IZA Institute of Labor Economics

Initiated by Deutsche Post Foundation

DISCUSSION PAPER SERIES

IZA DP No. 17271

Gender Role Models in Education

Sofoklis Goulas
Bhagya N. Gunawardena
Rigissa Megalokonomou
Yves Zenou

SEPTEMBER 2024

I Z A Institute of Labor Economics

Initiated by Deutsche Post Foundation

DISCUSSION PAPER SERIES

IZA DP No. 17271

Gender Role Models in Education

Sofoklis Goulas
Brookings Institution and IZA

Bhagya N. Gunawardena
RMIT University

Rigissa Megalokonomou
Monash University, IZA and CESifo

Yves Zenou
Monash University and IZA

SEPTEMBER 2024

ISSN: 2365-9793

IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

ABSTRACT

Gender Role Models in Education*

Using Greek administrative data, we examine the impact of being randomly assigned to a classroom with a same-gender top-performing student on both short- and long-term educational outcomes. These top performers are tasked with keeping classroom attendance records, which positions them as role models. Both male and female students are influenced by the performance of a same-gender top performer and experience both spillover and conformist effects. However, only female students show significant positive effects from the presence of a same-gender role model. Specifically, female students improved their science test scores by 4 percent of a standard deviation, were 2.5 percentage points more likely to choose a STEM track, and were more likely to apply for and enroll in a STEM university degree 3 years later. These effects were most pronounced in lower-income neighborhoods. Our findings suggest that same-gender peer role models could reduce the underrepresentation of qualified females in STEM fields by approximately 3 percent. We further validate our findings through a lab-in-the-field experiment, in which students rated the perceived influence of randomized hypothetical top-performer profiles. The results suggest that the influence of same-gender top performers is primarily driven by exposure-related factors (increased perception of distinction feasibility and self-confidence) rather than direct interactions.

JEL Classification: J24, J16, I24, I26

Keywords: gender gap, lab-in-the-field experiment, natural experiment, random peer group formation, role models, self-confidence, STEM

Corresponding author:
Rigissa Megalokonomou
Monash University
900 Dandenong Road, Caulfield East, Melbourne, Victoria, 3145
Australia
E-mail: rigissa.megalokonomou@monash.edu

* We thank participants at Monash University, the University of Queensland, Bocconi University, University of Melbourne, Australian National University, Unversity College London, Hitotsubashi University, University of Auckland, University of Konstanz, Deakin University, University of Adelaide, Peking University, Bank of Greece, The University of Western Australia, and Queensland University of Technology for useful suggestions and discussions. We also thank participants at the 9th Annual Workshop on Natural Experiments at Deakin University, 20th Annual Conference on Research on Economic Theory and Econometrics, 36th Annual PhD Conference in Economics and Business at the University of Western Australia, the 2022 Smart Tech & Education Program (STEP UP) at the University of New South Wales, 2022 Labour Econometrics Workshop at the University of Wollongong, 5th Annual BEST conference at the Queensland University of Technology, Women in Data Science Sri Lanka Conference in 2023, 2023 Australian Conference for Economists, and Australian Gender Economics Workshop 2023 at Curtin University. We thank Romain Gauriot, Silvia Griselda, Jan Feld, Andrea La Nauze, KK Tang, and Metin Uyanik for valuable suggestions. We also thank Nansy Gyftopoulou for her invaluable assistance with digitizing the data. We are also thankful to the committee and conference audience at the 36th PhD Conference in Economics and Business at the University of Western Australia, which awarded this paper the best paper award. This project has been reviewed by the Office of Research Ethics at the University of Queensland and is deemed to be exempt from ethics review. The related clearance number is 2022/HE001234. The survey-based experiment received ethics approval by Stanford University (eProtocol Number 66665), and the RCT has also been preregistered at the AEA RCT Registry with RCT ID number AEARCTR-0009955. Rigissa Megalokonomou acknowledges research support from the University of Queensland BEL Early Career Grant (No: UQECR1833757) and the Monash University, Monash Establishment Grant (No: 1755774).

1 Introduction

Humans are inherently mimetic, which is why role models can have a profound impact on our lives. While there is no universal agreement on the exact definition of a role model, research generally identifies them as people who share certain characteristics with us and exhibit qualities or behaviors that are exemplary and worth emulating (Morgenroth, Ryan, and Peters, 2015; Gartzia, Morgenroth, Ryan, and Peters, 2021). Role models are individuals whose experiences, behaviors, or achievements broaden others' perceptions of what is possible, provide valuable information, and enhance their confidence and sense of empowerment. Research across psychology, education, athletics, and economics consistently highlights the significant value of role models (Mutter and Pawlowski, 2014; Yancey, Siegel, and McDaniel, 2002; Lockwood, 2006).

Role models are often found among parents, teachers, mentors, coaches, peers, and older relatives (Bisin and Verdier, 2000; Carrell et al., 2010; Dee, 2005; Patacchini and Zenou, 2011). However, role models who are the same age and gender may be easier to relate to than those who are a different age or gender, and thus same-gender and same-age role models may be more effective in facilitating greater information exchange and interactions (Goulas, Megalokonomou, and Zhang, 2024; Pignolet, Schmid, and Seelisch, 2024; Zeltzer, 2020). The literature suggests that role models are particularly important for women (Neumark and Gardecki, 1998; Breda, Grenet, Monnet, and Van Effenterre, 2023; Dobrescu, Motta, and Shanker, 2024). This may explain why female students often perform better in female-dominated environments and make better educational decisions (Lavy and Schlosser, 2011; Goulas, Megalokonomou, and Zhang, 2023). In male-dominated fields such as STEM, female role models have been found to improve the recruitment and retention of qualified women (Drury, Siy, and Cheryan, 2011; Young, Rudman, Buettner, and McLean, 2013). Expanding the pool of female role models in STEM would be valuable for families and policymakers interested in increasing female participation in these fields, which are associated with higher lifetime earnings (Fayer, Lacey, and Watson, 2017). This suggests that gender homophily may be especially impactful in shaping female behavior and choices in fields that challenge gender stereotypes, such as STEM.

This study investigates how recognized high-achieving same-gender peers affect the educational outcomes and decisions of male and female students. We exploit a setting in which students are quasi-randomly assigned to classrooms, and the top-performing student in each classroom is tasked with keeping records in the attendance book throughout the school year. The role of an *attendance record keeper* signals recognition for excellent performance. The performance level of the *attendance record keeper* is often viewed as a benchmark that other students aspire to achieve, particularly in STEM subjects, where top performers tend to significantly outshine their peers. The random assignment of students—and therefore top performers—across classrooms, combined with mandatory courses, enables us to examine whether peer role models influence student outcomes and decisions. We specifically study the impact of being assigned a top-performing peer of the same gender compared with an opposite-gender peer on students' short- and long-term outcomes.

To understand the various influences of role models, we develop a unified theoretical framework that incorporates traditional mechanisms such as spillover and conformist effects, as well as more recent insights related to gender homophily. Our empirical investigation relies on a combination of hand-collected transcripts from a representative sample of high schools in Greece, encompassing more than 55,000 students from 2001 to 2012, with administrative data on university admission outcomes. This dataset provides longitudinal information on students' test scores and track choices throughout high school, as well as their subsequent university applications and enrollment. This diverse sample of schools enables us to investigate the heterogeneous effects of same-gender top performers based on socioeconomic profiles.

Our identification approach leverages idiosyncratic variation in the gender of top performers within school cohorts and across classrooms in an institutional setting characterized by quasi-random peer group formation.[1] In Greece, students are alphabetically assigned to classrooms (based on their last name) at the beginning of high school (10th grade). This alphabetical assignment resembles an ideal experiment, because it randomly assigns students across classrooms and mitigates common concerns about selection bias (Manski, 1993). Students take exams shortly after their grade 10 classroom assignment and the top performer in each class is publicly recognized by teachers as a *peer role model*. Our approach incorporates a rich set of student and classroom controls, which enables us to examine how the gender of the top performer influences males and females with similar characteristics in similar classrooms.[2]

A key identification assumption is that differences in the gender of top performers across classrooms within the same school year are exogenous to the factors that drive student outcomes, conditional on school-by-cohort fixed effects. To validate this assumption, we conduct a series of balancing tests.[3] The results of these tests indicate that within-school-cohort variation in the gender of top performers is unrelated to student characteristics and that these characteristics are indeed randomly distributed across classes. Another crucial assumption is that being assigned to a same-gender top performer is independent of the student's characteristics within the classroom. We confirm this assumption using student-level data, and demonstrate that the assignment is indeed orthogonal to individual student characteristics. A third crucial method for addressing potential selection concerns is the random assignment of top performers to classrooms within a school year. Through balancing exercises, we demonstrate that the characteristics of top performers are indeed randomly distributed across classrooms within each school cohort.

In testing the predictions of our theoretical framework, our findings reveal a consistent pattern across various outcomes: Both male and female students are *equally* (and positively) influenced by the *performance* of a same-gender record keeper and experience both spillover and conformist effects.[4] This can be attributed to the fact that the difference between top-performing males and females is minimal and insignificant. However, only female students are significantly and positively impacted by the *presence* of a same-gender record keeper (i.e., the gender homophily effect). Specifically, female students randomly assigned to a same-gender peer role model improve their subsequent science test scores by 4 percent of a standard deviation, are 2.5 percentage points more likely to choose a STEM track 1 year later, and are more likely to apply for and enroll in a STEM university degree 3 years

[1]This identification methodology is akin to that used by Hoxby (2000), Lavy and Schlosser (2011), Hill (2017), and Brenøe and Zölitz (2020), who exploit variation across cohorts within schools.

[2]This identification approach is similar to that of Anelli and Peri (2019), who use variation in gender composition within school cohorts to estimate gender peer effects.

[3]Our approach is similar to that of Lavy and Schlosser (2011), Goulas, Megalokonomou, and Zhang (2024), Anelli and Peri (2019), Gong, Lu, and Song (2021), and Mouganie and Wang (2020).

[4]We will use the term *record keeper* to refer to the attendance record keeper.

later. Our findings suggest that roughly 1 percentage point of the 34-percentage-point gender gap (or 3 percent) in initial STEM track specialization in high school is attributable to the influence of gender homophily with the classroom's top performer. We also find that females assigned to a same-gender top performer are nearly 1 percentage point more likely to enroll in a STEM university degree within the top 20 percent of university quality, as measured by multiple criteria. These findings underscore the significant impact that the gender of individuals promoted as role models can have on the outcomes and choices of those around them—particularly for females. Lastly, we find that our estimates are more pronounced among females in lower-income neighborhoods.

To further validate our identification strategy, we conduct a series of placebo exercises. First, we investigate whether role model effects are associated with the second or third top performer in the classroom. Although these students may have performance levels similar to the top performer, only the top performer is promoted as a role model for their classmates. Second, we replace the gender of the top performer in a classroom with the gender of the top performer in another classroom within the same school cohort. Third, we substitute the gender of the top performer in each classroom with the gender of the top performer from the same classroom in the previous or following year. Fourth, we replace the gender of the top performer with that of a random student from the same class. The results show that the estimated effects of the actual treatment are significantly different from those of the placebo treatments, which exhibit no effects at all. The absence of any discernible effects in the placebo treatments suggests that the estimated treatment effects are not merely capturing the influence of unobserved confounders at the classroom level. Instead, these findings provide additional evidence that the main effects are driven by the salient recognition the top performer receives in the classroom.

Given that the *presence* rather than the *performance* of a same-gender record keeper has a significant and distinct impact on female students, we further investigate this relationship through a lab-in-the-field experiment. In this survey-based experiment, we randomly exposed students to fictitious top performers with varying profiles, differing by gender and the subject area in which they excelled (STEM or non-STEM). Consistent with our administrative data findings, we find that females report higher perceptions of their academic performance and choices when exposed to the profile of a same-gender top performer. Specifically, females exposed to profiles in which the top performer's gender matches their own demonstrate a 22 percent of a standard deviation increase in perceived or expected role model influence on their performance in STEM subjects. For males, the estimate is smaller and statistically insignificant. We also asked participants about the channels through which same-gender top performers influence them. The self-reported mechanisms driving these effects for female students are primarily exposure-related factors, such as increased *distinction feasibility* and *self-confidence*, rather than interaction-related mechanisms, such as *information transfer* and *co-study*.

This study contributes to three stands of the literature. First, our paper makes a substantive contribution to the literature on the effect of *same-gender teachers/advisors/parents* (vertical and oblique transmission) on students' performance and choices (Bettinger and Long, 2005; Hoffmann and Oreopoulos, 2009; Carrell, Page, and West, 2010; Paredes, 2014; Eble and Hu, 2017; Breda, Grenet, Monnet, and Van Effenterre, 2023; Gaule and Piacentini, 2018; Huntington-Klein and Rose, 2018; Olivetti, Patacchini, and Zenou, 2020; Porter and Serra, 2020; Griffith and Main, 2021; de Gendre, Feld, Salamanca, and Zölitz, 2023; Neumark and Gardecki, 1998). Most studies find positive effects for female students who are assigned to female teachers or female advisers in male-dominant fields.[5] This may be due to role model influences. However, teachers are also instructors, and their pedagogical methods or teaching styles may be perceived differently by male and female students (Hoffmann and Oreopoulos, 2009). To our knowledge, this is the first paper in which the role models studied do not engage in teaching, advising, or any form of formal instruction or counseling. This distinction enables us to isolate the influence of exposure to role models from factors related to teaching practices or instructional effectiveness.

Second, our study identifies the causal impact of *internal* role models in contrast to much of the literature, which focuses on *external* role models. Two recent papers, probably the most closely related to ours, study the effect of same-gender external role models. In particular, Porter and Serra (2020) study the effects of exposing university students to successful and charismatic female role models who specialized in economics at the same university. This study found that even brief exposure to these external role models (a 30-minute speech) positively influenced female students' enrollment in further economics classes. Also, Breda, Grenet, Monnet, and Van Effenterre (2023) find that exposing high school female students in France to female STEM role models during a 1-hour classroom talk increased their likelihood of enrolling in STEM programs. In contrast, internal role models are not only easier to find but also typically have a longer-lasting influence due to more prolonged exposure than the external role models studied in this literature. In our context, students are exposed to their classroom's record keepers daily for a much longer period.

Third, role models in our study are selected based on an exogenous rule that clearly distinguishes peers who serve as role models from those who do not. This approach contrasts with prior studies on the influence of high-performing peers, which often rely on arbitrary cutoffs to differentiate between "influential" and "non-influential" students. This literature examines the effects of varying *proportions of high-achieving female peers* in the classroom or cohort on other students' educational outcomes (horizontal transmission) (Mouganie and Wang, 2020; Busso and Frisancho, 2021; Modena, Rettore, and Tanzi, 2022). Most of these studies find that a high proportion of high-achieving female peers has positive effects on female students. Male students, on the other hand, are generally not affected by these proportions. The ad hoc nature of these cutoffs may introduce measurement error, which would weaken the accuracy of peer effect estimates. In our setting, the student with the highest baseline performance is the record keeper.

Understanding the impact of peer group role models on educational outcomes and career paths is essential for designing initiatives that promote gender equity and academic achievement. Our findings on the effectiveness of same-gender role models and their underlying mechanisms broaden the array of policies that can successfully harness these influences and enable policymakers to better anticipate their outcomes. Recognizing that role models can emerge from within peer groups, rather only being

[5] There is mixed evidence regarding which female students are more influenced by the gender match with their teacher or advisor. Some studies, such as Carrell, Page, and West (2010), find larger effects on high-ability students, while others, like Eble and Hu (2017), report larger effects on students with lower (perceived) ability. Although male students are generally not affected by the gender of their teacher or advisor—possibly because many studies focus on STEM subjects, traditionally dominated by males—Bettinger and Long (2005) find positive effects on male students from male faculty members in education, a field typically dominated by females. Also, Eble and Hu (2017) identify adverse effects from female mathematics teachers on male students with lower perceived ability. Conversely, Sansone (2017) finds that the gender effects of high school mathematics and science teachers became insignificant when controlling for teachers' behaviors, beliefs, and attitudes, which suggests the presence of omitted variable bias. In this literature, teachers and advisors are often considered to be role models.

external figures, offers a cost-effective strategy that leverages existing social dynamics. By identifying and promoting exemplary students, and particularly female students, as role models, policymakers can challenge traditional gender norms and encourage greater participation in male-dominated fields such as STEM.

2 Institutional Setting and Data

In this section, we provide a brief overview of the institutional framework that governs school and classroom assignments in Greece. We then outline the various datasets used to analyze the impact of being assigned to a recognized top-performing peer of the same gender on students' educational outcomes and choices. Following this, we detail the processes of track specialization in high school and the college application system in Greece, highlighting the key variables of interest. Lastly, we offer additional insights into the role of record keepers within this context.

2.1 School and Classroom Assignment

The educational system in Greece is highly centralized (OECD, 2018). Students are assigned to public schools based on their residential address and geographic proximity to nearby schools. Approximately 92 percent of students in Greece attend public schools (Goulas, Megalokonomou, and Zhang, 2024). Upon enrolling in high school, students are placed in a specific classroom for grade 10, where they take all core courses. The assignment of both students and teachers to classrooms within each school is conducted *randomly*.[6] Specifically, in strict adherence to the law, students are allocated to classrooms alphabetically by surname. Students with surnames starting with earlier letters in the alphabet are assigned to lower-numbered classrooms, and those with surnames starting with later letters to higher-numbered classrooms. Students are not permitted to switch classrooms. This alphabetical classroom assignment ensures the randomization of peer characteristics across classrooms, a strategy that is validated in this study and employed in previous research (Goulas, Griselda, and Megalokonomou, 2022; Goulas, Megalokonomou, and Zhang, 2023; Goulas, Griselda, and Megalokonomou, 2023).

2.2 High School Track and University Choices

Students are assessed in several subjects in each grade. We focus on students' end-of-grade science test scores. Raw exam scores range from 0 to 20 (with higher scores indicating better performance). The exams are designed, administered, and graded by more than one teacher. The teaching faculty in each subject and grade collectively construct the final exam and divide the grading responsibilities. The principal reviews and approves the exam questions and marked exam papers, then records the scores in the school logbook and computer system (Goulas and Megalokonomou, 2020). The principal ensures that teachers adhere to the grading guidelines provided by the Ministry of Education.[7]

[6]Evidence of the random assignment of teachers to classrooms in the same context can be found in Lavy and Megalokonomou (2024a) and Lavy and Megalokonomou (2024b).

[7]See Laws of the Hellenic Republic 2525/1997 (A 188) and 2909/2001 (A 90) as amended by Presidential Decree 60/2006 published in the Government Gazette Issue 65, volume A.

At the end of grade 10, students make their first and most important track specialization decision and must choose one of the available tracks: Classics, Science, or Information Technology. We categorize the Classics track as non-STEM and the Science and Information Technology tracks as STEM. This is a critical juncture in students' educational journey. Their choice of track can significantly impact future labor market opportunities and career trajectories. Students in the Science and Information Technology tracks share the majority of compulsory courses. In theory, students can change their specialization track between grades 11 and 12, but in practice, more than 94 percent of students remain in their chosen track until high school completion. All schools offer these three tracks, and there is no minimum performance threshold for students to enroll in any track. All students within a track take the same compulsory track subjects, which only vary across tracks. At the end of each grade, students take end-of-grade exams in all subjects, both core and track-specific.

We then examine the impact of being randomly assigned to a classroom with a same-gender top performer compared with an opposite-gender top performer on students' university applications and offers. University admission in Greece is centralized and administered by the Ministry of Education. Students must take standardized national exams at the end of grade 12. After these exams, applicants submit a list of their preferred tertiary degree programs to the Ministry of Education (OECD, 2018). Submitting this list is a prerequisite for participating in the university admission process (Goulas and Megalokonomou, 2019). Each student receives a unique offer based on their own ordered preferences and admissions score, as well as the ordered preferences and admissions scores of all other applicants. The most important decisions for applicants include whether or not to apply to a university STEM or humanities degree program, whether or not to enroll in a STEM or humanities university degree program, and whether this degree is in a top 20 percent.[8]

We also investigate the impact of being assigned to a same-gender top performer on the quality of postsecondary education. To assess this, we rank STEM university degrees based on their admission cutoffs. Using data from the first year of college admissions in our dataset, we rank all STEM university degrees according to the official admissions cutoff announced annually by the Ministry of Education. This cutoff is the admissions score of the marginal student enrolled in each degree program that year. Programs with higher admission cutoffs are considered more selective. After constructing the ranking metric, we convert these rankings into percentile ranks and create a binary indicator that assigns a value 1 if a STEM university degree is within the top 20 percent in competitiveness and 0 otherwise.

2.3 Data

2.3.1 School Archives and Administrative Data

We obtained our data from multiple sources. Primarily, we collected student-level data directly from school archives. This involved a comprehensive data collection effort, during which we visited 123 public schools and gathered administrative records for more than 55,000 students. A map illustrating

[8]STEM-related degrees are degree programs specializing in Hard Sciences, Technology, Computer Science, Engineering, Mathematics, and Statistics. Health sciences, such as medicine and biology, are not considered STEM, nor are business and economics. Non-STEM university departments include liberal arts, literature, psychology, journalism, philosophy, education, Greek language, history, foreign languages, home economics, law, economics, business and management, accounting, political science, and European studies.

the municipalities where these schools are located is provided in Online Figure A1. Schools in our sample are distributed throughout the country and cover a diverse range of areas—big cities as well as smaller rural areas and islands. Online Table A1 compares the sampled schools with the population. Our sampled schools are nationally representative with regard to several characteristics, and our sample includes approximately 10 percent of public high schools in Greece.

Each student record contains a unique identifier, school and classroom identifiers, and demographic information such as year of birth, gender, whether the student was born in the first quarter of their birth year, a complete history of high school track enrollment, high school graduation year, and test scores for each subject and grade. We have detailed information on student test scores from school exams for all high school grades—10, 11, and 12—as well as national exam scores from grade 12 (when students take the standardized exams). The panel data cover the years from 2001 to 2012.

Also, we obtained administrative data on postsecondary applications and enrollment maintained by the Hellenic Ministry of Education. For each university applicant, we have detailed information on the degree programs they applied for (i.e., STEM, humanities, etc.). Students receive a unique offer for a university degree, and we have specific data on each student's offer. From this, we identify the exact degree subject and categorize it to a specific study area (i.e., STEM, humanities, etc.). We also assess the selectivity or popularity of each offered degree, focusing particularly on whether students enroll in a degree ranked within the top 20 percent. By linking each student's school records with these administrative postsecondary records, we are able to track their educational achievements and decisions from high school through to university.

