Overview

The codes in this replication package constructs the analysis file from one data source using Stata and Gephi. Three main files (dofile_main.do, dofile_appendix.do, and dofile_figure.do) run all of the codes to generate the results for the 25 tables and 2 figures in the paper.

- Stata (codes were last run with version 16)

- Gephi (program was last run with version 0.92). To obtain the software, please visit the Gephi official website via: https://gephi.org/

Data Availability and Provenance Statements

1. Data description

The data are from our own experiment. Collaborating with Lonoghui Educational Bureau, two rounds of surveys and three rounds of examinations were conducted. The baseline tests on Chinese and mathematics were conducted in June 2015. The midterm and final exams were conducted in November 2015 and February 2016, respectively. The baseline survey was conducted in September 2015, which was the beginning of a new semester. A follow-up survey with similar questions was conducted in February 2016 after the final exam. In two rounds of the survey, we designed a questionnaire asking for students' personal information, such as gender, age, height, ethnicity, and so on. We surveyed the parents or guardians of the students to collect information on parents' characteristics, such as age, education level, income level, and time inputs on the students. Chinese and mathematics scores are used to measure students' academic performance. We used a well-accepted model, namely, the "Big Five" personality test, to measure personality traits. Among the students registered in the 36 classes, 2,034 students with baseline scores were collected in September 2015. A total of 109 students who might transfer to other schools or have grade retention issues did not participate in the midterm or final exams. Students without deskmates or with missing values of the key variables were excluded from our sample (123 students). The final sample (final.dta) contains 1,802 students.

The data used for the purpose of replication are stored in the directory "Stata-Program." The data citation in the main article has the full URL.

2. Statement about Rights

I certify that the authors of the manuscript have legitimate access to and permission to use the data used in this manuscript.

To protect privacy, some private information is hidden. For example, the student name, teacher name, school, class, etc. We code these variables to numbers.

Details on each Data Source

All data are from one source, the experiment that we conducted in 4 elementary schools in Longhui county, Hunan province, China. Details are shown in the File list table.

File list

File name	Source	Notes	Provided
Panel A. dataset			
final.dta	Longhui survey	main survey data used in the estimation, 1802 observations	Yes
final0.dta	Longhui survey	survey data, original, 2034 observations. This is used for testing the randomization of the data attrition	Yes
net.dta	Longhui survey	network data	Yes
teacher_info.dta	Longhui survey	class head teachers' characteristics	Yes
psidmerge.dta	Longhui survey	original data	Yes
dot.csv	Longhui survey	dots of a class network (For Gephi)	Yes
line1.csv	Longhui survey	edges of a class network before the treatment (For Gephi)	Yes
line2.csv	Longhui survey	edges of a class network after the treatment (For Gephi)	Yes
Panel B. dofile			
setup.do	dofile	Install Stata packages	Yes
data_clean.do	dofile	data cleaning program	Yes
dofile_main.do	dofile	generate all results in the main text	Yes
dofile_appendix.do	dofile	generate all results in the appendix	Yes
dofile_figure.do	dofile	generate all figures in the main text and appendix	Yes
teacher_clean.do	Longhui survey	clean the assessment of teacher data	Yes

Programs

1. Computer

The codes were last run on a 4-core Intel-based computer with Windows 10, with 32 GB of RAM.

2. Time needed to reproduce the analyses

All codes using Stata MP (2 cores) may take nearly 2 hours.

3. Required Packages for Stata

Our program needs outreg2, moulton, randcmd, nwqap, and rwolf packages.

(1) Run "Setup.do" to install the programs "outreg2," "randcmd," and "rwolf" packages.

(2) Unzip "moulton.zip" and "nwqaq.zip" and copy the files to your Stata directory.

Controlled randomness: Random seed is set when creating results in Table 9.

4. There are five programs used for this data:

(1). Programs in "data_clean.do" is the dofile that prepares the data.

(2). Programs in "dofile_main.do" is the main dofile. It creates all estimation results in the main text.

(3). Programs in "dofile_appendix.do" is the dofile that creates all estimation results in the online Appendix.

(4). Programs in "dofile_figure.do" is the dofile that creates all figures in the main text and online Appendix.

(5). Programs in "teacher_clean.do" is the dofile that cleans the data of students' assessment of their head class teacher.

5. Key variable names

There are two key variables in the dataset:

(1) treat1: a dummy indicating the mixed-seating (MS) treatment group.

(2) treat2: a dummy indicating the mixed-seating with rewards (MSR) treatment group.

Most of the results concern the estimated coefficients on these two variables or their interactions between other covariates.

