtained by regressing the outcome variable on a dummy variable, which takes 0 for natives and 1 for refugees, controlling for school-fixed effects.

A.6 Data Inventories

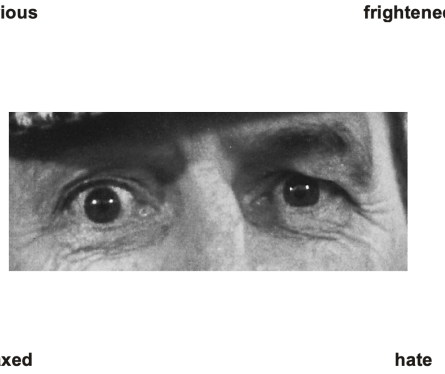
Figure B1: Network Elicitation Templates

	1	2	3
My best friends in the class			
Classmates whom I academically support			
Classmates who support me academically			
Classmates whom I emotionally support			
Classmates who support me emotionally			

Table E1: Student Survey Sample: Socioemotional Skills

4-point likert scale: completely agree, agree, disagree, completely disagree	
Inventory	**Items**
Emotional Empathy	When I see someone being treated unfairly, I feel very much pity for them. I often have tender, concerned feelings for people less fortunate than me. When I see someone being taken advantage of, I feel protective towards them. I would describe myself as a pretty soft-hearted person. Sometimes I do not feel very sorry for other people when they are having problems.
Impulsivity	I get on nerves when close to solving but can't figure it out. I cannot focus on a subject long time. I easily lose interest . I decide what to do quickly and then go and do it right away. Waits turn when playing a game. I get into trouble because I do things without thinking first. I tend to say the first thing that comes to mind, without stopping to think about.

Figure B2: Sample Question: Reading the Mind in the Eyes (Cognitive Empathy)



Note: The questions inquire about the emotion conveyed by the eyes. There are four options provided for each question, and the student is asked to select the correct one. The sub-scale of the Reading the Mind in the Eyes that we use contains 14 questions.

Table E2: Student Survey Inventory: Parenting Style

4-point likert scale: completely agree, agree, disagree, completely disagree	
Inventory	**Items**
Obedience	My mom asks me to do something without explaining why. My dad asks me to do something without explaining why. My mom does not allow me to question her decisions. My dad does not allow me to question her decisions.
Warmth	When I am scared or sad, my mom hugs and comforts me. When I am scared or sad, my dad hugs and comforts me. My mom jokes and plays games with me. My dad jokes and plays games with me.
Punishment	My mom uses physical punishment when I do something wrong. My dad uses physical punishment when I do something wrong. My mom takes away a privilege when I go against a rule. My dad takes away a privilege when I go against a rule.
Reasoning	My mom gets angry with me when I do something wrong, but she never explains why. My dad gets angry with me when I do something wrong, but she never explains why. My mom tells me how people feel. My dad tells me how people feel.

Table E3: Teacher Survey Inventories

4-point likert scale: completely agree, agree, disagree, completely disagree	
Inventory	**Items**
Growth Mindset	Your intelligence is something that you cannot change very much.
Extrinsic Motivation	Punishment is necessary to create a disciplined class.
Inquiry-based Pedagogy	I encourage my students to do research on topics they are interested in and discuss these topics with me.
Modern Teaching	It does not matter if there is noise in the classroom as long as the students are busy with something productive.
Warmth	Teachers should be serious and authoritative in their relationships with students.