Table 1 shows summary statistics for the full sample of students, disaggregated by gender. Panel A shows students' predetermined characteristics, and panel B reports the same characteristics specifically for top performers. Panels C and D display student outcomes and the variable of interest: gender homophily. The baseline test scores in science for males and females are quite similar, with males averaging 14.49 and females 14.51 on a scale from 1 to 20, where 20 is the highest score. End-of-grade science test scores also show no significant gender differences, with males scoring an average of 15.31 and females 15.40. However, substantial gender differences emerge in specialization decisions and degree applications. Specifically, 81 percent of male students, compared with only 46 percent of female students, apply to a STEM track at the beginning of grade 11. This gender disparity persists in university degree applications, in which 16 percent of males and 6 percent of females enroll in a STEM degree. Furthermore, 5 percent of male students and 4 percent of female students enroll in STEM degrees within the top 20 percent of competitiveness.[9]

[9]Online Table A2 presents the same summary statistics for male and female students assigned to a same-gender top performer and an opposite-gender top performer, separately. Differences in pretreatment variables between students assigned to same-gender top performers and opposite-gender top performers are either nonexistent or negligible. The fact that there are no significant differences in the predetermined characteristics of students assigned to same- compared with opposite-gender top performers is a result of the successful random classroom assignment. The differences in outcomes variables between males assigned to same-gender compared with opposite-gender top performers are small and are either positive, negative, or nonexistent. However, the differences between females assigned to same-gender compared with opposite-gender top performers are small and always positive.

2.3.2 Lab-in-the-Field-Experiment Survey Data

We supplemented the administrative and school archive data with a survey-based experiment, that involved approximately 600 participants. The survey was administered to students in 31 classrooms across grades 11 and 12 in five public schools in September 2022. In the experiment, students were randomly assigned to profiles of fictitious top-performing peers in an attempt to validate the main findings from the natural experiment. The survey also collected information about students' study choices, beliefs, aspirations, and mimicking behaviors. Also, we collected data on students' real classroom experiences and their interactions with actual top performers to better understand the mechanisms that drive our main results.

2.4 The Top Performer as the Record Keeper

Each class has a record keeper, who takes attendance records. This role is by law assigned to the top performer in each class across all compulsory subjects based on the earliest exams students take in grade 10. We consider student test scores on these early fall exams to be the baseline achievement. The exams take place shortly after students are randomly assigned to their high school classrooms. The student with the highest overall baseline performance in the class in all compulsory non-elective subjects is assigned to be in charge of the attendance book.[10] In this context, the role of record keepers positions them to be recognized as *peer role models* by their classmates. We collected survey data on students' perceptions of their top-performing peers. Students are likely to admire and emulate their peer role models in study habits and educational decisions. For instance, our survey evidence, presented in Figure 1, demonstrates that 90 percent of male students and 80 percent of female students report looking up to top performers in their classroom as role models. Conversely, 10 percent of males and 20 percent of females indicated that their top performer was not an example for them, and describe these individuals as antisocial, arrogant, nerdy, or inclined to report others to the teacher. Also, Figure 2 shows that our survey participating students report that peer role models have twice the impact of parental models on their decisions to pursue competitive postsecondary studies or careers, such as those in STEM.

The record keeper remains in this role until the end of grade 10.[11] Thus, students are not competing for the role throughout the school year. Record keepers are not involved in any teaching activities; their primary daily responsibility is to provide each subject teacher with the attendance book, which allows the teacher to update student attendance records for that class period.[12] This routine ensures

[10]The compulsory non-elective subjects are history, algebra, modern Greek, ancient Greek, Greek literature, physics, geometry, and chemistry. During the first weeks of grade 10, the student with the highest GPA in grade 9 is temporarily in charge of the attendance book. One might worry that any potential interaction between students in the beginning of the school year may influence both the test scores that determine the top performer/record keeper and the outcomes of students in the classroom. Online Table A3 shows that, in a small sample of grade 9 records, the grade 10 top performer and record keeper also had the highest grade 9 GPA in 10 out of 11 classrooms, suggesting that any effect from interactions in the beginning of the school year may be limited.

[11]In grade 11, the student with the highest GPA in grade 10 keeps the attendance book.

[12]Record keepers are also in charge of updating the class seating plan a few times each school year to indicate which student is absent when a seat is empty. Students are not allowed to change seats during the school year unless instructed by their teacher. In such cases, the record keeper must update the seating plan, which is typically placed inside the attendance book.

that the top performer receives prominent recognition on a daily basis. After the teacher updates the attendance record, the record keeper keeps the attendance book at their desk until the next subject teacher arrives.[13] Online Figure A2 provides an example of what a page from the attendance book looks like.

Online Table A4 shows the top performers' and non-top performers' average baseline test scores in science and language (panels A and B), as well as the top performers' average baseline performance (panel C) by gender. Both top-performing and non-top performing males have a comparative advantage in science captured by the higher baseline test scores in science compared with language. However, unlike non-top performing females who are stronger in language compared with science, top-performing females have higher baseline test scores in science compared with language. This implies that female top performers are likely to be perceived as having a comparative advantage in science subjects or being STEM-related top performers. This may serve as a powerful signal for their female classmates, as top-performing females who excel in STEM may be perceived as challenging or breaking gender norms. Thus, we mainly focus our analysis on science test scores and STEM specialization and study choices, while we also consider language and humanities choices. Panel C shows that the differences in the average baseline performance of male and female top performers are minimal and insignificant.

3 Theoretical Framework

In this section, we present a theoretical framework that disentangles the roles of standard peer influences and gender homophily in student decisions. Homophily is the tendency of agents to associate with other agents who have similar characteristics. Having similar characteristics (age, race, religion, profession, education, etc.) is a strong and significant predictor of two individuals being friends and connected (McPherson, Smith-Lovin, and Cook, 2001; Dee, 2005; Currarini, Jackson, and Pin, 2009; Golub and Jackson, 2012; Patacchini and Zenou, 2016; Muralidharan and Sheth, 2016; Gershenson, Hart, Hyman, Lindsay, and Papageorge, 2022; Boucher, Del Bello, Panebianco, Verdier, and Zenou, 2023), especially when individuals are of the same gender (Hahn, Islam, Patacchini, and Zenou, 2020; Lim and Meer, 2020; Olivetti, Patacchini, and Zenou, 2020; Zeltzer, 2020).

In our model, we examine how a role model affects the educational outcomes of their peers. There are two main mechanisms. *Spillover effects* suggest that the influence of the role model student on their peers increases with their academic performance. *Conformism* operates differently, since peers want to be as close as possible to the educational outcomes of the role models in their classrooms. The main goal of our theory is to motivate an empirical strategy that unifies standard peer effect influences with homophily behavior.

Suppose there are students interacting in a classroom; these students are either male (m) or female (f). Each classroom has a known top performer (the record keeper) and each student i of gender $g = m, f$ in classroom c, school s, and cohort t exerts study effort $y^g_{i,c,s,t}$ that maximizes her utility

[13] At the beginning of the school day, the record keeper collects the attendance book from the school principal and returns it to the principal at the end of the school day.

$u^g_{i,c,s,t}$. It is given by

$$
\begin{aligned}
u^g_{i,c,s,t} = & \underbrace{\mathbf{x}_{i,c,s,t}\gamma\, y^g_{i,c,s,t}}_{\text{Benefits}} - \underbrace{\frac{1}{2}\left(y^g_{i,c,s,t}\right)^2}_{\text{Cost of Effort}} \\
& + \underbrace{\beta^g_S y^g_{i,c,s,t-1} \times \tilde{y}_{\text{top},c,s,t}}_{\text{Spillover Effects}} + \frac{1}{2}\underbrace{\beta^g_C\left(\tilde{y}_{\text{top},c,s,t-1} - \tilde{y}^g_{i,c,s,t-1}\right)^2}_{\text{Conformism Effects}} \quad \underbrace{+\beta^g_H y^g_{i,c,s,t} \times SGT_{i,c,s,t}}_{\text{Homophily}}
\end{aligned} \tag{1}
$$

where $\tilde{y}_{top,c,s,t-1} = \max_j y_{j,c,s,t-1}$ is the study effort of the top student j of gender g in classroom c belonging to school s in cohort t. Vector $\mathbf{x}_{i,c,s,t}$ represents the observable characteristics of student i. $SGT_{i,c,s,t}$ (Same-Gender Top student) is an indicator variable that takes the value of 1 if student i's gender matches the top performer's gender in their quasi-randomly assigned classroom.

The first two terms $\mathbf{x}_{i,c,s,t}\gamma y^g_{i,c,s,t} - \frac{1}{2}(y^g_{i,c,s,t})^2$ of the utility function capture the standard standalone cost-benefit structure, which depends on own observable characteristics $\mathbf{x}_{i,c,s,t}$. The other parts of the utility function represent the interaction with the top performer. First, independent of their gender, the study effort of the top performer exerts *positive spillovers* on students in the classroom, where $\beta^g_S > 0$ corresponds to the intensity of the spillover effect. Second, students want to *conform* to the study effort of the top performer. In particular, when student i does not conform to the effort of the top performer $\tilde{y}_{\text{top},c,s,t-1}$, they pay a utility cost of $\frac{1}{2}\beta^g_C\left(\tilde{y}_{\text{top},c,s,t-1} - \tilde{y}^g_{i,c,s,t-1}\right)^2$, where $\beta^g_C < 0$ is the taste for conformity.[14] Third, if student i is of the same gender as the top performer, there is a *utility premium* equal to $\beta^g_H y^g_{i,c,s,t}$, where $\beta^g_H > 0$ is the intensity of homophily.[15] Observe that β^g_S, β^g_C, and β^g_H may differ by gender g. The first-order condition with respect to effort for student i is given by[16]

$$
y^g_{i,c,s,t} = \mathbf{x}_{i,c,s,t}\gamma + \beta^g_S\,\tilde{y}_{top,c,s,t-1} + \beta^g_C\left(\tilde{y}_{top,c,s,t-1} - \tilde{y}^g_{i,c,s,t-1}\right) + \beta^g_H SGT_{i,c,s,t}. \tag{2}
$$

Student i's marginal benefit in terms of effort from the top performer's spillovers is $\beta^g_S > 0$ and i's marginal cost of not conforming to the top performer's effort is $\beta^g_C < 0$. Furthermore, the premium of having a top performer of the same gender in the classroom is $\beta^g_H > 0$.

To understand how students' study efforts translate into academic outcomes, we assume the following simple linear education production function:

$$
Y^g_{i,c,s,t} = y^g_{i,c,s,t} + \epsilon^g_{i,c,s,t}, \tag{3}
$$

where $Y^g_{i,c,s,t}$ is the educational outcome of student i,c,s,t of gender g, and $\epsilon_{i,c,s,t}$ is unobserved and captures the unobservable characteristics of i. We plug $y^g_{i,c,s,t}$ from (2) into (3) to obtain

$$
Y^g_{i,c,s,t} = \mathbf{x}^g_{i,c,s,t}\gamma + \beta^g_C\left(\tilde{Y}_{top,c,s,t-1} - \tilde{Y}^g_{i,c,s,t-1}\right) + \beta^g_S\,\tilde{Y}_{top,c,s,t-1} + \beta^g_H SGT_{i,c,s,t} + \epsilon^g_{i,c,s,t}. \tag{4}
$$

where $\tilde{y}_{top,c,s,t-1} = \tilde{Y}_{top,c,s,t-1}$ and $\tilde{y}^g_{i,c,s,t-1} = \tilde{Y}^g_{i,c,s,t-1}$, that is—known effort is equal to the baseline

[14] We use the subscript *t-1* to denote a previous time period relative to the one in which the utility function is realized.

[15] Note that we use subscripts C and S to denote "conformism" and "spillover" to differentiate from "c" and "s," which denote "classroom" and "school" respectively.

[16] Since the utility function is strictly concave, there is a unique interior solution to each student's maximized effort.

educational outcome (i.e., test scores) for the top performer.

4 Impact of Same-Gender Role Models

In this section, we empirically examine the impact of being quasi-randomly assigned to a classroom with a top performer of the same gender on both short-term and long-term academic outcomes. Specifically, we aim to isolate the effect of gender homophily with the classroom's top performer on test scores and study decisions, while controlling for other potential influences from the top performer.

Estimating the effects of gender homophily, in addition to the spillover and conformist effects discussed in Section 3, on academic outcomes is challenging for several reasons. First, the gender and baseline performance of the top performer in each classroom may be correlated, which potentially compromises the reliability and precision of the estimates. Second, self-selection and sorting of students across classrooms may lead to a correlation between the baseline characteristics of the top performer, such as performance or gender, and those of other students in the classroom. This could introduce bias due to omitted unobservable confounders. Third, students may not always be aware of who the top performer in their classroom is, which reduces the potential impact on their peers.

We address these challenges by leveraging a context in which students are assigned to classrooms alphabetically and spend the vast majority of their school time in these groups, and in which the top performer is visibly recognized. Alphabetical classroom assignment provides exogenous variation in peer-group formation, which, when we control for other influences from the top performer, allows us to isolate the impact of having a same-gender top performer on academic outcomes. Prominent recognition of the top performer ensures that students are aware of their identity, which increases our confidence that the effects of top performer characteristics, such as gender, are detectable in this context.

Using the gender of the saliently recognized top performer in each quasi-randomly formed classroom to identify gender homophily effects offers several advantages. First, in our context, recognition of the top performer is independent of teacher actions. Previous research suggests that the gender of teachers can significantly impact students' outcomes, potentially by encouraging students to seek role models who share their gender (Goulas, Megalokonomou, and Sotirakopoulos, 2024). However, in our context, the top performer's visibility is established independent of teacher actions or interactions with students. Second, the alphabetical classroom assignment introduces an element of randomness into who becomes the top performer, and minimizes the risk of competitive dynamics that could affect role model influences. Third, while students have control over their own baseline performance, they cannot fully control their relative rank—which determines the top performer—or who their classroom peers are, since classroom assignment is quasi-random. This allows us to isolate the causal effect of having a same-gender top performer, alongside other influences of the top performer.

4.1 Identifying Variation

We take advantage of quasi-random variation in classroom composition within school cohorts, which arises from the alphabetical assignment of students to classrooms. This quasi-random assignment generates exogenous variation in the characteristics of the top performer in each classroom. In other words, our identification strategy compares the outcomes of students from different classrooms within the same school cohort who have similar characteristics and experience the same school environment. The key element is that these students were randomly assigned to classrooms in which the top performer is either the same gender or a different gender, purely due to the random assignment process. This approach allows us to account for both individual student characteristics and the effects of other top performer traits besides gender.

Figure 3 reveals sizeable variation in the baseline overall performance of top performers. It also illustrates that the baseline performance distributions for male and female top performers have similar central tendencies and substantial overlap of support. Online Figure A3 shows that students with nearly perfect baseline performance (close to 20 out of 20) are more likely to be top performers in their classroom compared with students with a baseline performance of 18 out of 20. Those with a baseline performance slightly above 19 out of 20 have about a 50/50 chance of being the top performer in their classroom. The likelihood of being the top performer at different points in the baseline performance distribution is similar for both males and females.

Figure 4 shows that 33 percent of male and 68 percent of female students are assigned to a same-gender top performer, respectively. This demonstrates that there is rich variation in the main treatment variable $SGT_{i,c,s,t}$ (i.e., the indicator for same-gender top performer) for male and female students. Online Figure A4 shows the likelihood of being quasi-randomly assigned to a same-gender top-performing student across different parts of the baseline performance distribution, by gender. Students across the baseline performance distribution have meaningful chances of having a top performer in their classroom who matches their gender. Females are more likely than males to have a same-gender top performer across the performance distribution. This reflects the fact that there are more female top performers in the data, but as both Figures 4 and A4 indicate there is still considerable variation in the treatment variable across genders. Figure 5 plots the baseline performance of males and females who have either a same-gender or opposite-gender top performer in their classroom. The distributions show considerable overlap in the baseline performance of students assigned to classrooms with a same-gender or opposite-gender top performer.

Our empirical setup allows us to identify the impact of having a same-gender top performer separate from the traditional peer effects associated with top performers. Traditional peer effects refer to (1) the direct influence of a top performer's baseline performance (i.e., spillover effect) and (2) the tendency of peers to conform to a top performer's actions when the top performer has a baseline performance similar to theirs (i.e., conformist influence). However, traditional peer effect studies typically do not consider the impact of being exposed to a top performer of the same compared with an opposite gender on academic outcomes (i.e., gender homophily). Our empirical approach accounts for traditional peer effects by directly controlling for the top performer's baseline performance and the individual's performance relative to the top performer. We assume that any other influences of top performers are not correlated with their status as a top performer.

4.2 Empirical Strategy

We estimate the econometric equivalent of model equation (4) as follows:

$$Y^g_{i,c,s,t} = \alpha + \beta^g_C \left(\tilde{Y}_{top,c,s,t-1} - \tilde{Y}^g_{i,c,s,t-1}\right) + \beta^g_S \tilde{Y}_{top,c,s,t-1} + \beta^g_H SGT_{i,c,s,t} + \mathbf{x}^g_{i,c,s,t}\gamma + \mathbf{x}^g_{top,c,s,t}\lambda + W'_{c,s,t}\delta + \Theta_{s,t} + \epsilon^g_{i,c,s,t} \quad (5)$$

where outcomes $Y^g_{i,c,s,t}$ include end-of-grade test scores, study choices, university applications, and admission outcome. Vector $\mathbf{x}^g_{i,c,s,t}$ captures student-specific covariates that include a student's age in grade 10, a binary indicator that takes the value of 1 if a student was born in the first quarter of the calendar year, and student-level baseline test scores.[17] W_{cst} is a vector of classroom-level controls that include the number of students in the classroom, the leave-out mean proportion of female peers (excluding student i), and the leave-out mean of student baseline test scores in class c in school s in cohort t (excluding student i).[18] Θ_{cst} captures school-year cohort fixed effects. It is crucial to include school by year fixed effects to control for the most obvious potential confounding factor—the endogenous sorting of students across schools in a given year—and ensure that we compare comparable students.[19] We also control for the top performer's other characteristics, except gender, to alleviate concerns that other top performer characteristics might influence student outcomes and decisions. In particular, vector $\mathbf{x}^g_{top,c,s,t}$ includes the baseline performance of the top performer, the age of the top performer, and a binary indicator for whether the top performer was born in the first quarter of the year. We cluster standard errors at classroom level to allow for heteroskedasticity and serial correlation among students within each class. It is important to note that we exclude the top performer from the analysis and examine the impact of exposure to a same-gender compared with an opposite-gender top performer on the outcomes of their classmates.

There are three parameters of interest: β^g_S, β^g_C, and β^g_H. We investigate their sign, magnitude, and precision for males and females. Setting $\beta^g_C = \beta^g_S = 0$ in (5) allows us to focus on β^g_H. If $\beta^f_H > \beta^m_H$, then females' marginal utility from effort when the top performer is female is greater than males' marginal utility from effort when the top performer is male and vice versa. We interpret the estimates of β^g_H as the causal effect of having a same-gender compared with an opposite-gender top performer in the classroom. This interpretation is distinct from other top-performer influences and relies on a key identification assumption. Specifically, we assume that the presence of a same-gender top performer in the classroom is uncorrelated with the error term once we account for spillover and conformist effects of the top performer, individual controls, and class controls.[20] This assumption would be violated if students were able to sort themselves into classrooms based on the gender of the top performer. However, in the context of our study, such self-sorting is not possible.

In our quasi-experimental environment, high school students who attend the same school are assigned to classrooms in alphabetical order by surname. Students with surnames starting with earlier letters in the alphabet are assigned to classrooms with lower numbers, and those with later letters are assigned to higher-numbered classrooms. As a result, students (or their parents or teachers) cannot choose their class, and students remain in the same class from grades 10 to 12. This allocation process is effectively random. Tables 2 and Online Table A5 report the results of formal checks to confirm the randomness

[17]Inclusion of a student-level baseline test scores overcomes the issue of exclusion bias, as explained by Caeyers and Fafchamps (2016).

[18]We drop 181 classes that have more than one top performer. This happens when there is more than one student with the highest average baseline performance.

[19]We do not include class-level fixed effects, as their inclusion would result in perfect collinearity with the variable of interest since the gender of the top performer is at class level.

[20]Online Table A3, which shows that the grade 10 top performer and record keeper is probable to also have the highest grade 9 GPA, increases our confidence in the exogeneity of the process that determines who becomes the top performer and record keeper when students are quasi-randomly assigned to classrooms at the beginning of grade 10.

of student assignment to peer groups. In Table 2, we regress a binary indicator variable for having a same-gender top performer (treatment) on each predetermined student characteristic and baseline performance separately for male and female students. We include class-level controls and school × year fixed effects. Columns (1)-(4) show the results of regressing the treatment variable separately on each student characteristic, and column (5) presents a regression of the treatment on all student-level characteristics simultaneously to capture any correlated effects. All estimates are practically zero, which suggests no significant correlation between being assigned to a same-gender top performer and student characteristics. In Online Table A5, we regress mean class-level predetermined controls on classroom numbers (i.e., 1, 2, 3 etc) and demonstrate that classroom number is not systematically associated with differences in students' baseline performance, the likelihood of having a same-gender top performer, other students' or top performers' characteristics or classroom-level characteristics.

5 Results

5.1 Impact on Educational Outcomes

Table 3 presents the estimated coefficients of spillover effects, conformist effects, and gender homophily effects using specification (5) for males (columns 1-3) and females (columns 4-6) separately. Each panel corresponds to a different outcome variable. Estimates for these three effects across panels are largely unchanged when we exclude conformism and spillover from the specification (column 1), when we exclude gender homophily (column 2), or when we include all three (column 3). This indicates that the three channels are distinct, with little correlation between them.[21]

5.1.1 Impact on Subsequent Test Scores

The outcome variable in the top panel of Table 3 is the student-level end-of-grade test score in science. This is a standardized performance—that is, the grade transformed into z-scores to facilitate interpretation. In columns (1) and (4), we find that females exhibit greater gender homophily with the classroom's top performer than males. The estimated influence of gender homophily—represented by the coefficient on the same-gender top-performer indicator in grade 10—on science test scores is statistically significant, amounting to roughly 4-5 percent of a standard deviation. In contrast, the corresponding estimate for males is approximately half that size (2 percent of a standard deviation) and lacks statistical precision. In columns (2) and (5) for males and females, we observe that the estimated spillover effect of the classroom's top performer on science test scores is positive, statistically significant, and of similar magnitude for both genders. Conversely, the estimated conformist effect related to the classroom's top performer on science test scores is negative, statistically significant, and comparable in magnitude among male and female students. The estimated coefficients for gender homophily, conformity, and spillover remain

[21]In our baseline results, we control for student baseline performance in science, since we focus our investigation on STEM-related effects on test scores and specialization decisions. Our results remain very similar if we replace baseline science performance with the average baseline performance across all subjects. Online Table A6 presents these estimated results. All estimated effects are very similar to the baseline results. Only the estimated gender homophily coefficient for the outcome of test scores in science is now smaller and becomes insignificant. This is due to overall baseline performance, which includes multiple subjects and thus increases the noise.

very similar when included simultaneously in the regressions, as shown in columns (3) and (6) for males and females respectively.