Instructions to Replicators

1. Change the current directory to "D:\program files\stata16\ado\personal\aej2021\".

2. Install all required packages in Stata by opening "setup.do." Unzip "moulton.zip" and "nwqaq.zip" and copy the files to your Stata directory.

3. Run "data_clean.do," "dofile_main.do," "dofile_appendix.do," and "dofile_figure.do."

Most of the results are presented using outreg2 command. Results can be easily copied in outreg2 pop-out window, and pasted in excel and word.

Results which are not supported by outreg2 can be viewed in Stata output window (Tables 1, 2, 9, and A17).

List of tables and programs

The provided codes reproduce all tables and figures in the paper and in the online Appendix (except for photo and table that describe questionnares and table that compare our results with the existing litearture), as explained below.

Table/Figure #	Program	Line Number	Output file	Note
Panel A. Main Results (dofile name: dofile_main)				
Table 1	dofile_main.do	#11	output window	
Table 2	dofile_main.do	#56	output window	
Table 3	dofile_main.do	#100	outreg2 pop-up window	
Table4	dofile_main.do	#158	outreg2 pop-up window	
Table 5	dofile_main.do	#200	outreg2 pop-up window	
Table 6	dofile_main.do	#366	outreg2 pop-up window	
Table 7	dofile_main.do	#410	outreg2 pop-up window	
Table 8	dofile_main.do	#459	outreg2 pop-up window	
Table 9	dofile_main.do	#520	Stata output window	
Figure 1	N/A	N/A	N/A	Desk arrangement: A figure generated in MS Excel
Figure 2	N/A	N/A	N/A	Timeline: A figure created in MS Word
Figure 3	dofile_figure.do	#24	g101.gph	

Figure 4	dofile_figure.do	#47	g102.gph g103 g41.gph g42.gph	

Panel B. Appendix Results (dofile name: dofile_appendix)				
Table A1	dofile_appendix.do	#13	output window	
Table A2	dofile_appendix.do	#80	outreg2 pop-up window	
Table A3	dofile_appendix.do	#126	outreg2 pop-up window	
Table A4	dofile_appendix.do	#218	outreg2 pop-up window	
Table A5	dofile_appendix.do	#259	outreg2 pop-up window	
Table A6	dofile_appendix.do	#311	outreg2 pop-up window	
Table A7	dofile_appendix.do	#365	outreg2 pop-up window	
Table A8	dofile_appendix.do	#399	outreg2 pop-up window	
Table A9	dofile_appendix.do	#447	outreg2 pop-up window	
Table A10	dofile_appendix.do	#495	outreg2 pop-up window	
Table A11	dofile_appendix.do	#676	outreg2 pop-up window	
Table A12	dofile_appendix.do	#691	outreg2 pop-up window	
Table A13	dofile_appendix.do	#698	outreg2 pop-up window	
Table A14	N/A	N/A	N/A	This table describes the questions of questionnaire
Table A15	dofile_appendix.do	#772	outreg2 pop-up window	
Table A16	dofile_appendix.do	#807	outreg2 pop-up window	
Table A17	dofile_appendix.do	#988	outreg2 pop-up window	
Table A18	N/A	N/A	N/A	This table compares results between this study and the existing literature
Figure A1	N/A	N/A	N/A	This is a photo of a typical desk in Chinese

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Figure A2	Created using Gephi	N/A	Gephi output window	elementary schools To create this figure, please refer to the following steps

Figure A2 is created in Gephi (version 0.92)

Step 1. We need three files:

(1) dot.csv: the nods data.

   This file includes three variables: id (student name), gs (upper track student=1 and lower track students=1), and rank.

(2) line1.csv: the edges of the network before the treatment.

   This file includes three variables: source (students id), Target (students who were nominated as friends), gs (upper track student=1 and lower track students=1).

(3) line2.csv: the edges of the network after the treatment

   This file includes the same variables as line1.csv.

Step 2. Six steps are needed in Gephi to draw the figure:

(1) Input all three data in Gephi, including edges and nods.

(2) Adjust the size of the nods by the degree of nods.

(3) Adjust the color of dots. Let the nods of upper-track students are red and the nods of lower-track students are blue.

(4) Adjust the color of edges. Let them have the same color as the source nods.

(5) Select layout as "Radial Axis Layout."

Node Placement：

   Group Nodes by   gs (Attribute)

   Node Layout Direction   Counter Clockwise

   Order Nodes in Spar/Axis by   rank (Attribute)

   Ascending Order of Spar/Axis   false

   Draw Spar/Axis as Spiral   true

(6) Output and save figure.