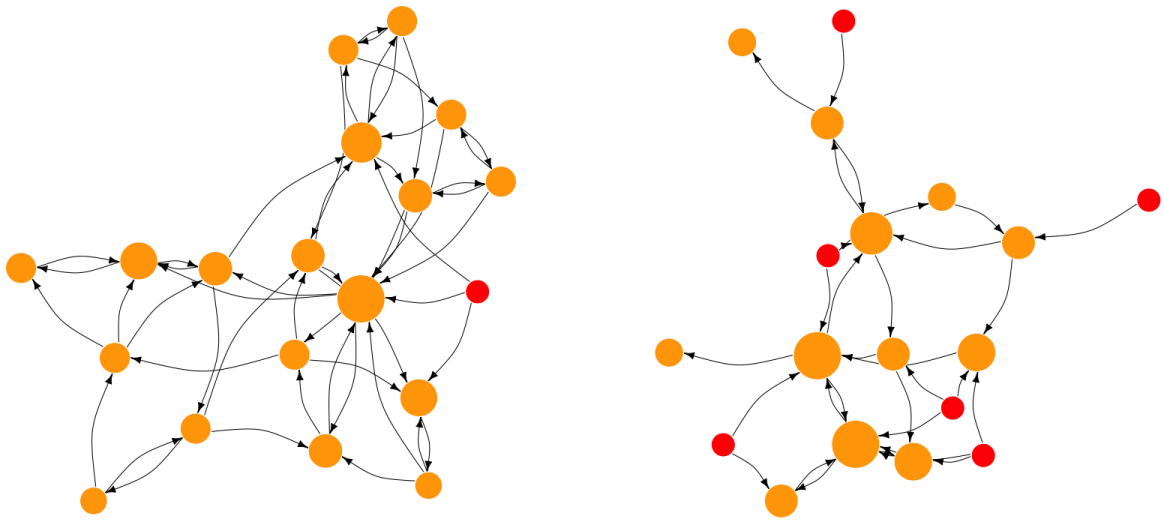
A.7 Data Collection Protocol

The pre-pandemic cohort data originate from a randomized controlled trial evaluating an educational cohesion program in Turkish primary schools. The program was developed in response to Turkey's refugee crisis, which followed the outbreak of the Syrian Civil War in 2011 and brought more than four million refugees into the country, including over one million school-aged children. Integrating refugee children into state schools posed major challenges for the Ministry of Education, creating an urgent need to equip teachers and administrators with training and tools to reduce ethnic segregation and peer conflict. The intervention targeted 3rd- and 4th-grade students and provided teachers with a modular curriculum combining written, animated, and activity-based materials. The curriculum emphasized perspective-taking and socio-emotional learning, encouraging students to infer and reflect on others' feelings through stories, videos, diaries, and games. The program promoted tolerance, empathy, and appreciation of individual differences, thereby aiming to foster cohesion among host and refugee children in classrooms (Alan et al., 2021b, 2023).

The data collection was funded by the Innovations for Poverty Action (IPA) and the Abdul Latif Jameel Poverty Action Lab (J-PAL) and conducted under ethics approval from the University of Essex and Bilkent. Participants and parents in the pre-pandemic cohort consented to data use for research on education and skills, and our study aligns with that intended use. Pandemic data were collected following the same ethical protocols in 2022. All participants and their parents provided informed consent for the use of their data for research purposes beyond the original intervention.

A.8 Example Network Plots

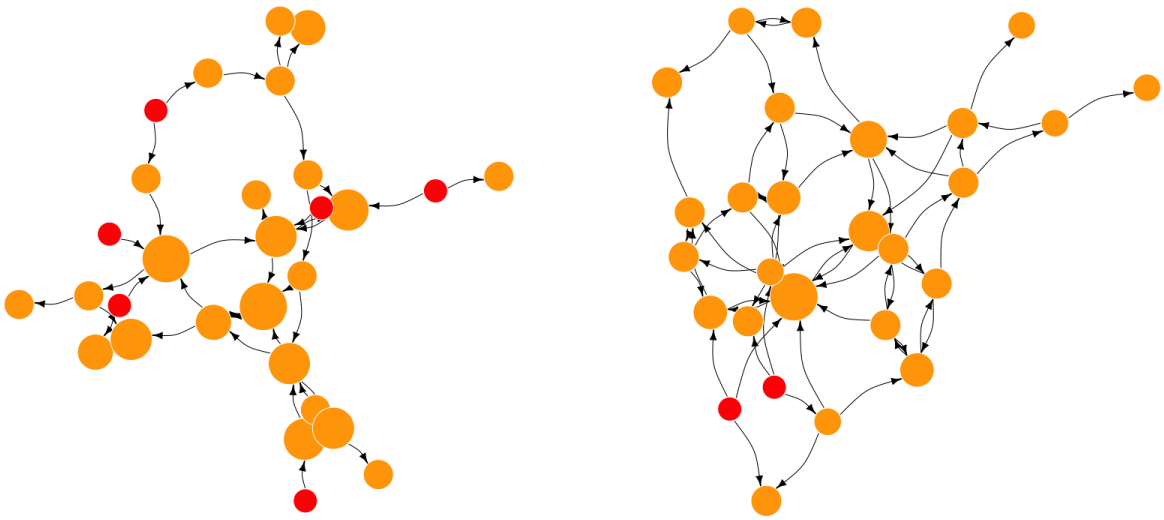
Figure B3: Changes in Friendship Network



(a) Pre-pandemic cohort **(b)** Pandemic cohort

Note: Panel A shows the pre-pandemic friendship network; Panel B shows the pandemic-period friendship network. Nodes represent individual students, with size proportional to in-degree centrality (nominations received). Red nodes indicate students who received zero friendship nominations.

Figure B4: Changes in Academic Support Network



(a) Pre-pandemic cohort

(b) Pandemic cohort

Note: Panel A shows the pre-pandemic academic support network; Panel B shows the pandemic-period academic support network. Nodes represent individual students, with size proportional to in-degree centrality (nominations received). Red nodes indicate students who received zero friendship nominations