5.1.2 Impact on Track Specialization in High School

The outcome variable in the second panel of Table 3 is the STEM track specialization in grade 11. This is the earliest instance of specialization for students. We show that the estimated gender homophily effect on STEM track specialization for females is equal to 2.4 percentage points and statistically significant. In contrast, the corresponding estimate for males is practically zero. The estimated spillover effect of the classroom's top performer on STEM track specialization is positive, statistically significant, and of similar magnitude among males and females, as shown in columns (2) and (5) respectively. The estimated conformism effect on STEM track specialization is negative, statistically significant, and of comparable magnitude among male and female students. Spillover and conformism influences have opposite signs but comparable magnitudes. The magnitudes of those estimated remain very similar in columns (3) and (6) for males and females respectively.[22]

We estimate that roughly 1 percentage point of the 34-percentage-point gender gap (or 3 percent) in STEM track choice is attributable to the influence of gender homophily with the classroom's top performer.[23] The track choice decision in grade 11 is the first significant specialization decision students make. For many, enrollment in the STEM track may be the initial step toward pursuing more competitive and higher-income careers in the future. Our estimated gender homophily effects on STEM track specialization highlight the importance of female role models during students' formative years. Female top performers can positively influence their female peers to choose more competitive tracks, which could potentially lead to more prestigious and lucrative careers.

5.1.3 Impact on Applying for and Enrolling in a STEM University Degree

We examine the longer-term effects of being assigned a same-gender top performer in grade 10 on outcomes related to STEM degree application and enrollment. The third and fourth panels of Table 3 report the estimated role model estimated coefficients on students' likelihood of applying for a STEM university degree and the likelihood of enrolling in a STEM degree program 3 years after initial exposure to a same-gender top performer in grade 10. STEM degrees are linked to more competitive and high-income-earning careers (Black, Muller, Spitz-Oener, He, Hung, and Warren, 2021; Kirkeboen, Leuven, and Mogstad, 2016). As in other outcomes, the spillover and conformity influences of the top performer are estimated to be symmetric for males and females; positive and negative, respectively. Consistent with our previous findings for male students, being assigned to a same-gender top performer does not significantly affect males' likelihood of applying for or enrolling in a STEM university degree, as shown

[22]One might expect the effects on STEM track specialization in grade 11 to reflect not only a shift in preferences but also the improved performance on end-of-grade 10 science exams. Online Table A7 shows that the results remain robust even after controlling for a student's performance at the end of grade 10.

[23]We multiply the effect of gender homophily for females with their average likelihood of having a same-gender top performer in their grade 10 classroom ($0.024\times0.46=0.011$ or 1.1 percentage points). We consider the effect of gender homophily for males to be negligible because it is not statistically significant. If we consider the negative sign on the estimated effect of gender homophily, the estimated impact of gender homophily on the gender gap in STEM track choice would 1.7 percentage points ($(0.024\times0.46)-(-0.008\times0.81)=0.017$).

in column (3).

In contrast, females are positively and significantly affected. Female students assigned to a same-gender top performer are 2.6 percentage points more likely to apply for a STEM university degree compared with females assigned to a male top performer, as shown in column (6). Also, female students assigned to a same-gender top performer are 1.1 percentage points more likely to enroll in a STEM university degree compared with females assigned to a male top performer, as shown in column (6).[24] These results indicate persistent positive effects of being assigned to a same-gender top performer for females.[25] Further, these findings show that assigning female students to female top performers can effectively reduce the underrepresentation of females in highly demanded STEM university fields and possibly STEM occupations.

5.1.4 Impact on University Degree Quality

We show above that same-gender top performers have a positive impact on student performance in science and STEM decisions when assigned to female students. Are females also more likely to enroll in more selective university STEM degrees when they are assigned to a same-gender top performer? In this section, we present the estimated effects of being assigned to the same-gender top performer on the quality of the STEM postsecondary program. We rank programs based on their admissions score cutoffs in the first year in our data. We determine each program's admissions cutoff using the admissions score of the marginal student enrolled in each program. Programs with higher admissions score cutoffs are more selective. We transform the raking into a percentile rank and then define a binary indicator that captures enrollment in STEM-related degrees that admit the top 20 percent of all candidates based on the admissions score cutoffs.

The bottom panel of Table 3 reports the estimated coefficients for spillover effects, conformism effects, and gender homophily effects on the binary outcome of enrolling in a top 20 percent STEM degree program, using specification (5) for males and females separately. Consistent with the previous panels, we find significant positive spillover effects and significant negative, conformism effects of the top performer on university degree quality. We also find positive and significant gender homophily effects for females. Specifically, female students are 0.7 percentage points more likely to enroll in a selective STEM degree when they have a female top performer instead of a male top performer (columns 4 and 6). The quality of the STEM degree male students enroll in is not significantly affected by the gender of their top performer (columns 1 and 3).[26]

[24] Online Table A8 shows the estimated effects when we focus only on students who chose a STEM track in grade 11. Estimated coefficients are almost unchanged compared with those in Table 3.

[25] Recent literature argues that gender differences in STEM degree enrollments are concentrated in math-intensive science fields (Kahn and Ginther, 2017). In the baseline analysis, our definition of STEM degree programs includes degrees in science, engineering, technology, and mathematics. In Online Table A9, we show estimated effects when (a) economics and business degrees and (b) health science degrees are also included in the definition of STEM degrees. We start by presenting the baseline estimated coefficients in columns (1), (4), (7), and (10). In columns (2), (5), (8), and (11) we include economics and business degrees in STEM, and in columns (3), (6), (9), and (12) we include health science degrees. The estimated effects remain almost unchanged when the outcome is whether a student applied for a STEM degree (columns 1-6) and whether a student was admitted to a STEM degree (columns 7-12) under different definitions of STEM. Females who are assigned to same-gender peer role models are more likely to apply for and be admitted to STEM university degrees, while male students are unresponsive. Our estimated effects are robust to narrower definitions of STEM subjects.

[26] Online Table A10 reports identical results when using an alternative definition for degree quality, which ranks degrees

5.1.5 Discussion

The general pattern observed across different STEM outcomes indicates that male and female students are equally influenced by the *performance* of a same-gender record keeper (the top performer in the classroom), and experience both spillover and conformist effects. This can be attributed to the minimal and insignificant difference between top-performing males and females. Indeed, Online Table A4 shows no significant difference in the average performance between female and male (18.425 and 18.422, respectively, out of 20) top performers. This implies that both male and female students improve their educational outcomes as the performance of a same-gender record keeper increases, due to spillover and conformist effects. Notably, the difference in marginal educational improvement between male and female students is insignificant. However, only female students are significantly and positively impacted in their STEM performance and STEM-related decisions by the *presence* of a same-gender record keeper. Male students, on the other hand, are unaffected by the presence of a male record keeper.

As discussed in Section 2.4, we focus on STEM performance and STEM-related decisions in the baseline analysis because female top performers have a comparative advantage in STEM compared with non-STEM subjects (as shown in Online Table A4), which potentially inspires other female students to pursue STEM. In Online Table A14 we investigate this by examining the effects of STEM top performers on student educational outcomes. We focus on classrooms in which the record keeper is a *STEM top performer*, defined as a top performer with a higher baseline performance in science compared with language. In our sample, 59 percent of top performers are STEM top performers. We obtain similar results for the effects of same-gender record keepers on educational outcomes when focusing only on classrooms with a STEM top performer. Consistent with our baseline results, female students are significantly and positively impacted in their STEM performance and STEM-related decisions when assigned to a same-gender record keeper. Although these effects on females are not statistically distinguishable from the baseline estimates, they suggest a pattern consistent with female top performers being perceived as exceptional in STEM according in the baseline results. This perception that female top performers are STEM top performers may exist even in classrooms in which female top performers have a comparative advantage in non-STEM subjects. This may be the case because female top performers may still outperform high-performing males in STEM. Male students are unaffected.

In Online Table A15, we also examine the effects of conformity, spillover, and gender homophily on test scores in language and humanities decisions. Similar to the baseline effects, male and female students are both influenced by the performance of a same-gender top performer and experience both spillover and conformist effects. In our baseline results, female students are more likely to improve their STEM outcomes (as shown in Table 3). Consequently, it is natural that females are less likely to choose a humanities track or apply to a humanities degree when assigned to a same-gender top performer in grade 10. We find no effects on the remaining outcomes for females. Consistent with the baseline results, male students are unaffected by the *presence* of a same-gender top performer in their class (gender homophily).

For the remaining analysis we focus on the effect of gender homophily with the classroom's top performer on test scores and study decisions, while controlling for other potential influences from the

based on the average national exam score of admitted students in the first year of the data, instead of using admissions score cutoffs. These two university degree quality measures are highly correlated.

top performer—i.e., spillover and conformity effects.

5.2 Mimicking Behavior in Track Decisions

We examine how students are influenced by their top performer's educational choices—specifically, whether students are more likely to choose a STEM track if their classroom's top performer does so. In Table 4, the dependent variable is a binary indicator that takes the value of 1 if a student chooses the same track (i.e., STEM) as the top performer and 0 otherwise. Females assigned to same-gender top performers who choose a STEM track are 1.8 percentage points more likely to choose a STEM track in grade 11 compared with females assigned to opposite-gender top performers who choose a STEM track. The estimated effects for males are smaller and statistically indistinguishable from zero.[27] This finding suggests that students may be more likely to emulate same-gender top performers when those performers make choices that break gender norms. In other words, to encourage more female students to choose the traditionally male-dominated STEM track, it may be beneficial to expose them to same-gender top performers or role models who have made norm-breaking choices by pursuing STEM.

5.3 Interplay Between Spillover, Conformity, and Homophily Influences

We explore the interplay between the spillover, conformity, and homophily influences of the top performer as described in Section 3 (see equation (4)). Table 5 examines differential homophily effects across the top performer's baseline performance distribution and the distribution of the performance gap between a student and the top performer. Columns (1) and (2) compare the differential homophily effects associated with top performers in the bottom and top tertile of the baseline performance distribution, respectively. The estimates account for conformity influences. We find stronger positive homophily effects across all outcomes among females whose top performer ranks in the bottom tertile of the baseline performance distribution. This suggests that students may exert more effort when the top performer's level of baseline performance is "within reach" or closer to their own baseline performance. In contrast, no significant positive effects were observed among females with a top performer in the top tertile of baseline performance, with negative and significant effects for application to a STEM degree. These top performers may be perceived as "out of reach," potentially leading to non-positive or even adverse role model effects (Brown, 2011; Leon and Megalokonomou, 2024).

Columns (3) and (4) of Table 5 report heterogeneous homophily estimates for students whose baseline performance is either in the bottom or top tertile relative to the top performer. The estimates account for spillover influences. Females whose baseline performance is closer to that of their top performer (in the bottom tertile of the performance gap) exhibit (equal or) stronger homophily effects across all outcomes, except for STEM track choice, compared with those in the top tertile of the performance gap.

[27] Online Table A16 shows that the estimated effects on applying for and enrolling in a STEM university degree program are very similar when (a) the top performer chooses a STEM track in grade 11 or (b) the top performer applies to a STEM university department. Female students assigned to a classroom with a top performer who choose a STEM track in grade 11 (or a STEM degree) are 2.5 (or 2.3) percentage points more likely to apply for a STEM degree program themselves and 0.9 (or 0.7) percentage points more likely to enroll in a STEM degree compared with those who have a male top performer. Consistent with the baseline results, we do not find significant effects for male students.

These findings suggest that homophily effects are more pronounced when the top performer's success appears more attainable for the student.

Online Table A18 reports coefficient estimates for the interaction terms between the same-gender top performer indicator (i.e., the homophily parameter); the top performer's baseline performance (i.e., the spillover effect parameter); and the performance gap between the student and the top performer (i.e., the conformity parameter). The estimates reveal no positive or significant interactions between homophily and spillover or between homophily and conformity for any outcomes in either males or females. These results suggest limited interplay between homophily and traditional peer influence factors.

Finally, Online Table A17 investigates differential spillover and conformity influences among students with a top performer whose gender matches their own (i.e., the homophily condition) compared with those with a top performer of the opposite gender (i.e., the heterophily condition). The estimates indicate that spillover and conformity effects on test scores are slightly higher for females in the homophily condition compared to those in the heterophily condition. However, these effects on choice-related outcomes are similar for females in both conditions. For males, spillover and conformity effects are consistent across all outcomes, regardless of whether they are in the homophily or heterophily condition.

6 Threats to Identification

6.1 Placebo Exercises

In this section, we conduct a series of placebo exercises by replacing the gender of the top performer with the gender of other students (e.g., a randomly selected student from the class, the top performer from another class in the same school cohort, or the top performer from the same class in cohort $t-1$ or $t+1$), while keeping most other variables in the regression specification unchanged. If our baseline results are genuinely driven by the gender match between a student and the top performer, rather than spurious effects or unobserved classroom factors, these placebo exercises should not yield results similar to the main findings.

6.1.1 A Random Student from the Same Class

We first randomly select a student from the same class as the top performer. The new placebo treatment, "Gender Homophily with Random Student in Class," is a binary indicator that takes the value of 1 if top-performing student i and the randomly selected student share the same gender and 0 otherwise. In our main regression specification, we replace the gender homophily treatment variable with this new placebo treatment variable and estimate our specification using the same controls as in the baseline analysis. We repeat this exercise 1,000 times, storing the coefficient and standard error of the placebo treatment for each iteration. Online Table A19 presents these placebo regression estimates. Columns (1) and (3) present the means and standard deviations of those 1,000 estimates for male and female students when we include school-by-year fixed effects and individual-level controls. Columns (2) and (4) also include classroom-level controls. All means are practically zero, and the standard deviations are large. This pattern is very different from our findings shown in columns 3 and 6 of Table 3 and suggests that we do not capture some class-specific unobserved effects.

6.1.2 Top Performers from another Classroom in the School Cohort

We then select the top performer from another class in the same school cohort and construct a placebo treatment ("Gender Homophily with Top Student from Another Class"). This captures the gender match between the gender of students in the class and that of the top performer in the other class. We then replace the true treatment variable with the placebo treatment variable in the main specification while we maintain the same controls. We repeat this exercise 1,000 times. Each time we store the coefficient and the standard error of the placebo treatment. Results are presented in Online Table A20. Columns (1) and (3) present the means and standard deviations of the 1000 estimates without classroom-level controls for males and females, respectively. Columns (2) and (4) present the same estimates with classroom-level controls. We find no effects from the placebo treatment on any of the outcome variables for males or females, in sharp contrast to the real treatment.

6.1.3 Top Performers from the Previous and Following Cohorts

We then examine whether the gender of the top performer in the same class number (i.e., 1, 2, etc) but in the previous or following cohort within the same school could generate the same effects as the gender of the actual top performer.[28] For each student, we reconstruct "Same Gender Top in the Previous Cohort" and "Same Gender Top in the Following Cohort," which are binary indicators that take the value of 1 if the gender of the top performer in the same class number in the previous or following cohort is the same as the gender of the top-performing student i in the current class and 0 otherwise respectively. We then replace the main variable of interest with each of the placebo treatments and re-estimate the main specification. Online Table A21 shows the estimated placebo effects. In columns (1)-(4) and (5)-(8) we focus on the gender of the top-performing student in the same class number in cohort t-1 and t+1, respectively. All estimated effects are small, have inconsistent signs, or are insignificant (except for two). This evidence further supports the causal interpretation of the gender homophily parameter presented in the baseline results. These results suggest that there is variation in the gender of the top performer across cohorts for the same class number and that peer role model effects operate mainly at classroom level, with no spillover effects from other classes in different years.

6.1.4 The Second- and Third-Best Performers

To determine whether the influence on classmates is due to the salient recognition the record keeper receives or other characteristics of the record keeper, we examine the effects of being assigned to a classroom with a same-gender second or third top performer. While the differences in baseline performance among the first, second, and third top performers may be small, only the top performer receives prominent recognition by being in charge of the attendance book. However, the second and third top performers are also high-achieving students and are likely to share similar characteristics with the top

[28] If data for the same class number in the previous or following year are unavailable, we exclude those classes from the analysis. Specifically, we encountered 13,795 missing values when analyzing the effects of the top performer from the previous year (6,239 for males and 7,556 for females) and 13,638 missing values when analyzing the effects of the top performer from the following year (6,139 for males and 7,445 for females). This is inevitably the case for the first and last years of the data due to data unavailability outside the data time frame. Additionally, variations in school cohort sizes from year to year lead to differences in the number of classrooms across cohorts.

performer, such as motivation and aspirations. We identify the second and third top performers in each class using the baseline performance we used to identify the top performer. To isolate the effect of salient recognition from other factors associated with high achievement, we replace the actual treatment variable with binary indicators that indicate whether student i has the same-gender with the second-best or third-best performing student in the class. We also include controls for the relevant characteristics of the second and third top performers and exclude each of them from the respective regressions.

Table 6 presents the estimation results of being assigned to a same-gender first, second, or third top performer for males and females, separately. We show the baseline results in columns (1) and (4) (# First). In columns (2), (5) and (3), (6), we present the estimated effects of being assigned to a same-gender second- and third-best student in the class, respectively (# Second and # Third). We find no effects of being assigned to a same-gender second or third top performer on students' short- or long-term outcomes. Notable is the large difference between the estimates from these second or third top-performer regressions and from those obtained when the top performer is used. The pattern is clear and indicates that public recognition of the top performer is what triggers the observed peer role model effects.

6.2 Measurement Error

We introduce two types of noise to the baseline performance used to identify the top performer in each class: additive noise, which uniformly affects all individuals' baseline performance, and multiplicative noise, which varies depending on the level of baseline performance. Introducing noise to the baseline performance might lead to identifying a high-performing student as the top performer who is not necessarily the actual top performer. Since these high-performing students are not saliently recognized as exemplary students or peer role models, they are unlikely to exert the same influence on their classmates as the true top performer.[29] This approach allows us to assess the robustness of our findings by determining whether the observed effects are genuinely due to recognition of the top performer or merely a consequence of high baseline performance.

Online Figure A5 shows the simulated estimated effects when the noise is additive. We observe that as measurement error increases, there is downward attenuation bias, which means that even small additional measurement errors can have a significant impact on the results. For some outcomes, such as the choice of STEM track in grade 11, the attenuation is smaller compared with others, such as performance in science. Online Figure A6 replicates this analysis using multiplicative noise. In this case, the noise has an even more substantial impact, significantly attenuates all estimates. This is expected, since it takes a smaller amount of multiplicative error than additive error to cause the same level of

[29]This involves a series of Monte Carlo simulations in which we add (multiply by) additional measurement error drawn from a normal distribution to baseline test scores and re-estimate our main specification at increasing levels of standard deviations of the measurement error. For this exercise, we include the top performer in each class back into the analysis. The standard deviation of the error distribution increases from 1 percent of the standard deviation of the baseline test score up to 15 percent. We simulate the data 1,000 times and estimate same-gender peer role-model effect coefficients. After the noise has been included in the simulated baseline test scores, a new top performer is selected. This new top performer has the highest simulated test score in their class. Similar to the baseline analysis, we drop the new top performer and focus on the impact of the gender match with the (simulated) top performer on the remaining students in the class. We also produce the simulated estimate when the measurement error is 0 percent of the SD, which is the baseline estimated effect.

disturbance in student ranking. These patterns provide reassurance that our estimated effects are not driven by confounding factors but are indeed capturing the impact of the actual top performer—being recognized as a peer role model—on other students' outcomes.

6.3 Confounding Teacher Influences

One might worry that teachers may influence the process of determining the record keeper through preferential grading. Female teachers for example may grade female students more leniently than male students, leading to a higher likelihood that the record keeper is a female student. We investigate this hypothesis empirically in a limited sample with teacher gender information. Online Table A11 shows that teacher gender is uncorrelated with individual student characteristics. This is consistent with the random assignment of teachers to classrooms.

Another possibility is that female teachers may play a key role in the recognition of female record keepers as role models in the classroom. Online Table A12 investigates the association between the main treatment variable (i.e., having a same-gender top performer in the classroom) with the share of female teachers teaching in a classroom in our restricted sample. The results show no statistically significant differences in the share of female teachers and the main treatment variable, confirming the balance of this potential confounder across treatment conditions. Online Table A13 further validates our main results by investigating the stability of the main parameters of interest when accounting for the share of female teachers teaching in each classroom. We find that the estimates remain largely unchanged when controlling for the potential influence of teachers' gender.

7 Heterogeneous Effects

We investigate the presence of heterogeneous effects based on baseline academic performance and neighborhood income. To do this, we stratify students into quintiles according to their baseline performance or neighborhood income, which allows us to explore whether being assigned to a same-gender compared with an opposite-gender top performer has different effects on students from various academic or socioeconomic backgrounds.

7.1 By Baseline Performance

Figure 6 reports the marginal effects of having a same-gender top performer for students at different quintiles of baseline performance for 90 and 95 percent confidence intervals. We find that the gender homophily effects of females are consistently more pronounced than those of males across quintiles of baseline performance in every outcome. This indicates that females of all levels of academic preparation exhibit gender homophily with the top performer in their class, while males with comparable baseline performance do not.

In the outcomes of choosing a STEM track and applying for a STEM degree, the effects of gender homophily are more pronounced and statistically significant among females in the lowest and second-lowest quintiles of baseline academic performance. Since there are no performance prerequisites for choosing a STEM track or applying for a STEM degree, this suggests that gender homophily may have a stronger influence on females with lower levels of academic preparation when it comes to making decisions that are not directly tied to their academic performance.

7.2 By Neighborhood Income

Figure 7 shows the marginal effects of having a same-gender top performer compared with an opposite-gender top performer for students at different quintiles of postcode income, along with the 90 and 95 percent confidence intervals. The preponderence of estimated gender homophily effects for females exceed those of males across quintiles in every outcome. This suggests that females in neighborhoods of varying socioeconomic levels demonstrate gender homophily with the top performer in their classroom, resulting in improved outcomes.

At the same time, the distance between estimated gender homophily effects for females and the corresponding effects for males is the largest in the lower quintiles of income, particularly in the outcomes of test scores in science, STEM degree application, and STEM degree enrollment. These results indicate that female top performers in less affluent neighborhoods are more influential for their female peers, potentially because there are fewer female role models in these contexts. Educational inputs may generally be scarcer in less affluent environments, which renders the example of high-achieving females even more valuable for their female peers. This is consistent with evidence that education interventions may be more effective in disadvantaged environments (Fryer and Katz, 2013; Goulas, Megalokonomou, and Zhang, 2023).

8 Lab-in-the-Field Experiment

In Section 5, we demonstrated the impact of the *presence* of a same-gender record keeper on educational outcomes for female students. In this section, we present a lab-in-the-field experiment to to gain deeper insights into our empirical findings and explore the underlying mechanisms.

8.1 Experimental Design

We designed a survey-based randomized experiment in which students were randomly exposed to profiles of fictitious top-performing students. Treatment profiles are illustrated in Online Figure A7. There were two profile types: a female top performer and a male top performer. Each profile included a picture accompanied by a statement: "A top-performing [male or female] student in your classroom would be an example for you with respect to the choice of STEM study." Participants were asked to rate, on a 0-100 scale (with 0 indicating no influence and 100 indicating the highest influence), the perceived or expected impact of these top-performing students.[30] To investigate the underlying mechanisms, we then asked participants: "Why do you believe exposure to a top-performing [male or female] in your

[30] Each picture depicted a student writing on a whiteboard. To prevent the content of the whiteboard from biasing participant responses, the content was randomized to be STEM-related with 50 percent probability and non-STEM-related with the remaining 50 percent probability within each top-performer gender (Jansen, Boumeester, Coolen, Goetgeluk, and Molin, 2009; Van Auken, Golding, and Brown, 2012).

classroom would affect you?" Respondents were provided with the following answer options: improve my self-confidence, increase in the sense that achieving distinction is feasible for me, obtaining information from them, studying together, or other. Respondents were allowed to choose multiple answers.

Participating students provided consent and demographic information at the beginning of the survey. At the end of the survey, we collected data on students' real classroom experiences and interactions with top performers. Specifically, we asked about the gender of the top-performing and the second-best performing student in their classroom in grade 10, whether the top performer served as an example for them (and the reason(s) if they did not), whether and how they interacted with the top performer, whether they are aware of record keepers who resigned from their role, and what the top performer's record-keeping responsibilities were.[31] We also asked participating students about their chosen study track in high school. The full questionnaire, which is available in English and Greek, can be found in Online Appendix 9.

We administered the instrument to 606 students across 31 classrooms in grades 11 and 12 in five public schools in September 2022.[32] Participation was voluntary and anonymous. Thirty-seven students did not provide student gender or did not respond to the randomized profiles questions. Our analytic sample contains 569 students. The study was planned and executed in close collaboration with local school authorities and in coordination with school principals and head teachers. The experiment was conducted during normal school hours, at times when students would typically be participating in their routine educational activities. Each classroom's teacher remained inconspicuous at the back of the classroom while the research team introduced and supervised survey completion. Students were seated at their usual desks. The survey was administered using traditional paper and pencil methods and lasted roughly 7 minutes. Paper copies were produced using a computer-generated randomization process to ensure the randomization of profile assignment to participating students.

Online Table A23 presents summary statistics for the main characteristics of survey participants. We compare the characteristics of male and female respondents who were exposed to a profile that matched their own gender (same gender) with those of respondents who were exposed to a profile of the opposite gender (opposite gender). Columns (7) and (8) display the differences in means between individuals assigned to pictures of a same-gender top performer and opposite-gender top performer, respectively. The results indicate balance in the characteristics of respondents exposed to top-performer survey profiles of the same or opposite gender.

[31] We asked participating students in the survey about their record keeper's responsibilities. Appendix Table A22 shows the reported responsibilities of record keepers in their classrooms by their classmates. Participating students reported that their record keepers engaged in multiple activities. Nearly 97% of students reported that the duty of their record keeper was to track absences in the record book, while 46% reported that their record keeper was also in charge of transporting the record book to and from the principals office. 17% of students also reported that their record keeper was responsible for maintaining an updated class seating plan. Only 0.4% of record keepers were involved in remedial teaching or helped the teacher during the lesson. This confirms our institutional knowledge that the primary duty of a record keeper is being in charge of the attendance book. In a separate question, we asked students whether they know cases in which the record keeper resigned from their duties. Only 3.71% of participants reported knowing a case in which the record keeper resigned from their duties. In those few cases, the student with the second-best student took over the record book. This proportion is very small and given our findings in Section 6.1.4 we may offer a lower bound for the role model estimated effects.

[32] The survey was administered during the first week of school, and questions regarding actual experiences referenced grade 10.

8.2 Experimental Homophily Evidence

We provide corroborating evidence of gender homophily using our experimental design.[33] Specifically, we investigate whether being exposed to a top-performer profile of the same gender as the respondent's is associated with increased perceived/expected role model influence on STEM study using a 0-100 scale (with 0 reflecting no influence and 100 strong influence). We estimate a regression specification of perceived/expected role model influence with respect to STEM study on an indicator that captures whether the respondent's gender matches the top performer's gender in the survey profile and controls. Survey responses in which the respondent's gender is the opposite of the top performer's gender in the profile serve as control cases. Perceived role model influence on STEM study is standardized with mean equal to 0 and standard deviation equal to 1. Our specification controls for an indicator that captures whether the survey profile depicted STEM-related content, school fixed effects, grade fixed effects, and indicators for their reported top- or second-best-performing students' gender.

Table 7 shows that females exposed to profiles in which the top performer's gender matches their own report a 22 percent of a standard deviation increase in perceived or expected role model influence on their decision of STEM study. For males, the estimate is smaller and statistically imprecise. These patterns are consistent with the main findings from the natural experiment presented in Section 5.

8.3 Homophily Mechanisms in the Experiment

We investigate the channels through which top performers exert role model influences on their same-gender peers. We exploit our experimental design to assess the channels of perceived role model influences on students who were exposed to a top performer profile of the same gender. We focus on four potential mechanisms: increased information transfer from the top performer to their peers of the same gender, co-study with the top performer of the same gender, increased sense that academic success is feasible when exposed to a top performer of the same gender, and increased self-confidence when exposed to a top performer of the same gender. We asked respondents to rate on a 0-100 scale (with 0 reflecting no influence and 100 reflecting strong influence) the perceived impact of being exposed to a top performer of the same gender on each mechanism of interest. Respondents could choose multiple mechanisms. We estimate the regression specification described in Section 8.2 using respondents' perceived influence of each channel as outcomes.

The mechanisms of increased information transfer and co-study with the top performer correspond to interaction-related mechanisms of role model influences. In contrast, the mechanisms of increased sense of distinction feasibility and self-confidence may be more associated with exposure-related mechanisms—rather than interaction-related ones—of role model influences. If exposure-related mechanisms dominate interaction-related ones, then homophily may interplay weakly with peer influences, as Table 5 suggests.

Table 8 shows that females randomly exposed to a top performer profile of the same gender report an increased sense of *distinction feasibility* and *self-confidence* by 9.5 and 15 percentage points, respectively,

[33]The goal of this exercise is not to match the point estimates obtained in Section 5 but rather to validate gender homophily in an experimental design that allows us to uncover key mechanisms behind gender homophily. Whereas Section 5 investigates gender homophily in actual STEM-related test scores and choices, this section explores gender homophily in perceived role model influences on STEM study.

compared with those exposed to a top performer profile of the opposite gender. These results are in line with evidence that female peer mentors can enhance female mentees' self-confidence, sense of belonging, and overall success (Dasgupta, Scircle, and Hunsinger, 2015; Dennehy and Dasgupta, 2017; Wu, Thiem, and Dasgupta, 2022). We find no statistically significant differences in reported peer role model influences on information transfer and co-study between females exposed to a same-gender top performer and those exposed to an opposite-gender top performer. For males, exposure to a top-performer profile of the same gender yields statistically indistinguishable influences across all investigated mechanisms compared with exposure to an opposite-gender top performer. These results suggest that the homophily effect on females is more likely driven by exposure-related mechanisms, such as increased self-confidence and perceived feasibility of distinction, rather than interaction-related mechanisms.

8.4 Reported Homophily Evidence

Our experimental evidence on homophily is based on the perceived influences of top performers. A potential concern is that expected or perceived influences may not align with actual outcomes. To address this, we explore the consistency between patterns in perceived influences on STEM outcomes and real STEM study outcomes among experiment participants. Specifically, we examine whether participants who had a same-gender top performer in grade 10 are more likely to report choosing a STEM-related track in grade 11. Online Table A24 shows that females who had a female top performer in grade 10 are 13.6 percentage points more likely to report actually choosing a STEM track in grade 11 relative to females with a male top performer in grade 10. Males report no significant influence of having a same-gender top performer in grade 10 on their likelihood of actually choosing a STEM track in grade 11. These results validate our findings in Sections 5 and 8.2.

We also examine whether the actual interactions between experiment participants and top performers in grade 10 differed when the top performer's gender matched their own versus when it did not. Online Table A25 shows no significant differences in participant interactions with their actual top performer in grade 10 based on whether the top performer's gender matched their own. These results provide corroborating evidence that homophily influences are likely not driven by student interactions with the top performer.

9 Conclusion

In this paper, we present a unified framework for understanding gender role model effects, which encapsulates traditional channels such as spillover and conformist effects, as well as more recently recognized influences related to gender homophily. A role model can influence others in various ways, such as by sharing knowledge, sparking inspiration, or demonstrating that higher aspirations and achieving distinction are attainable. A key challenge in the literature on role models is disentangling these multiple channels of impact.

Using data from a large number of representative high schools in Greece from 2001 to 2012 linked to students' university applications and admissions, we exploit an institutional setting in which students are quasi-randomly assigned to classrooms. The top performer in each classroom is recognized as the *record* *keeper*. This role positions top performers as potential role models for their peers. This recognition is continuous, occurring daily and lasting throughout the entire school year. The institutional arrangement provides variation in both peer group composition and characteristics of the student who becomes the recognized top performer in the classroom (record keeper). The academic achievements of the record keeper often set a benchmark that other students aim to meet, particularly in STEM subjects, where top performers tend to excel significantly beyond their peers. We examine how having a top performer of the same gender affects later academic performance and study choices for both male and female students, emphasizing STEM fields.

We develop a theoretical framework that acknowledges the significance of the record keeper's presence and performance on the educational outcomes of their classmates driven by spillover and conformist effects. In testing the predictions of the model, our findings reveal that the mere *presence* of a same-gender top performer (the record keeper) has a distinct impact on STEM-related outcomes, with substantial differences between male and female students. In particular, female students quasi-randomly exposed to a female top performer show marked improvement in science test scores and are more likely to pursue STEM studies during key academic transitions. Also, the influence of the female top performer extends beyond immediate academic outcomes, with long-term effects including higher likelihood of applying to and being admitted to STEM university programs. These findings highlight the crucial role of female role models in shaping the educational trajectories and career aspirations of their female peers. Our findings suggest that same-gender peer role models could reduce the underrepresentation of qualified females in STEM fields by approximately 3 percent.

We then explore the channels through which same-gender top performers exert their influence using a lab-in-the-field experiment. In this experiment, high school students rated the perceived influence of randomized hypothetical profiles of top performers, which differed based on gender. We focus on two types of potential mechanisms: interaction-related channels, such as information transfer and collaborative study, and exposure-related channels, such as the belief that achieving distinction is attainable and increased self-confidence. Our findings indicate that the influence of same-gender top performers is primarily driven by exposure-related channels rather than direct interactions. This suggests that simply seeing a peer succeed can have a significant motivational impact, particularly when that peer shares a key characteristic such as gender.

These insights have substantial policy implications. Our analysis shows that impactful role models do not need to be external figures introduced to the peer group; instead, they can be identified and cultivated within the existing peer group. Our results also suggest that role models do not need to play a direct, instrumental role in students' educational processes to be effective; mere exposure to successful peers is sufficient to inspire and motivate. These findings support policy recommendations that encourage the recognition and promotion of exemplary students within educational settings as a strategy to challenge and change gender norms. By fostering a culture of positive examples, particularly among females, institutions can increase the number of qualified women who make choices that break gender norms and pursue studies in competitive and traditionally male-dominated fields.

References

Anelli, M. and G. Peri (2019). The Effects of High School Peers' Gender on College Major, College Performance and Income. *Economic Journal 129*(618), 553–602.

Bettinger, E. P. and B. T. Long (2005). Do Faculty Serve as Role Models? The Impact of Instructor Gender on Female Students. *American Economic Review 95*(2), 152–157.

Bisin, A. and T. Verdier (2000). Beyond the Melting Pot: Cultural Transmission, Marriage, and the Evolution of Ethnic and Religious Traits. *Quarterly Journal of Economics 115*, 955–988.

Black, S. E., C. Muller, A. Spitz-Oener, Z. He, K. Hung, and J. R. Warren (2021). The Importance of STEM: High School Knowledge, Skills and Occupations in an Era of Growing Inequality. *Research Policy 50*(7), 104249.

Boucher, V., C. Del Bello, F. Panebianco, T. Verdier, and Y. Zenou (2023). Education Transmission and Network Formation. *Journal of Labor Economics 41*(1), 129–173.

Breda, T., J. Grenet, M. Monnet, and C. Van Effenterre (2023). How Effective are Female Role Models in Steering Girls Towards STEM? Evidence from French High Schools. *Economic Journal 133*(653), 1773–1809.

Brenøe, A. A. and U. Zölitz (2020). Exposure to More Female Peers Widens the Gender Gap in STEM Participation. *Journal of Labor Economics 38*(4), 1009–1054.

Brown, J. (2011). Quitters never win: The (adverse) incentive effects of competing with superstars. *Journal of Political Economy 119*(5), 982–1013.

Busso, M. and V. Frisancho (2021). Good Peers Have Asymmetric Gendered Effects on Female Educational Outcomes: Experimental Evidence from Mexico. *Journal of Economic Behavior & Organization 189*, 727–747.

Caeyers, B. and M. Fafchamps (2016). Exclusion Bias and the Estimation of Peer Effects. Technical report, National Bureau of Economic Research, Working Paper No. 22565.

Carrell, S. E., M. E. Page, and J. E. West (2010). Sex and Science: How Professor Gender Perpetuates the Gender Gap. *Quarterly Journal of Economics 125*(3), 1101–1144.

Currarini, S., M. O. Jackson, and P. Pin (2009). An Economic Model of Friendship: Homophily, Minorities, and Segregation. *Econometrica 77*(4), 1003–1045.

Dasgupta, N., M. M. Scircle, and M. Hunsinger (2015). Female Peers in Small Work Groups Enhance Women's Motivation, Verbal Participation, and Career Aspirations in Engineering. *Proceedings of the National Academy of Sciences 112*(16), 4988–4993.

de Gendre, A., J. Feld, N. Salamanca, and U. Zölitz (2023). Same-sex Role Model Effects in Education. *Working Paper Series, No. 438, Department of Economics, University of Zurich* (438).

Dee, T. S. (2005). A Teacher Like Me: Does Race, Ethnicity, or Gender Matter? *American Economic Review 95*(2), 158–165.

Dennehy, T. C. and N. Dasgupta (2017). Female Peer Mentors Early in College Increase Women's Positive Academic Experiences and Retention in Engineering. *Proceedings of the National Academy of Sciences 114*(23), 5964–5969.

Dobrescu, L., A. Motta, and A. Shanker (2024). The Power of Knowing a Woman Is in Charge: Lessons from a Randomized Experiment. *Management Science*.

Drury, B., J. O. Siy, and S. Cheryan (2011). When do Female Role Models Benefit Women? The Importance of Differentiating Recruitment from Retention in STEM. *Psychological Inquiry 22*(4), 265–269.

Eble, A. and F. Hu (2017). Stereotypes, Role Models, and the Formation of Beliefs. *CDEP-CGEG Working Paper 43*.

Fayer, S., A. Lacey, and A. Watson (2017). STEM Occupations: Past, Present, and Future. *Spotlight on Statistics 1*, 1–35.

Fryer, Roland G., J. and L. F. Katz (2013, May). Achieving Escape Velocity: Neighborhood and School Interventions to Reduce Persistent Inequality. *American Economic Review 103*(3), 232–37.

Gartzia, L., T. Morgenroth, M. K. Ryan, and K. Peters (2021). Testing the Motivational Effects of Attainable Role Models: Field and Experimental Evidence. *Journal of Theoretical Social Psychology 5*(4), 591–602.

Gaule, P. and M. Piacentini (2018). An Advisor Like Me? Advisor Gender and Post-graduate Careers in Science. *Research Policy 47*(4), 805–813.

Gershenson, S., C. M. Hart, J. Hyman, C. A. Lindsay, and N. W. Papageorge (2022). The Long-run Impacts of Same-race Teachers. *American Economic Journal: Economic Policy 14*(4), 300–342.

Golub, B. and M. O. Jackson (2012). How Homophily Affects the Speed of Learning and Best-response Dynamics. *Quarterly Journal of Economics 127*(3), 1287–1338.

Gong, J., Y. Lu, and H. Song (2021). Gender Peer Effects on Students' Academic and Noncognitive Outcomes: Evidence and Mechanisms. *Journal of Human Resources 56*(3), 686–710.

Goulas, S., S. Griselda, and R. Megalokonomou (2022). Comparative Advantage and Gender Gap in STEM. *Journal of Human Resources*.

Goulas, S., S. Griselda, and R. Megalokonomou (2023). Compulsory Class Attendance versus Autonomy. *Journal of Economic Behavior & Organization 212*.

Goulas, S. and R. Megalokonomou (2019). Which Degrees Do Students Prefer During Recessions? *Empirical Economics 56*(6), 2093–2125.

Goulas, S. and R. Megalokonomou (2020). Marathon, Hurdling, or Sprint? The Effects of Exam Scheduling on Academic Performance. *BE Journal of Economic Analysis & Policy 20*(2).

Goulas, S., R. Megalokonomou, and P. Sotirakopoulos (2024). Female Top Performers are more Impactful Peer Role Models than Males, Teachers Say. *Mimeo*.

Goulas, S., R. Megalokonomou, and Y. Zhang (2023). Female Classmates, Disruption, and STEM Outcomes in Disadvantaged Schools: Evidence from a Randomized Natural Experiment. *CESifo Working Paper*.

Goulas, S., R. Megalokonomou, and Y. Zhang (2024). Female Neighbors and Careers in Science. *IZA Discussion Paper Number 11910*.

Griffith, A. L. and J. B. Main (2021). The Role of the Teaching Assistant: Female Role Models in the Classroom. *Economics of Education Review 85*, 102179.

Hahn, Y., A. Islam, E. Patacchini, and Y. Zenou (2020). Friendship and Female Education: Evidence from a Field Experiment in Bangladeshi Primary Schools. *Economic Journal 130*, 740–764.

Hill, A. J. (2017). The Positive Influence of Female College Students on Their Male Peers. *Labour Economics 44*, 151–160.

Hoffmann, F. and P. Oreopoulos (2009). A Professor like Me: The Influence of Instructor Gender on College Achievement. *Journal of Human Resources 44*(2), 479–494.

Hoxby, C. (2000). Peer Effects in the Classroom: Learning From Gender and Race Variation. Technical report, National Bureau of Economic Research.

Huntington-Klein, N. and E. Rose (2018). Gender Peer Effects in a Predominantly Male Environment: Evidence from West Point. In *AEA Papers and Proceedings*, Volume 108, pp. 392–95.

Jansen, S., H. Boumeester, H. Coolen, R. Goetgeluk, and E. Molin (2009). The Impact of Including Images in a Conjoint Measurement Task: Evidence from Two Small-scale Studies. *Journal of Housing and the Built Environment 24*, 271–297.

Kahn, S. and D. Ginther (2017). Women and STEM. *National Bureau of Economic Research, Working Paper No. 23525*.

Kirkeboen, L. J., E. Leuven, and M. Mogstad (2016). Field of Study, Earnings, and Self-selection. *Quarterly Journal of Economics 131*(3), 1057–1111.

Lavy, V. and R. Megalokonomou (2024a). Alternative Measures of Teachers' Value Added and Impact on Short and Long-Term Outcomes: Evidence From Random Assignment. *NBER Working Paper, No. 32671*.

Lavy, V. and R. Megalokonomou (2024b). The Short- and the Long-Run Impact of Gender-Biased Teachers. *American Economic Journal: Applied Economics 16*(2), 176–218.

Lavy, V. and A. Schlosser (2011). Mechanisms and Impacts of Gender Peer Effects at School. *American Economic Journal: Applied Economics 3*(2), 1–33.

Leon, R. and R. Megalokonomou (2024). Stars Among Us: Adverse Effects of Superstars on Group Dynamics. *Mimeo*.

Lim, J. and J. Meer (2020). Persistent Effects of Teacher–Student Gender Matches. *Journal of Human Resources 55*(3), 809–835.

Lockwood, P. (2006). Someone Like Me Can Be Successful: Do College Students Need Same-gender Role Models? *Psychology of Women Quarterly 30*(1), 36–46.

Manski, C. F. (1993). Identification of Endogenous Social Effects: The Reflection Problem. *Review of Economic Studies 60*(3), 531–542.

McPherson, M., L. Smith-Lovin, and J. Cook (2001). Birds of a Feather: Homophily in Social Networks. *Annual Review of Sociology 27*, 415–444.

Modena, F., E. Rettore, and G. M. Tanzi (2022). Asymmetries in the Gender Effect of High-performing Peers: Evidence from Tertiary Education. *Labour Economics 78*, 102225.

Morgenroth, T., M. K. Ryan, and K. Peters (2015). The Motivational Theory of Role Modeling: How Role Models Influence Role Aspirants' Goals. *Review of General Psychology 19*(4), 465–483.

Mouganie, P. and Y. Wang (2020). High-Performing Peers and Female STEM Choices in School. *Journal of Labor Economics 38*(3), 000–000.

Muralidharan, K. and K. Sheth (2016). Bridging Education Gender Gaps in Developing Countries: The Role of Female Teachers. *Journal of Human Resources 51*(2), 269–297.

Mutter, F. and T. Pawlowski (2014). Role Models in Sports—Can Success in Professional Sports Increase the Demand for Amateur Sport Participation? *Sport Management Review 17*(3), 324–336.

Neumark, D. and R. Gardecki (1998). Women Helping Women? Role Model and Mentoring Effects on Female Ph.D. Students in Economics. *Journal of Human Resources 33*(1), 220–246.

OECD (2018). *Education for a Bright Future in Greece.*

Olivetti, C., E. Patacchini, and Y. Zenou (2020). Mothers, Friends and Gender Identity. *Journal of the European Economic Association 18*(1), 266–301.

Paredes, V. (2014). A Teacher Like Me or a Student Like Me? Role Model Versus Teacher Bias Effect. *Economics of Education Review 39*, 38–49.

Patacchini, E. and Y. Zenou (2011). Intergenerational Education Transmission: Neighborhood Quality and/or Parents' Involvement? *Journal of Regional Science 51*, 987–1013.

Patacchini, E. and Y. Zenou (2016). Racial Identity and Education in Social Networks. *Social Networks 44*, 85–94.

Pignolet, Y.-A., S. Schmid, and A. Seelisch (2024). Gender-specific Homophily on Instagram and Implications on Information Spread. *Scientific Reports 14*(1), 451.

Porter, C. and D. Serra (2020). Gender Differences in the Choice of Major: The Importance of Female Role Models. *American Economic Journal: Applied Economics 12*(3), 226–54.

Sansone, D. (2017). Why Does Teacher Gender Matter? *Economics of Education Review 61*, 9–18.

Van Auken, P. M., S. Golding, and J. R. Brown (2012). Prompting with Pictures: Determinism and Democracy in Image-based Planning. *Pract Planner 10*(1).

Wu, D. J., K. C. Thiem, and N. Dasgupta (2022). Female Peer Mentors Early in College Have Lasting Positive Impacts on Female Engineering Students that Persist Beyond Graduation. *Nature Communications 13*(1), 6837.

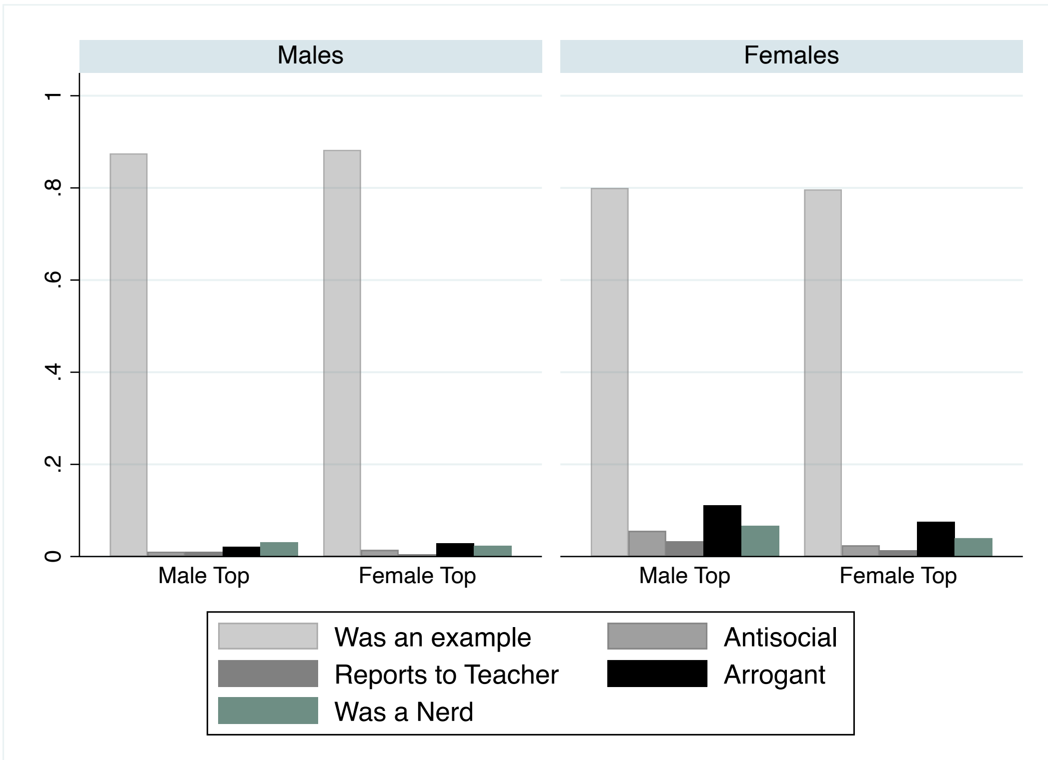
Yancey, A. K., J. M. Siegel, and K. L. McDaniel (2002). Role Models, Ethnic Identity, and Health-risk Behaviors in Urban Adolescents. *Archives of Pediatrics & Adolescent Medicine 156*(1), 55–61.

Young, D. M., L. A. Rudman, H. M. Buettner, and M. C. McLean (2013). The Influence of Female Role Models on Women's Implicit Science Cognitions. *Psychology of Women Quarterly 37*(3), 283–292.

Zeltzer, D. (2020, April). Gender Homophily in Referral Networks: Consequences for the Medicare Physician Earnings Gap. *American Economic Journal: Applied Economics 12*(2), 169–97.

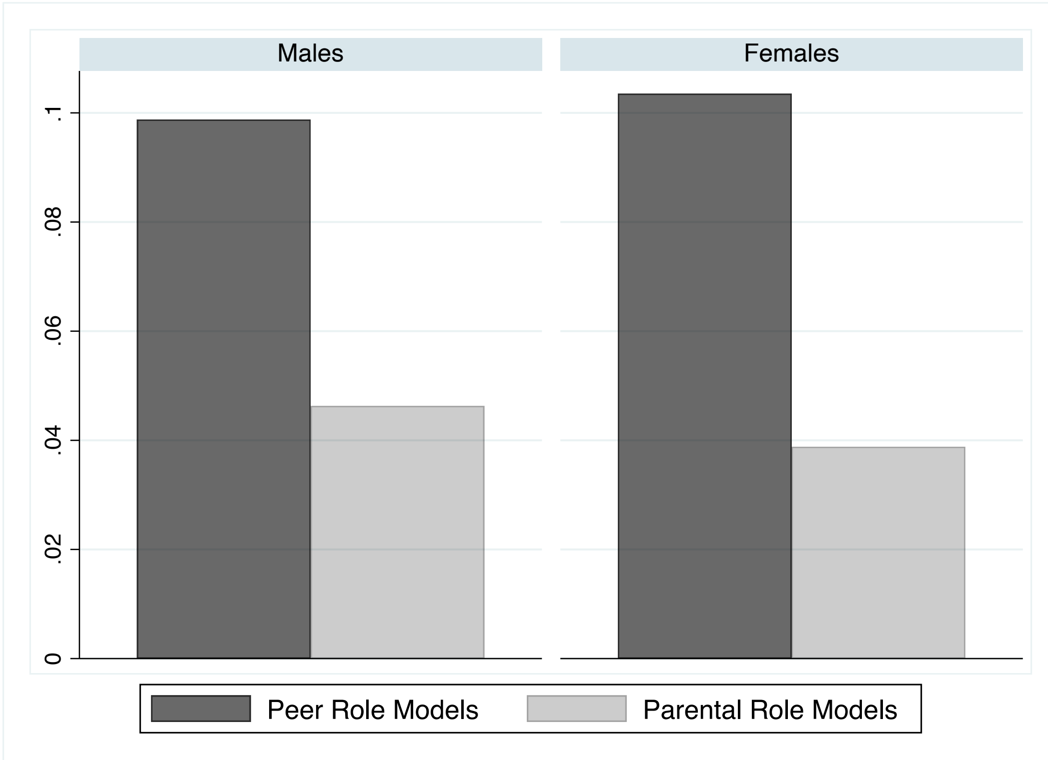
Main Figures and Tables

Figure 1: Top Performer as Examples and Reasons They May Not be an Example: Survey Responses



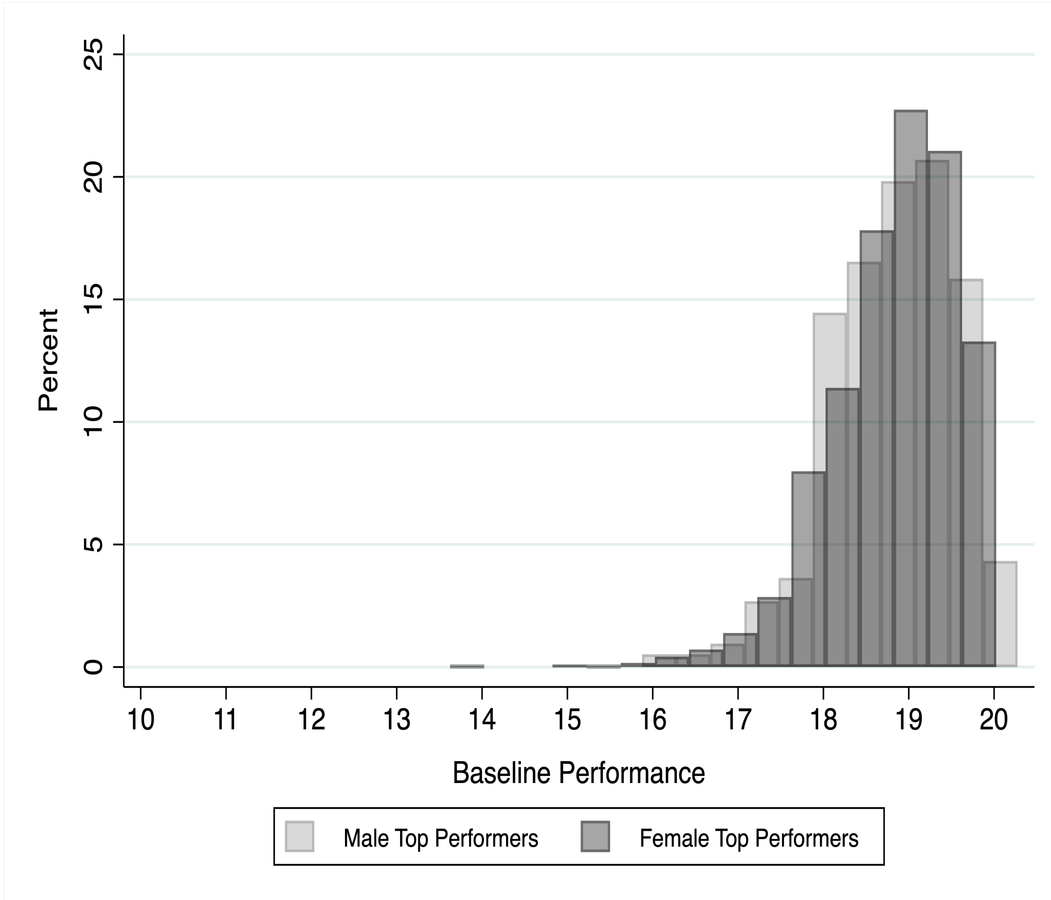
Note: This figure shows the share of respondents who responded positively to the questionnaire item "Was the record keeper in your classroom an example for you?" and if they responded negatively, the reasons their actual top performer may not have been an example for them. Participants could choose multiple reasons for their classroom's top performer not being an example for them.

Figure 2: Reasons for Choosing STEM Studies or Career: Survey Responses



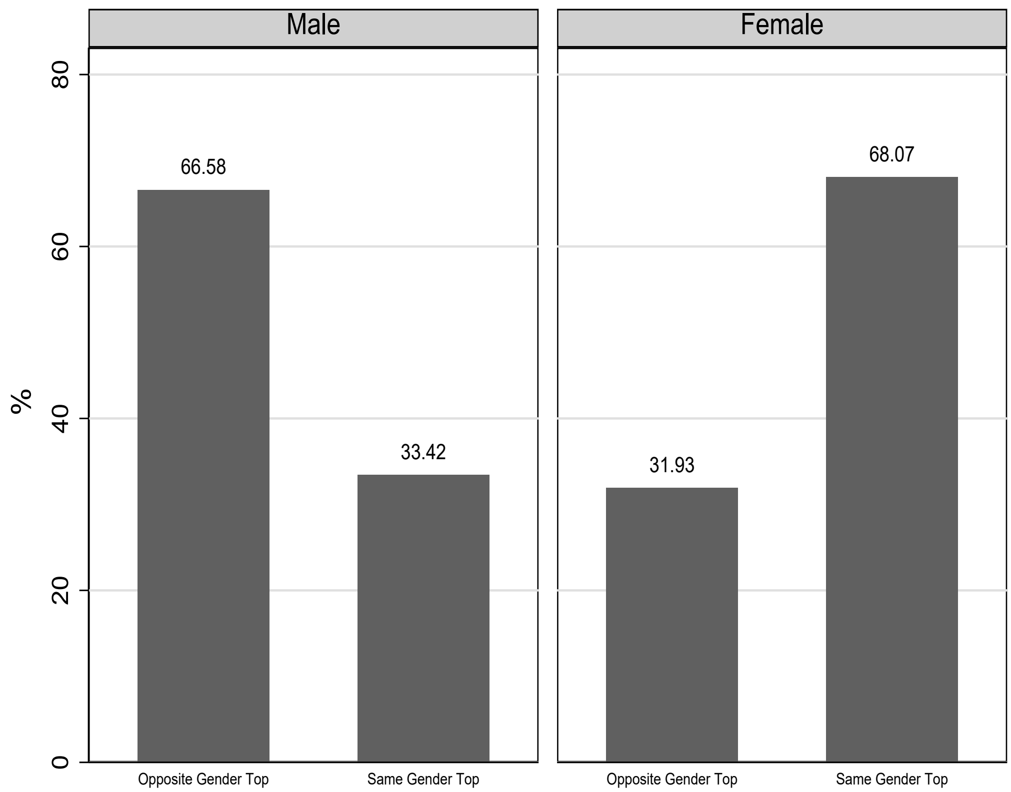
Note: This figure shows the share of respondents who report that their decision to choose to pursue studies or a career in STEM would be influenced by peer or parental role models.

Figure 3: Male and Female Top Performers' Baseline Performance



Notes: The figure shows the distribution of the overall baseline performance of male and female top performers. Test scores are reported on a scale from 0 to 20 (where higher scores indicate better performance), with 10 being the minimum passing grade. Male top performers' average baseline performance has a mean of 18.422 and standard deviation of 0.72. Female top performers' overall baseline performance has a mean of 18.425 and standard deviation of 0.72.

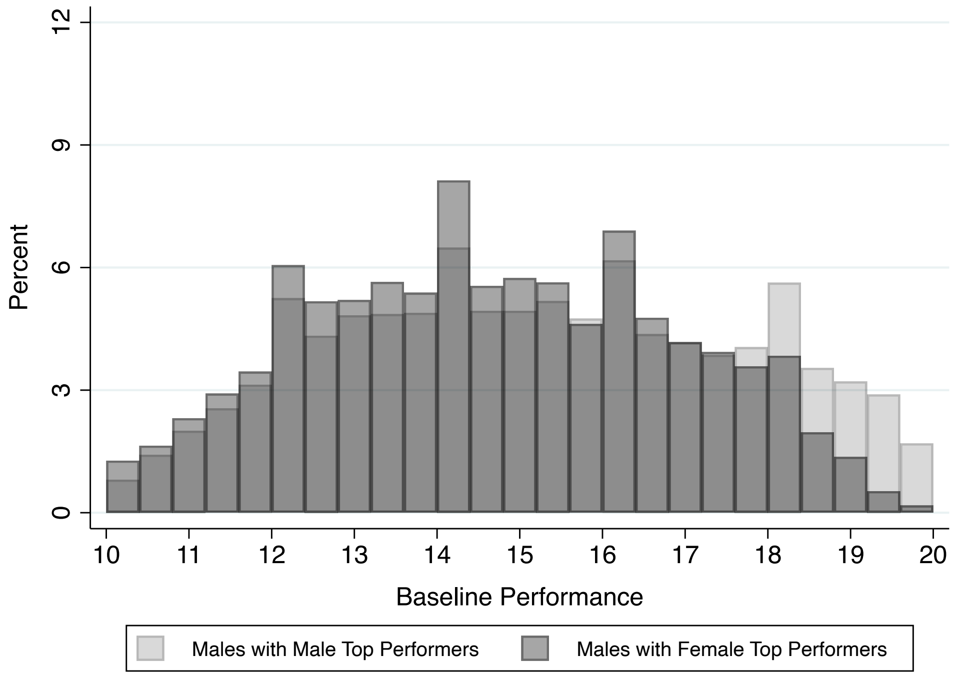
Figure 4: Proportion of Same- and Opposite-gender Top Performers by Student Gender



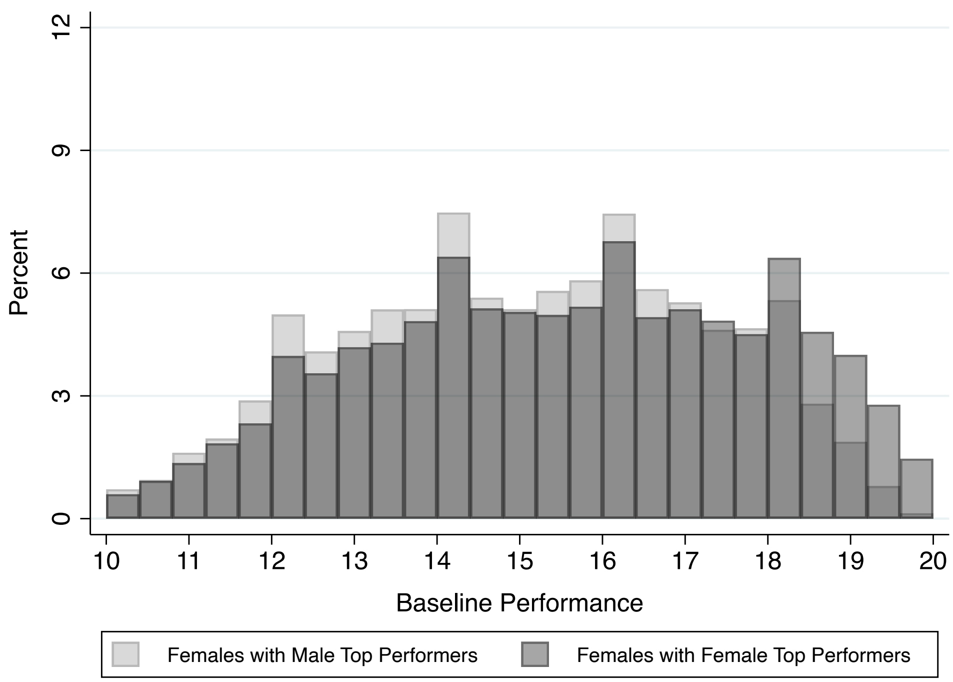
Notes: This figure shows the share of male students who are assigned to a same-gender top performer and an opposite-gender top performer on the left. The share of female students who are assigned to a same-gender top performer and an opposite-gender top performer is shown on the right.

Figure 5: Male and Female Students' Baseline Performance by Top Performer Gender

Panel A: Males



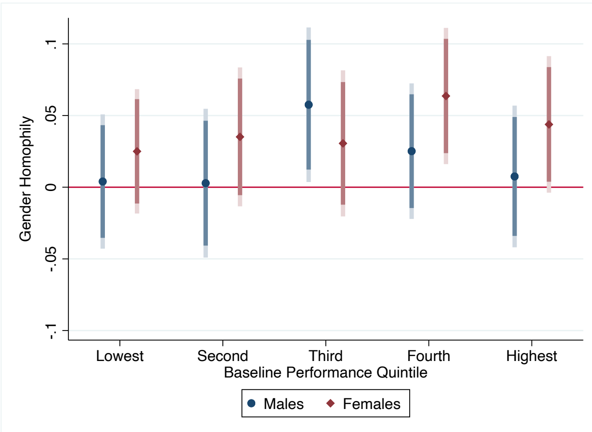
Panel B: Females



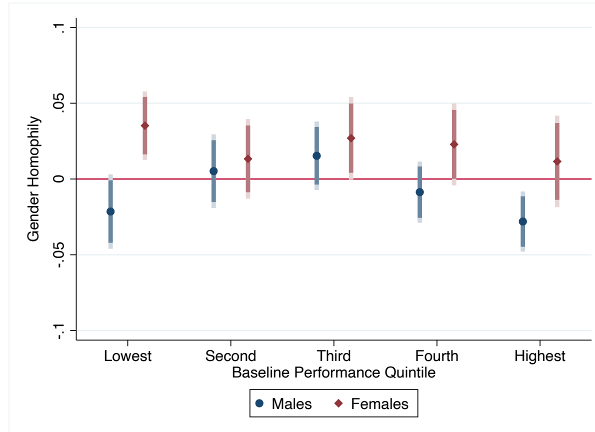
Notes: Panel A shows the overall baseline performance of males with male vs female top performers in their classroom. Panel B shows the overall baseline performance of females with male vs female top performers in their classroom. Test scores are reported on a scale from 0 to 20 with 10 being the minimum passing grade (where higher scores indicate better performance).

Figure 6: Heterogeneous Effects by Baseline Test Scores

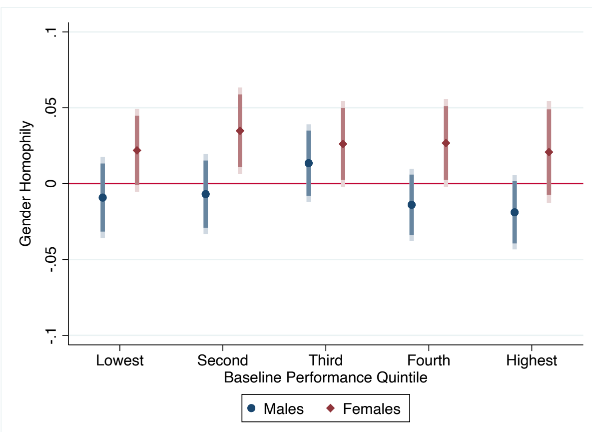
(a) Test Scores in Science



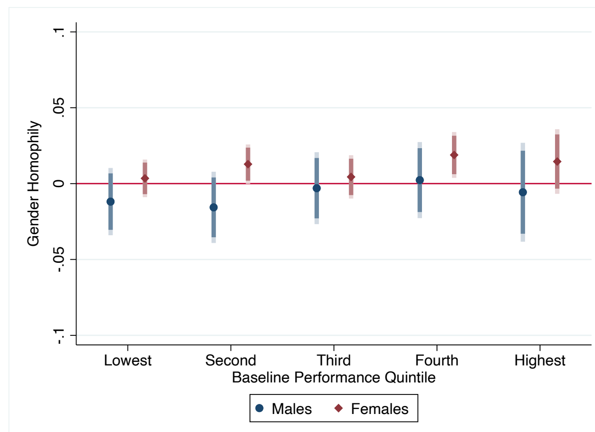
(b) Choice of STEM Track



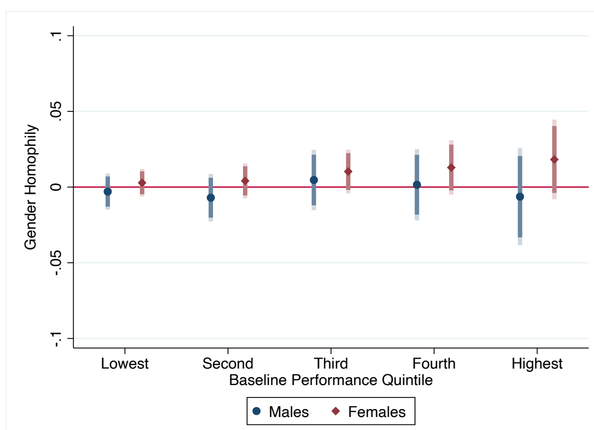
(c) Applied to STEM Degree



(d) Enrolled in a STEM Degree



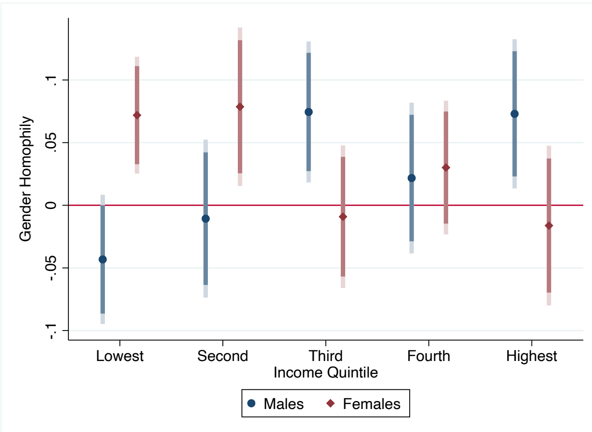
(e) Enrolled in a Top 20% STEM Degree



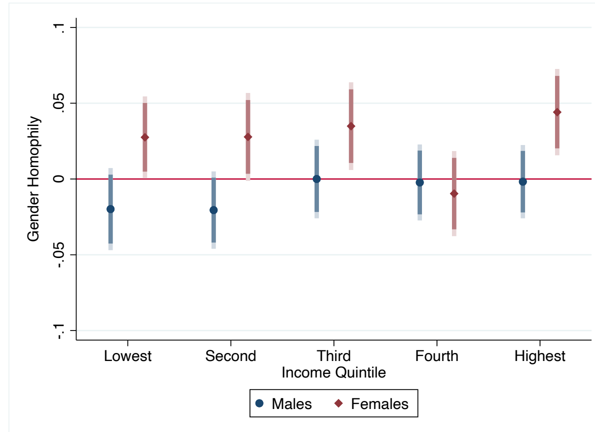
Notes: This figure shows the marginal effects of having a same-gender top performer on different outcomes (reported in subheadings). We consider different prior ability levels defined based on students' baseline science test scores. The *Lowest* quintile includes students in the bottom 20 percent and the *Highest* quintile includes students in the top 20 percent based on baseline science test scores. Darker bars show 90 percent confidence intervals and lighter bars show 95 percent confidence intervals.

Figure 7: Heterogeneous Effects by Neighborhood Income

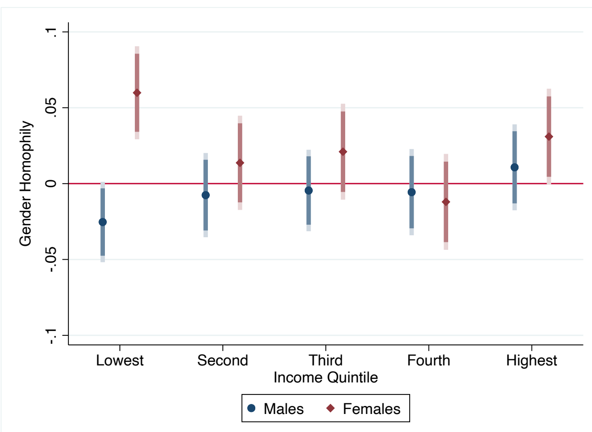
(a) Test Scores in Science



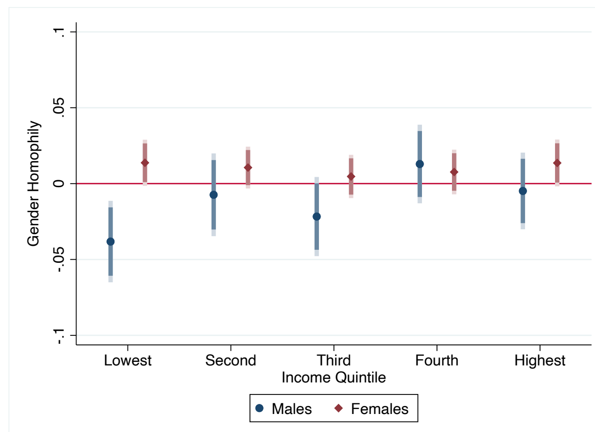
(b) Choice of STEM Track



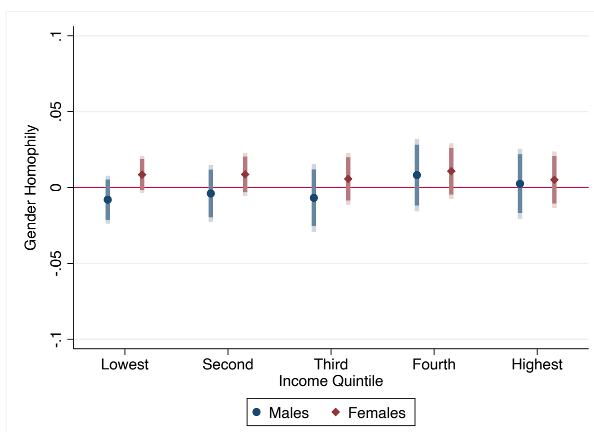
(c) Applied to STEM Degree



(d) Enrolled in a STEM Degree



(e) Enrolled in a Top 20% STEM Degree



Note: This figure shows the marginal effects of having a same-gender top performer on different outcomes (reported in subheadings). We consider different quantiles of income based on postcode household income levels. The *Lowest* quintile includes students in the bottom 20 percent and the *Highest* quintile includes students in the top 20 percent based on postcode household income levels. Darker bars show 90 percent confidence intervals and lighter bars show 95 percent confidence intervals.

Table 1: Descriptive Statistics for Student Characteristics and Outcomes in High School and University

	Full sample			Males			Females		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Pre-treatment Characteristics									
Baseline Science Score	14.50	2.97	58,115	14.49	3.00	26,215	14.51	2.95	31,900
Age	15.93	0.45	58,115	15.92	0.42	26,215	15.94	0.46	31,900
Born in Q1	0.12	0.33	58,115	0.12	0.33	26,215	0.12	0.33	31,900
Panel B: Top Performer Pre-treatment Characteristics									
Top's Baseline Science Score	18.84	1.20	58,115	18.83	1.21	26,215	18.85	1.20	31,900
Top's Age	15.90	0.36	58,115	15.90	0.36	26,215	15.90	0.37	31,900
Top's Born in Q1	0.12	0.32	58,115	0.12	0.32	26,215	0.12	0.32	31,900
Panel C: Student Outcomes									
Test Score in Science (End of Grade 10)	15.36	2.87	58,115	15.31	2.89	26,215	15.40	2.85	31,900
Choice of STEM Track	0.62	0.49	58,115	0.81	0.39	26,215	0.46	0.50	31,900
Applied to STEM Degree	0.61	0.49	50,190	0.80	0.40	22,505	0.46	0.50	27,685
Enrolled in STEM Degree	0.11	0.31	41,059	0.16	0.36	18,624	0.06	0.24	22,435
Enrolled in Top 20% STEM Degree	0.05	0.21	58,115	0.05	0.23	26,215	0.04	0.19	31,900
Panel D: Variable of Interest									
Gender Homophily	0.52	0.50	58,115	0.33	0.47	26,215	0.68	0.47	31,900

Notes: The table reports descriptive statistics for student pretreatment characteristics (panel A), top performers' pretreatment characteristics (panel B), student outcomes (panel C), and the main variable of interest, gender homophily (panel D). We report those statistics separately for the full sample (columns (1)-(3)), male students (columns (4)-(6)), and female students (columns (7)-(9)). The main sample is 58,115 students. Of them, 50,190 students apply to some university department, and thus the number of observations for the variable *"Applied to STEM Degree"* is equal to 50,190. Of them, 41,059 students enroll in some university department, and thus the number of observations for the variable *"Enrolled in STEM Degree"* is 41,059. Baseline test scores are measured based on the first-semester exam, the earliest exam that students take at the very beginning of grade 10. Students choose between STEM and Humanities tracks at the beginning of grade 11. "Enrolled in Top 20% STEM Degree" is a binary indicator that takes the value of 1 if a student enrolls in a STEM Degree with the top 20 percent. Raw exam scores range from 0 to 20 and are increasing in performance.

Table 2: Balancing Tests for Same Gender Top at the Individual Level

	(1)	(2)	(3)	(4)
Males				
Age	-0.002			-0.002
	(0.006)			(0.010)
Baseline Science Score			0.001	0.001
			(0.001)	(0.001)
Born in Q1		0.002		0.000
		(0.008)		(0.013)
Observations	26,214	26,214	26,214	26,214
Mean of Y	0.334	0.334	0.334	0.334
P Value of Model	0.000	0.000	0.000	0.000
School × Year FE	✓	✓	✓	✓
Class Controls	✓	✓	✓	✓
Females				
Age	-0.005			-0.008
	(0.005)			(0.008)
Baseline Science Score			0.001	0.001
			(0.001)	(0.001)
Born in Q1		0.003		-0.006
		(0.007)		(0.011)
Observations	31,900	31,900	31,900	31,900
Mean of Y	0.681	0.681	0.681	0.681
P Value of Model	0.000	0.000	0.000	0.000
School × Year FE	✓	✓	✓	✓
Class Controls	✓	✓	✓	✓

Notes: Columns (1)-(3) report school × year fixed-effects estimates from separate regressions with outcome variable the gender homophily and independent variable each of the student characteristics. In column (4) we include all control variables simultaneously in the regression and report the joint significance of those variables. We show these estimates separately for male (upper panel) and female (lower panel) students. Class controls include the proportion of female peers in the classroom, the class-level leave-out mean for baseline science test scores, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise, and the top performer's baseline science test score). Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table 3: MAIN ESTIMATED EFFECTS OF PEER ROLE MODELS

	Males			Females		
	(1)	(2)	(3)	(4)	(5)	(6)
			Test Scores in Science			
Gender Homophily	0.022		0.018	0.046***		0.038**
	(0.018)		(0.016)	(0.017)		(0.016)
Conformity		-0.257***	-0.257***		-0.259***	-0.259***
		(0.002)	(0.002)		(0.002)	(0.002)
Spillover		0.249***	0.248***		0.245***	0.247***
		(0.007)	(0.007)		(0.007)	(0.007)
			Choice of STEM Track			
Gender Homophily	-0.008		-0.008	0.024***		0.024***
	(0.006)		(0.006)	(0.007)		(0.006)
Conformity		-0.035***	-0.035***		-0.059***	-0.059***
		(0.001)	(0.001)		(0.001)	(0.001)
Spillover		0.028***	0.028***		0.061***	0.062***
		(0.003)	(0.003)		(0.003)	(0.003)
			Applied to STEM Degree			
Gender Homophily	-0.007		-0.007	0.026***		0.026***
	(0.006)		(0.006)	(0.007)		(0.007)
Conformity		-0.024***	-0.024***		-0.041***	-0.041***
		(0.001)	(0.001)		(0.001)	(0.001)
Spillover		0.021***	0.021***		0.041***	0.042***
		(0.003)	(0.003)		(0.003)	(0.003)
			Enrolled in STEM Degree			
Gender Homophily	-0.007		-0.006	0.011***		0.011***
	(0.006)		(0.006)	(0.004)		(0.004)
Conformity		-0.026***	-0.026***		-0.014***	-0.014***
		(0.001)	(0.001)		(0.001)	(0.001)
Spillover		0.025***	0.026***		0.015***	0.016***
		(0.003)	(0.003)		(0.002)	(0.002)
			Enrolled in Top 20% STEM Degree			
Gender Homophily	-0.004		-0.004	0.007***		0.007**
	(0.003)		(0.003)	(0.003)		(0.003)
Conformity		-0.019***	-0.019***		-0.012***	-0.012***
		(0.001)	(0.001)		(0.001)	(0.001)
Spillover		0.020***	0.020***		0.013***	0.013***
		(0.002)	(0.002)		(0.001)	(0.001)
Observations	26,214	26,214	26,214	31,900	31,900	31,900
School × Year FE	✓	✓	✓	✓	✓	✓
Individuals Controls	✓	✓	✓	✓	✓	✓
Class Controls	✓	✓	✓	✓	✓	✓

Notes: The table reports the estimated effects of the same-gender top performer indicator (the gender homophily parameter), the top performer's baseline performance (the spillover effect parameter), and the distance between own student and top performer's baseline performance (the conformity parameter). The dependent variable of *Test Scores in Science* is standardized to have a 0 mean and a standard deviation of 1. *Choice of STEM Track* is a binary indicator that takes the value of 1 if a student enrolls in the STEM track at the beginning of grade 11 and 0 otherwise. *Applied to STEM Degree* and *Enrolled in STEM Degree* are binary indicators that take the value of 1 if a student applies to or enrolls in a STEM degree at the university level and 0 otherwise, respectively. Individual controls include a student's age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and a student's baseline performance in science. Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). All specifications include school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table 4: Gender Homophily Effects on Choice of STEM Track when Top Chooses STEM

	Top Performer Chooses STEM			
	Males		Females	
	(1)	(2)	(3)	(4)
Gender Homophily	0.007	0.010	0.017**	0.018***
	(0.010)	(0.010)	(0.007)	(0.007)
Observations	19,938	19,938	24,183	24,183
Mean of Y	0.341	0.341	0.250	0.250
School × Year FE	✓	✓	✓	✓
Individual Controls	✓	✓	✓	✓
Class Controls		✓		✓

Notes: The table reports the estimated coefficients of the same-gender top performer indicator (the gender homophily parameter) from separate regressions. The dependent variable is a binary indicator that takes the value of 1 if a student chooses a STEM track (and 0 when chooses another track) when the top performer chooses a STEM track. Individual controls include a student's age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and a student's baseline performance in science. Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). All specifications include controls for spillover effects (the top performer's baseline test score in science), conformity effects (the distance between the top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table 5: Differential Homophily Effects by Conformism and Spillover Levels

	Homophily ×		Homophily ×	
	Bottom Tertile Y_{topt-1}	Top Tertile Y_{topt-1}	Bottom Tertile $(Y_{topt-1} - Y_{it-1})$	Top Tertile $(Y_{topt-1} - Y_{it-1})$
	(1)	(2)	(3)	(4)
	Test Scores in Science			
Males	0.011	0.043	0.016	0.006
Females	0.057***	0.066	0.063***	0.044*
	Choice of STEM Track			
Males	-0.002	-0.020	-0.007	-0.023*
Females	0.024***	-0.019	0.016	0.025**
	Applied to STEM Degree			
Males	0.002	-0.052**	-0.007	-0.017
Females	0.035***	-0.059**	0.025**	0.025*
	Admitted to STEM Degree			
Males	-0.007	-0.002	-0.005	-0.012
Females	0.010**	0.011	0.015**	0.012**
	Enrolled in Top 20% STEM Degree			
Males	-0.004	-0.020	-0.008	-0.001
Females	0.006*	-0.001	0.011**	0.004
School × Year FE	✓		✓	
Individual Controls	✓		✓	
Class Controls	✓		✓	

Notes: Columns (1) and (2) show the estimated homophily effects for students randomly assigned to top performers in the bottom and top tertiles of baseline science test score distribution. The middle tertile is omitted. Columns (3) and (4) show estimated homophily coefficients for students whose distance between their own baseline performance and the top performer's baseline performance is in the bottom and top tertile, respectively. Results are shown for male and female students separately. The middle tertile is omitted. Individual controls include a student's age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and a student's baseline performance in science. Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). All specifications include controls for spillover effects (the top performer's baseline test score in science), conformity effects (the distance between the top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table 6: Placebo Effects of First, Second and Third Top Performers

	Males			Females		
	# First (1)	# Second (2)	# Third (3)	# First (4)	# Second (5)	# Third (6)
Test Scores in Science						
Gender Homophily	0.018	0.001	0.023	0.038**	0.023	0.024
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Observations	26,214	24,102	22,990	31,900	29,534	28,341
Choice of STEM Track						
Gender Homophily	-0.008	0.004	-0.011*	0.024***	0.011	-0.008
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)
Observations	26,214	24,102	22,990	31,900	29,534	28,341
Applied to STEM Degree						
Gender Homophily	-0.007	-0.006	-0.006	0.026***	-0.000	-0.006
	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)
Observations	22,499	20,639	19,597	27,684	25,537	24,400
Enrolled in STEM Degree						
Gender Homophily	-0.006	-0.001	-0.006	0.011***	-0.004	0.003
	(0.006)	(0.007)	(0.006)	(0.004)	(0.004)	(0.004)
Observations	18,609	17,059	16,168	22,428	20,682	19,744
Enrolled in Top 20% STEM Degree						
Gender Homophily	-0.004	0.001	0.006*	0.007**	-0.003	-0.003
	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Observations	26,214	24,102	22,990	31,900	29,534	28,341
School × Year FE	✓	✓	✓	✓	✓	✓
Individual Controls	✓	✓	✓	✓	✓	✓
Class Controls	✓	✓	✓	✓	✓	✓

Notes: The table presents the estimated gender homophily effects of being assigned to a same-gender top performer (columns 1 and 4), a same-gender second-best performer (columns 2 and 5), and a same-gender third-best performer (columns 3 and 6). Each estimate in the table comes from a separate regression. The estimated effect of the top performer (columns 1 and 4) is the baseline effect. To estimate the impact of being assigned to the second- or third-best student in the class, we reconstruct the variable of interest using the gender of the second- and third-best student in the class based on students' baseline performance. When we examine the impact of the second- or third-best student in the class on remaining students' outcomes, we also control for other characteristics of the second- or third-best student (age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and baseline performance in science). Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). All specifications include controls for spillover effects (the top performer's baseline test score in science), conformity effects (the distance between the top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table 7: Effect of Same Gender Top Profile on Perceived Influence in STEM Study

	Perceived Influence in STEM Study	
	(1)	(2)
	Males	Females
Same Gender Top Profile	0.103	0.217**
	(0.127)	(0.106)
Observations	233	336
Mean of Y	-0.091	0.060
SD of Y	0.956	0.981
School FE	✓	✓
Grade FE	✓	✓
Controls	✓	✓

Notes: The table reports estimated coefficients of perceived role model influence with respect to STEM study on an indicator that captures whether the respondent's gender matches the top performer's gender profile in the survey for participating students. Perceived influence on STEM study has been standardized to have a mean equal to 0 and a standard deviation equal to 1. Controls include an indicator that takes the value of 1 if the reported top performer in grade 10 was female (and 0 otherwise), an indicator that takes the value of 1 if the reported second-best performer was female (and 0 otherwise), and an indicator that takes the value of 1 if the profile was a STEM profile (and 0 otherwise). Heteroskedasticity-robust standard errors are reported in parentheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

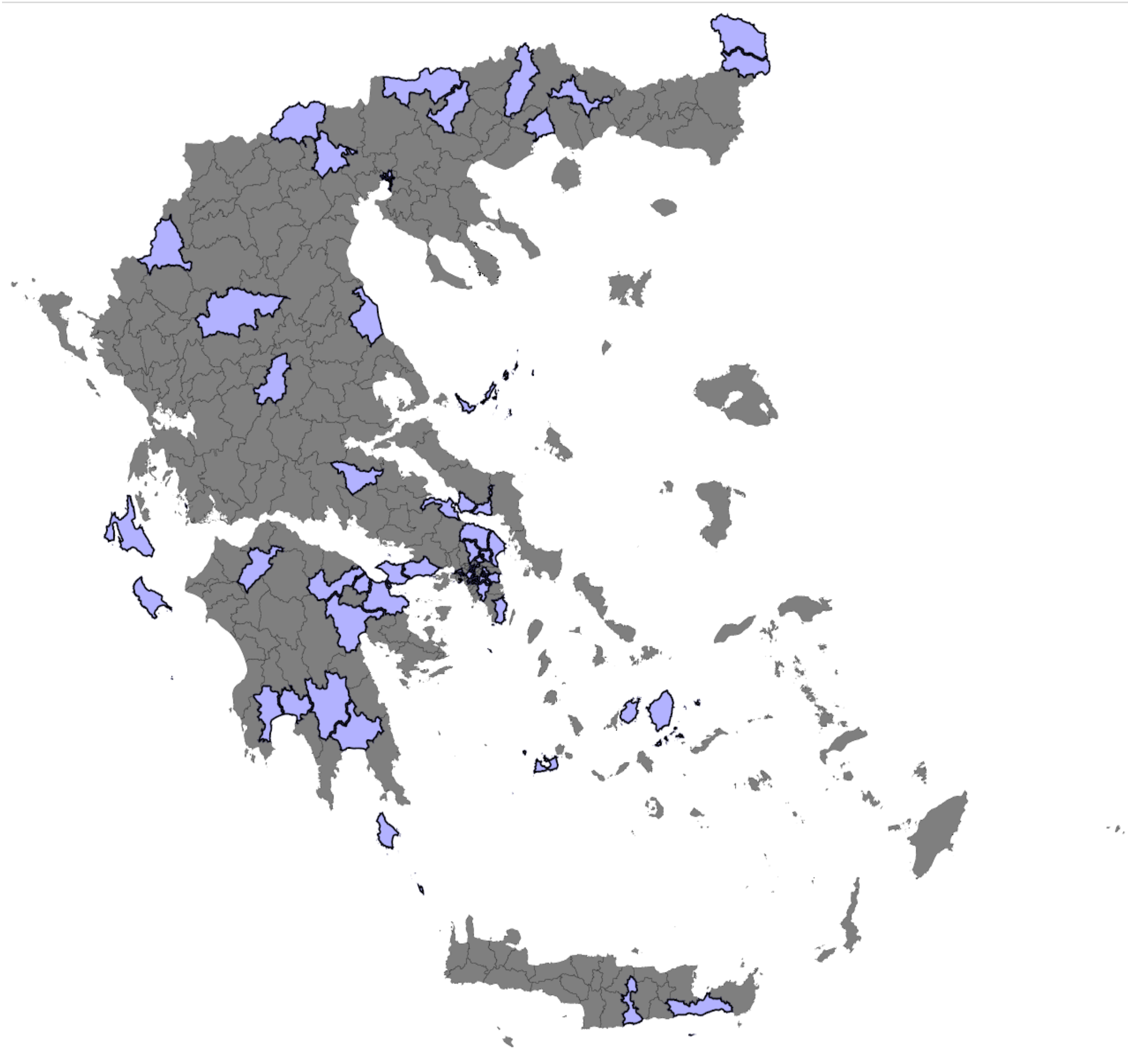
Table 8: Mechanisms Behind the Effects of Same-Gender Excelling Student: Evidence from the Lab-in-the-Field Experiment

	Males				Females			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Self-Confidence	Distinction Feasibility	Information	Co-study	Self-Confidence	Distinction Feasibility	Information	Co-study
Same Gender Top Profile	-0.041	0.052	0.021	-0.059	0.153**	0.095*	-0.056	0.000
	(0.060)	(0.063)	(0.065)	(0.048)	(0.054)	(0.055)	(0.056)	(0.043)
Observations	236	236	236	236	333	333	333	333
Mean of Y	0.343	0.369	0.407	0.165	0.387	0.498	0.489	0.177
SD of Y	0.476	0.483	0.492	0.372	0.488	0.501	0.501	0.382
School FE	✓	✓	✓	✓	✓	✓	✓	✓
Class FE	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The outcome is the related mechanism variable. Controls include indicators for having a female first- and second-best performer in grade 10, binary indicators for having been the grade 10 first- or second-best performer, dummies for the month the respondent completed the survey, and grade dummies if the respondent is still a student. We use the related question from the questionnaire and each of the related channels through which peer role models may operate as the outcome variable. *Self-confidence* is a binary indicator that takes the value of 1 if the student selected "It would improve my confidence" as a response to the questionnaire item as a channel though which the top performer in the profile affected their perceived performance. *Distinction Feasibility* is a binary indicator that takes the value of 1 if the student selected the response "It would make me feel that I can stand out too" as a response to the questionnaire item as a channel though which the top performer in the profile affected their perceived performance. *Information* is a binary indicator that takes the value of 1 if the student selected the response "I would get information from him/her" as a response to the questionnaire item as a channel though which the top performer in the profile affected their perceived performance. *Co-study* is a binary indicator that takes the value of 1 if the student selected the response "I would read with him/her" as a response to the questionnaire item as a channel though which the top performer in the profile affected their perceived performance. Heteroskedasticity-robust standard errors are reported in parentheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

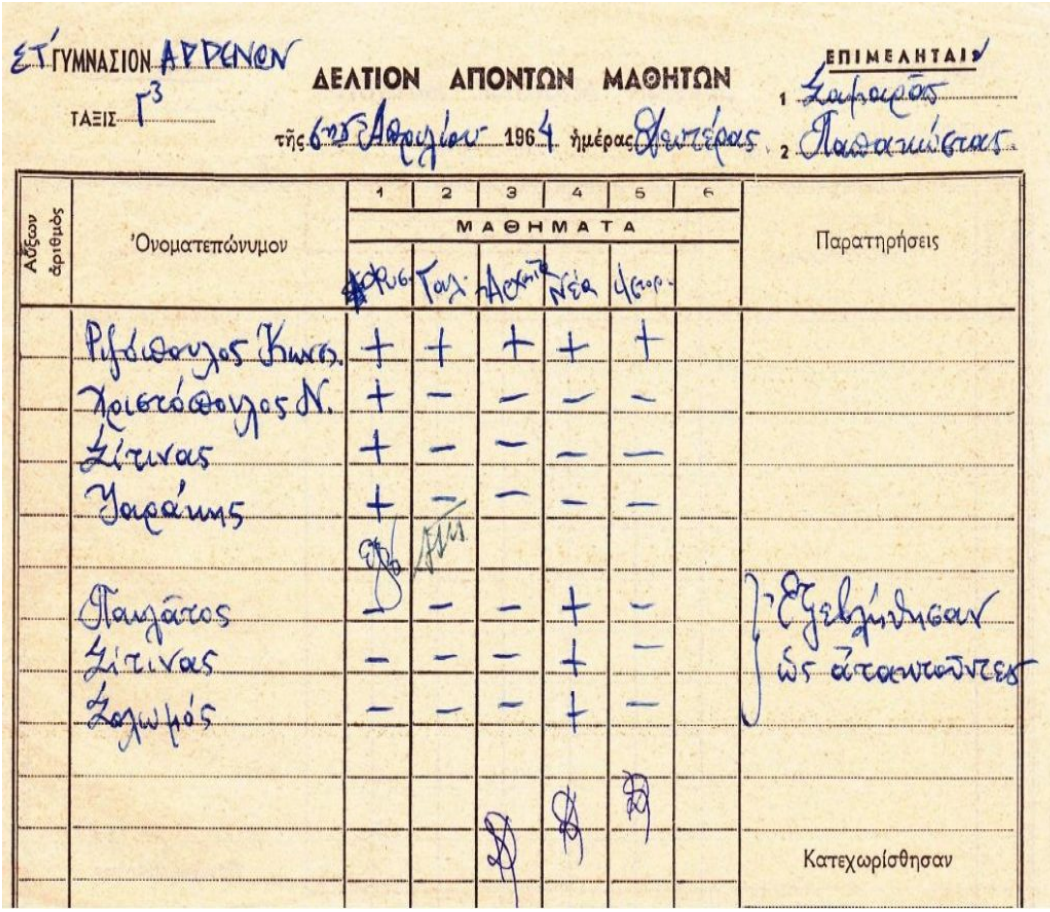
Online Appendix:
Additional Figures and Tables

Figure A1: Map of Schools in the Sample



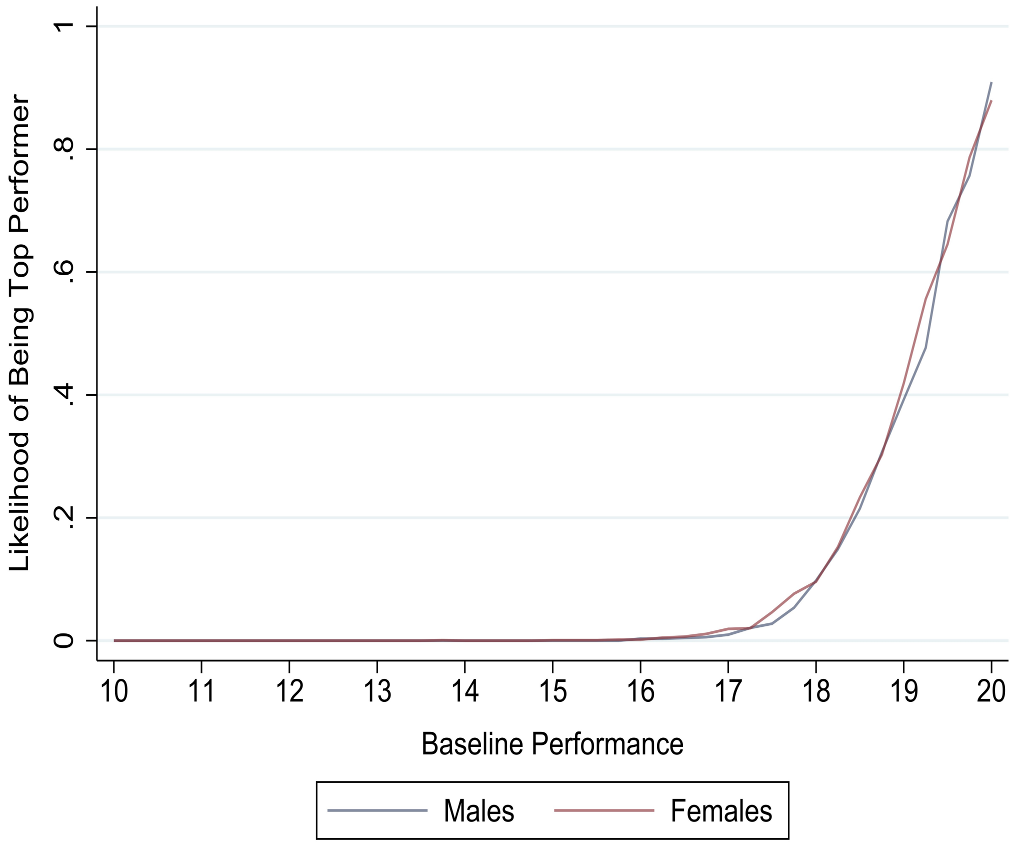
Notes: The figure shows the municipalities in which high schools in our sample are located.

Figure A2: The Attendance Book



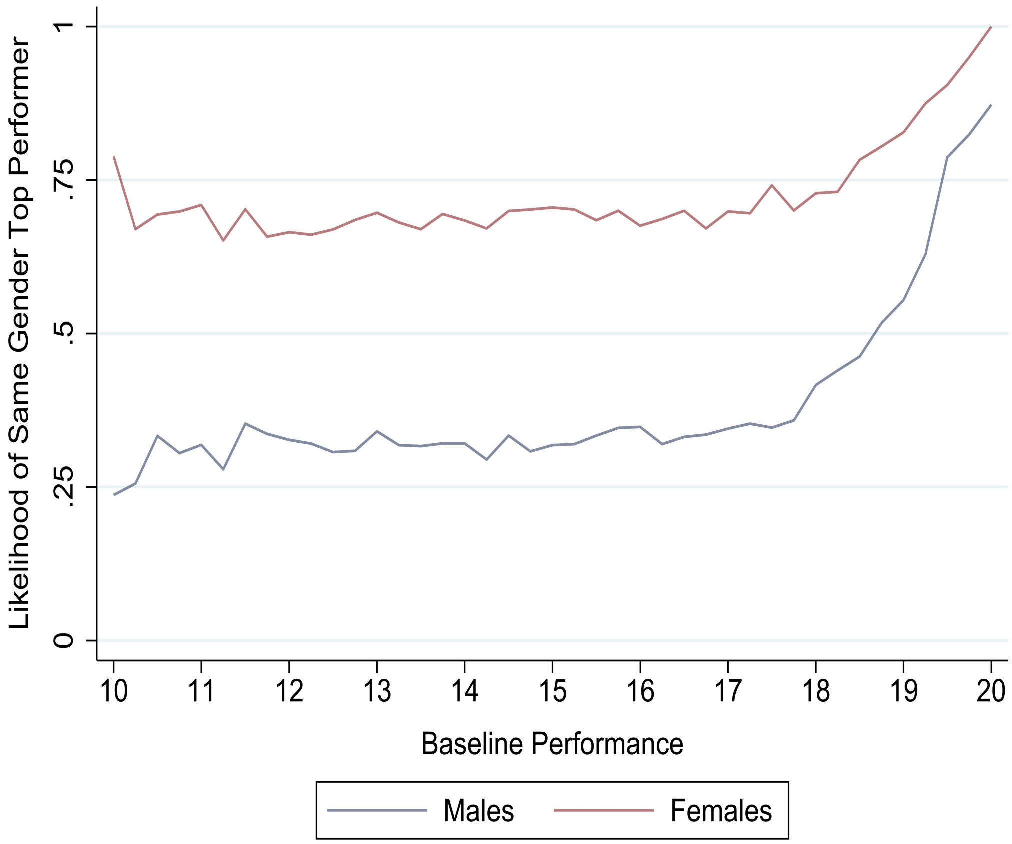
Notes: The figure shows the layout of the attendance book the record keeper is responsible for. In the top right corner, the names of the first and second top performers are listed. In the first column, a teacher records the names of students who are absent for at least 1 hour during the school day. Each teacher indicates whether a student was absent or expelled from their class for the subject they teach. A "+" is marked if the student was absent, and a "−"if the student was present. Each page of the attendance book corresponds to a specific date, with teachers filling out a separate page each day. In the example provided, the first student listed in column 1 was absent for all 5 school hours on that particular day. The students listed in rows 2, 3, and 4 were only absent during the first school hour. Students in the last three rows were absent only during the fourth school hour. On this day, students had five classes: physics in the first hour, French in the second hour, ancient Greek in the third hour, modern Greek in the fourth hour, and history in the fifth and final hour of the day. Teachers are required to sign next to the recorded absences. Also, in the last column, teachers can make notes if necessary. For instance, the modern Greek teacher noted that the students listed in the last three rows were expelled from class due to disruptive behavior. Students who attend all classes do not appear in the attendance book.

Figure A3: Likelihood of Being Top Performer by Baseline Performance



Notes: The figure shows the likelihood of being the classroom's top performer in different parts of the overall baseline performance distribution for males and females. Test scores are reported on a scale from 0 to 20 with 10 being the minimum passing grade (where higher scores indicate better performance).

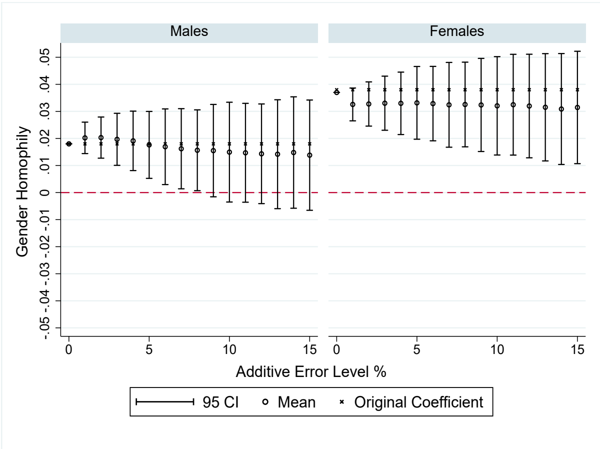
Figure A4: Likelihood of Having a Same-Gender Top Performer by Baseline Performance



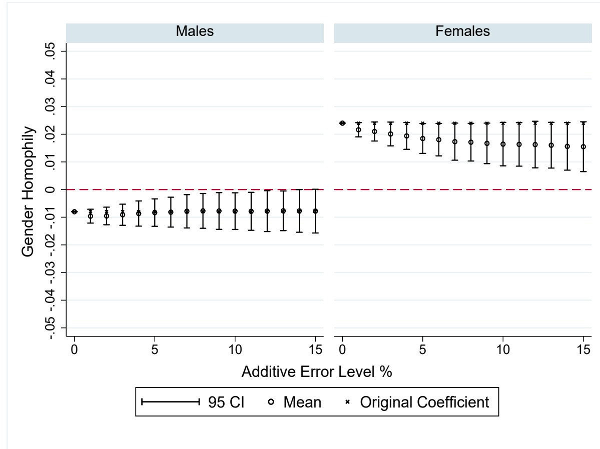
Notes: This figure shows the likelihood of having a top performer of the same gender as the student in different parts of the overall baseline performance distribution for males and females. Test scores are reported on a scale from 0 to 20 with 10 being the minimum passing grade (where higher scores indicate better performance).

Figure A5: Additive Noise in Baseline Test Scores

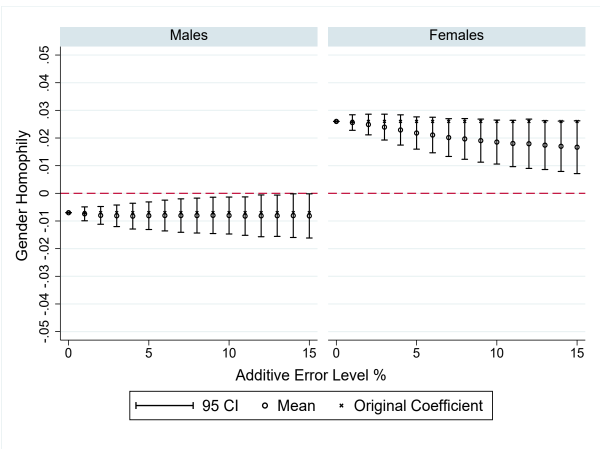
(a) Test Scores in Science



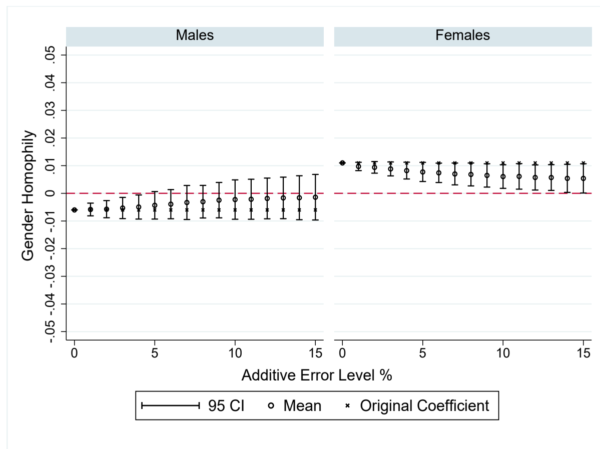
(b) Choice of STEM Track



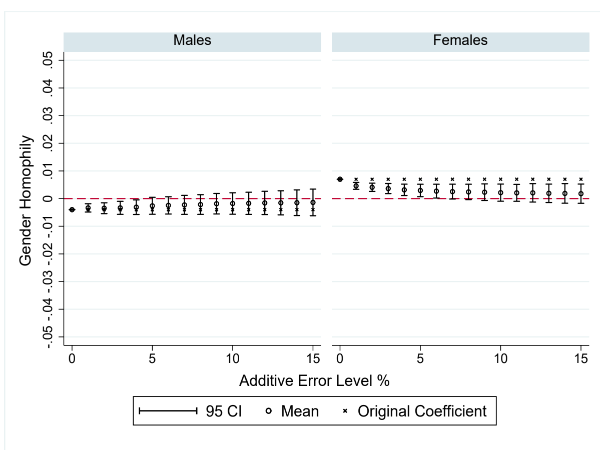
(c) Applied to STEM Degree



(d) Enrolled in STEM Degree



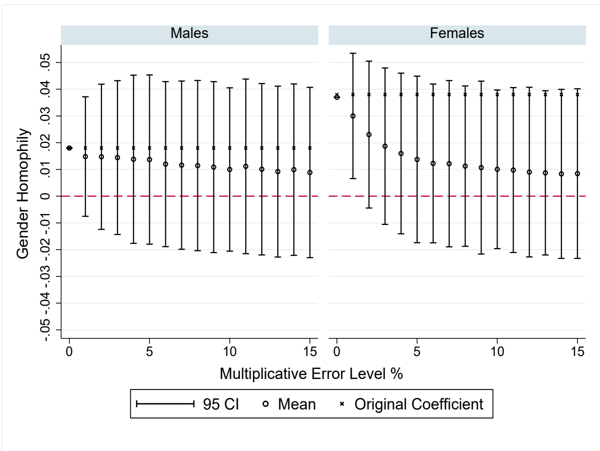
(e) Enrolled in Top 20% STEM Degree



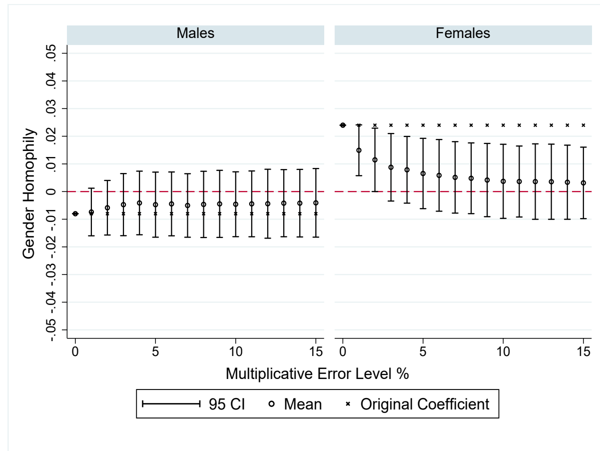
Note: This figure shows the estimated gender homophily effects from 1,000 simulations with increasing noise (or measurement error) added to student baseline test scores in grade 10. The noise is increasing in percentage with regard to the standard error of students' baseline science test scores. Each figure corresponds to a different outcome variable and is produced separately for males and females. We also produce estimates when the error is 0, which corresponds to the main estimate.

Figure A6: Multiplicative Noise in Baseline Test Scores

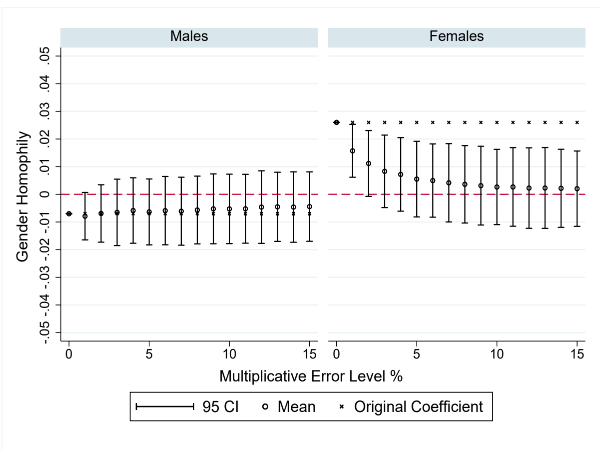
(a) Test Scores in Science



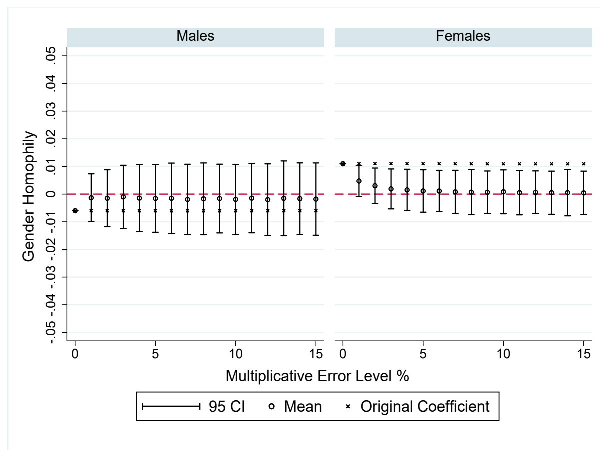
(b) Choice of STEM Track



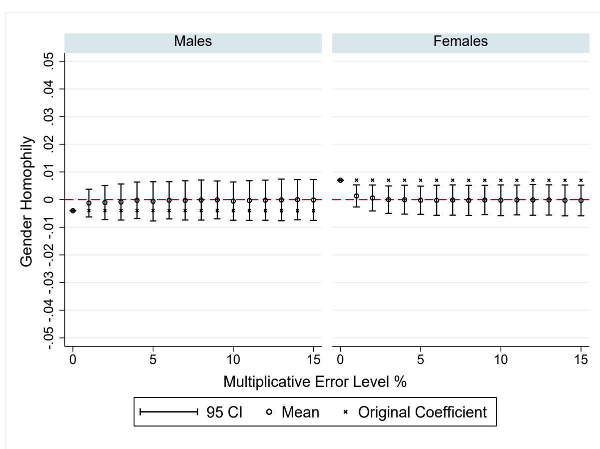
(c) Applied to STEM Degree



(d) Enrolled in STEM Degree



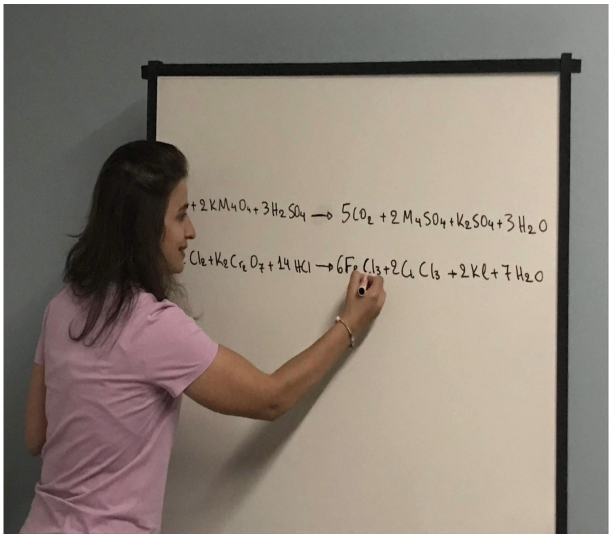
(e) Enrolled in Top 20% STEM Degree



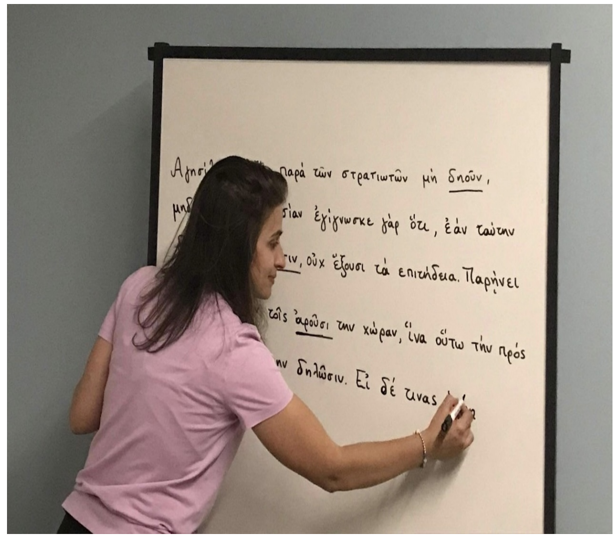
Note: This figure shows the estimated gender homophily effects from 1,000 simulations with increasing noise (or measurement error) multiplied by students' baseline science test scores in grade 10. The noise is increasing in percentage with regard to the standard error students' baseline test scores in grade 10. Each figure corresponds to a different outcome variable and is produced separately for males and females. We also produce estimates when the error is 0, which corresponds to the main estimate.

Figure A7: Survey Experiment Treatment Types

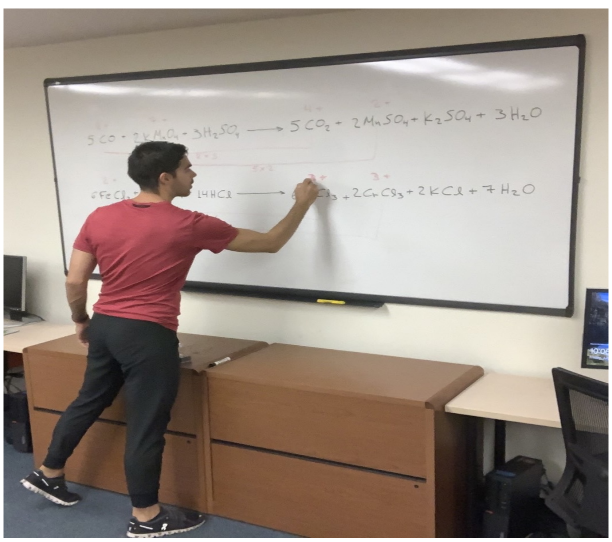
Treatment A: Female Excelling in STEM



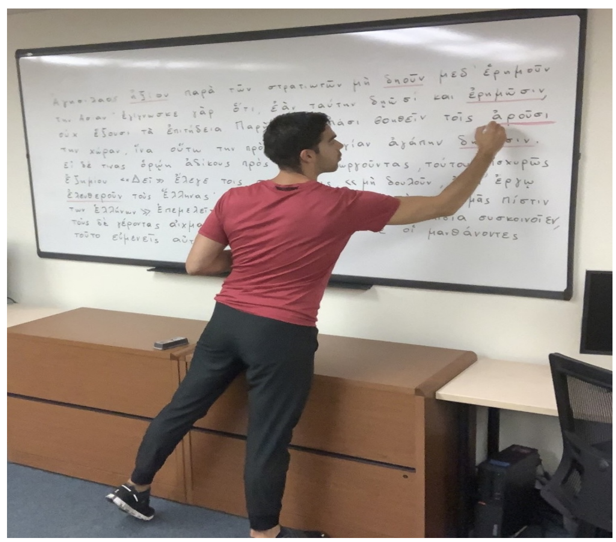
Treatment B: Female Excelling in Non-STEM



Treatment C: Male Excelling in STEM



Treatment D: Male Excelling in Non-STEM



Notes: The survey experiment randomly assigned each participant to one of four scenarios. In each scenario, a different combination of gender and subject type was shown. Each panel depicts a scenario shown to experiment participants.

Table A1: How Representative is the Sample?

	Sample Mean/S.D. (1)	Remaining Population (1,041 Schools) Mean/S.D. (2)	(1)-(2) Difference of Means/S.E. (3)
Student Characteristics			
Share of Female Students (%)	0.548	0.559	-0.011
	0.078	0.111	0.010
P-value			0.273
Average Student Age	17.955	18.103	-0.148
	0.151	1.124	0.103
P-value			0.151
Share of Students Being Born in Q1	0.191	0.196	-0.005
	0.063	0.087	0.008
P-value			0.570
Percentile Rank of School Quality	45.004	40.748	4.256
	29.503	31.127	2.985
P-value			0.154
Share of Students in Each Track			
Classics	0.380	0.411	-0.031
	0.110	0.171	0.016
P-value			0.053
Science	0.189	0.176	0.013
	0.097	0.143	0.013
P-value			0.318
Exact Science	0.430	0.413	0.018
	0.136	0.193	0.018
P-value			0.334
Municipality Unemployment	9.429	9.871	-0.443
	1.952	3.226	0.301
P-value			0.141

Notes: The table examines the representativeness of the sampled schools. We compare schools in our sample to the remaining public coeducational high schools in Greece in terms of students' characteristics (gender, age, being born in the first quarter of the calendar year, percentile rank of school quality, and high school track choices) at school level and unemployment at district level. Unemployment is measured as percentage at the district level in 2003. Column (1) presents the means of variables in our study sample and column (2) presents the means of variables in the remaining public coeducational population of schools in Greece (containing 1,041 schools). Column (3) presents the differences between sample and population means, the standard error of the difference, and p-values. Comparisons are made using data from the first year for which the dataset is available.

Table A2: Summary Statistics of Students Assigned to Same-, and Opposite-gender Top Performers

	Full sample			Same-gender Top			Opposite-gender Top		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Panel A: Pre-treatment Characteristics									
Males									
Baseline Science Score	14.49	3.00	26,215	14.54	3.03	8,762	14.46	2.98	17,453
Age	15.92	0.42	26,215	15.92	0.43	8,762	15.92	0.42	17,453
Born in Q1	0.12	0.33	26,215	0.12	0.33	8,762	0.12	0.33	17,453
Females									
Baseline Science Score	14.51	2.95	31,900	14.52	2.94	21,714	14.48	2.98	10,186
Age	15.94	0.46	31,900	15.94	0.46	21,714	15.94	0.48	10,186
Born in Q1	0.12	0.33	31,900	0.12	0.33	21,714	0.12	0.33	10,186
Panel B: Outcomes									
Males									
Test Score in Science (End of Grade 10)	15.31	2.89	26,215	15.37	2.93	8,762	15.28	2.87	17,453
Choice of STEM Track	0.81	0.39	26,215	0.81	0.39	8,762	0.81	0.39	17,453
Applied to STEM Degree	0.80	0.40	22,505	0.80	0.40	7,484	0.81	0.40	15,021
Enrolled in STEM Degree	0.16	0.36	18,624	0.15	0.36	6,262	0.16	0.37	12,362
Top 20% Postsecondary Degree 1	0.05	0.23	26,215	0.05	0.22	8,762	0.06	0.23	17,453
Enrolled in Top 20% STEM Degree	0.05	0.23	26,215	0.05	0.22	8,762	0.06	0.23	17,453
Females									
Test Score in Science (End of Grade 10)	15.40	2.85	31,900	15.42	2.84	21,714	15.34	2.88	10,186
Choice of STEM Track	0.46	0.50	31,900	0.47	0.50	21,714	0.44	0.50	10,186
Applied to STEM Degree	0.46	0.50	27,685	0.47	0.50	18,844	0.44	0.50	8,841
Enrolled in STEM Degree	0.06	0.24	22,435	0.07	0.25	15,271	0.06	0.23	7,164
Top 20% Postsecondary Degree 1	0.04	0.19	31,900	0.04	0.20	21,714	0.03	0.18	10,186
Enrolled in Top 20% STEM Degree	0.04	0.19	31,900	0.04	0.20	21,714	0.03	0.18	10,186

Notes: The table presents summary statistics for all pretreatment characteristics (panel A) and outcomes (panel B). These summary statistics include the mean, standard deviation (SD), and number of observations (N). This information is reported for the full sample (columns 1-3), for students assigned to same-gender top performers (columns 4-6), and students assigned to opposite-gender top performers (columns 7-9). In each panel, we report those statistics separately for male and female students. Raw exam scores range from 0 to 20 and are increasing in performance.

Table A3: Does the Grade 10 Record Keeper have the Highest Grade 9 GPA in the Classroom?

Classroom	Record Keeper's Grade 9 GPA Info	# Students with Grade 9 GPA Info	# Students in Grade 10 Classroom	Grade 10 Record Keeper has the Highest Grade 9 GPA in Classroom
1	Yes	12	26	Yes
2	Yes	11	26	Yes
3	Yes	7	21	Yes
4	Yes	11	26	Yes
5	Yes	6	23	Yes
6	Yes	3	23	Yes
7	Yes	8	20	Yes
8	Yes	9	18	Yes
9	Yes	12	20	Yes
10	Yes	11	17	Yes
11	Yes	12	21	No

Notes: Using a small sample of grade 9 records, we investigate whether the student who becomes the top performer and record keeper at the beginning of grade 10 also had the highest GPA in their grade 9 classroom. This investigation aims at providing evidence of sufficient exogeneity in determining who becomes the top performer and record keeper. The findings show that, in 10 out of 11 classrooms for which the top performer's grade 9 GPA is observable, the top performer also had the highest grade 9 GPA, according to available records. In one instance, the student identified as the top performer and record keeper in grade 10 had the second-highest GPA in grade 9 among their grade 10 classmates.

Table A4: Top and Non-top Performers' Baseline Performance by Gender

	Test Scores in Science (Baseline)	Test Scores in Language (Baseline)	Difference	SE	N
	(1)	(2)	(3)	(4)	(5)
Panel A: Top Performers					
Males	18.910	17.934	0.977	0.053	1,027
Females	18.744	18.106	0.638	0.037	2,130
Panel B: Non-top Performers					
Males	14.487	14.216	0.271	0.023	26,215
Females	14.509	15.125	-0.616	0.021	31,900

	Males	Females	Difference	SE	N
Panel C: Top Performers					
Average Baseline Performance	18.422	18.425	-0.003	0.025	2,054

Notes: The table shows the baseline test scores in science (column 1)) and language (column 2) for top performers (panel A) and non-top performers (panel B) by gender. Panel C shows the differences in average baseline performance (across all subjects), by the gender of the top performer. Column (3) in panels A and B shows the difference between science and language test scores by gender. Column (3) in panel C shows the difference between the average baseline performance of top performers by gender. In column (4) we report the standard error of the related differences. Column (5) shows the number of observations for each row. Test scores are reported on a scale from 0 to 20 and are increasing in performance.

Table A5: Balancing Tests for Gender Homophily, Student and Top Performers Characteristics at Classroom Level

	Test Scores in Science (Baseline)	Test Scores in Language (Baseline)	Gender Homophily	Age	Born in Q1	Proportion of Female Peers	Baseline Score in Science of Top	Baseline Score in Language of Top	Age of Top	Born in Q1 for Top
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Class 1	-0.023	-0.019	-0.033	-0.032*	0.006	-0.005	-0.245*	-0.067	-0.043	0.038
	(0.217)	(0.156)	(0.030)	(0.017)	(0.011)	(0.028)	(0.138)	(0.153)	(0.052)	(0.050)
Class 2	-0.051	-0.108	-0.041	-0.022	0.004	-0.015	-0.178	-0.090	-0.044	0.050
	(0.217)	(0.156)	(0.030)	(0.016)	(0.011)	(0.028)	(0.137)	(0.153)	(0.052)	(0.050)
Class 3	0.014	-0.079	-0.042	-0.021	-0.000	-0.002	-0.126	-0.138	-0.027	0.030
	(0.218)	(0.156)	(0.030)	(0.016)	(0.011)	(0.028)	(0.138)	(0.155)	(0.052)	(0.051)
Class 4	0.095	-0.030	-0.020	-0.025	0.006	0.018	-0.219	-0.089	-0.045	0.048
	(0.217)	(0.159)	(0.030)	(0.017)	(0.011)	(0.028)	(0.143)	(0.157)	(0.053)	(0.051)
Class 5	0.125	0.004	-0.037	-0.018	-0.001	0.002	-0.093	-0.058	-0.043	0.077
	(0.228)	(0.173)	(0.031)	(0.017)	(0.012)	(0.029)	(0.155)	(0.165)	(0.058)	(0.054)
Observations	3,055	3,055	3,055	3,055	3,055	3,055	3,055	3,055	3,055	3,055
Mean of Y	14.464	14.699	0.525	15.935	0.116	0.557	18.808	18.054	15.911	0.111
P Value of Model	0.298	0.408	0.135	0.135	0.591	0.011	0.224	0.830	0.859	0.500
School × Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table presents the estimated coefficients of binary indicators for different class numbers on a variety of outcomes. For instance, *Class 1* is a binary indicator that takes the value of 1 if the class average of the relevant variable comes from class 1 and 0 otherwise. Class number 6 is omitted from the regression as the reference category. The unit of observation is the class. Outcome variables are reported in column headings and have been averaged at class level. In particular, we regress the binary indicators for classroom numbers on average class baseline test score in science (column 1), average class baseline test score in language (column 2), average class proportion of students who have the same gender as the top performer (column 3), the average class age (column 4), average class proportion of students who are born in the first quarter of the calendar year (column 5), class proportion of female students (column 6), baseline test score of the top performance in science (column 7), baseline test score of the top performer in language (column 8), age of the top performer (column 9), and a binary indicator that takes the value of 1 if the top performer is born in the first quarter of the calendar year (column 10). F-statistics for the joint significance of the regressors and the related P-value are also reported. These suggest that class numbers are not associated with differences in class-level averages. The mean of each outcome variable at class level is also reported (*"Mean of Y"*). All regressions include a constant, and standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A6: Robustness of Baseline Effects of Peer Role Models

	Males			Females		
	(1)	(2)	(3)	(4)	(5)	(6)
Test Scores in Science						
Gender Homophily	0.017		0.007	0.052***		0.022
	(0.017)		(0.014)	(0.016)		(0.014)
Conformity		-0.389***	-0.389***		-0.385***	-0.385***
		(0.002)	(0.002)		(0.002)	(0.002)
Spillover		0.370***	0.370***		0.377***	0.376***
		(0.013)	(0.013)		(0.012)	(0.012)
Choice of STEM Track						
Gender Homophily	-0.008		-0.009	0.025***		0.021***
	(0.006)		(0.006)	(0.007)		(0.007)
Conformity		-0.023***	-0.023***		-0.047***	-0.047***
		(0.001)	(0.001)		(0.001)	(0.001)
Spillover		0.030***	0.029***		0.059***	0.058***
		(0.006)	(0.006)		(0.006)	(0.006)
Applied to STEM Degree						
Gender Homophily	-0.007		-0.007	0.026***		0.025***
	(0.006)		(0.006)	(0.007)		(0.007)
Conformity		-0.009***	-0.009***		-0.025***	-0.025***
		(0.001)	(0.001)		(0.002)	(0.002)
Spillover		0.019***	0.019***		0.033***	0.032***
		(0.006)	(0.006)		(0.007)	(0.007)
Enrolled in STEM Degree						
Gender Homophily	-0.007		-0.006	0.011***		0.010***
	(0.006)		(0.006)	(0.004)		(0.004)
Conformity		-0.032***	-0.032***		-0.017***	-0.017***
		(0.002)	(0.002)		(0.001)	(0.001)
Spillover		0.039***	0.039***		0.021***	0.021***
		(0.006)	(0.006)		(0.004)	(0.004)
Enrolled in Top 20% STEM Degree						
Gender Homophily	-0.004		-0.004	0.007***		0.005**
	(0.003)		(0.003)	(0.003)		(0.003)
Conformity		-0.027***	-0.027***		-0.017***	-0.017***
		(0.001)	(0.001)		(0.001)	(0.001)
Spillover		0.034***	0.034***		0.019***	0.019***
		(0.003)	(0.003)		(0.002)	(0.002)
Observations	26,214	26,214	26,214	31,900	31,900	31,900
School × Year FE	✓	✓	✓	✓	✓	✓
Individuals Controls	✓	✓	✓	✓	✓	✓
Class Controls	✓	✓	✓	✓	✓	✓

Notes: The table reports the estimated effects of the same-gender top performer indicator (the gender homophily parameter), the top performer's baseline performance (the spillover effect parameter), and the distance between own student and top performer's baseline performance (the conformity parameter). The dependent variable of end-of-grade 10 *Test Scores in Science* is standardized to have a 0 mean and a standard deviation of 1. *Choice of STEM Track* is a binary indicator that takes the value of 1 if a student enrolls in the STEM track at the beginning of grade 11 and 0 otherwise. *Applied to STEM Degree* and *Enrolled in STEM Degree* are binary indicators that take the value of 1 if a student applies to or enrolls in a STEM degree at the university level and 0 otherwise, respectively. Individual controls include a student's age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and a student's baseline performance in science. Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). All specifications include controls for spillover effects (the top performer's baseline test score in science), conformity effects (the distance between the top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A7: Gender Homophily Effects on Student Choice of STEM Track Conditional on End-of-grade 10 Science Test Scores

	Males		Females	
	(1)	(2)	(3)	(4)
Gender Homophily	-0.006	-0.007	0.019***	0.022***
	(0.006)	(0.006)	(0.006)	(0.006)
Observations	26,214	26,214	31,900	31,900
Mean of Y	0.812	0.812	0.459	0.459
School × Year FE	✓	✓	✓	✓
Individual Controls	✓	✓	✓	✓
End-of-grade 10 Science Test Scores	✓	✓	✓	✓
Class Controls		✓		✓

Notes: The table reports the estimated coefficients of the same-gender top performer indicator (the gender homophily parameter) on student choice of the STEM track conditional on end-of-grade science test scores. The dependent variable is a binary indicator that takes the value of 1 if a student chooses the STEM track in grade 11, while we control for the end-of-grade science test scores in grade 10. Individual controls include a student's age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and a student's baseline and end-of-grade 10 performance in science. Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). All specifications include controls for spillover effects (the top performer's baseline test score in science), conformity effects (the distance between the top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A8: Gender Homophily Effects on Student Decision to Apply and Enroll in a STEM Degree Conditional on Choice of STEM Track

	Applied to STEM Degree				Enrolled in STEM Degree			
	Males		Females		Males		Females	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Gender Homophily	0.003	0.004	0.021***	0.022***	-0.008	-0.009	0.018**	0.015**
	(0.004)	(0.004)	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)	(0.008)
Observations	18,394	18,394	12,797	12,797	15,480	15,480	10,969	10,969
Mean of Y	0.933	0.933	0.854	0.854	0.185	0.185	0.123	0.123
School × Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Individual Controls	✓	✓	✓	✓	✓	✓	✓	✓
Chose STEM Track in Grade 11	✓	✓	✓	✓	✓	✓	✓	✓
Class Controls		✓		✓		✓		✓

Notes: The table shows the estimated coefficients of having a same-gender top performer (the gender homophily parameter) on applying to and enrolling in a STEM university degree for students who enrolled in the STEM track in grade 11. We run those regressions conditional on students' having chosen the STEM track in grade 11. Individual controls include a student's age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and a student's baseline performance in science. In columns (2), (4), (6), and (8) we add class controls. Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). All specifications include controls for spillover effects (the top performer's baseline test score in science), conformity effects (the distance between the top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A9: Estimated Homophily Effects under Different Definitions of STEM University Degrees

	Applied to STEM Degree						Enrolled in STEM Degree					
	Males			Females			Males			Females		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Gender Homophily	-0.007	-0.002	-0.011*	0.026***	0.024***	0.025***	-0.007	-0.001	-0.004	0.011***	0.005	0.008**
	(0.006)	(0.005)	(0.006)	(0.007)	(0.007)	(0.007)	(0.006)	(0.007)	(0.006)	(0.004)	(0.006)	(0.004)
Observations	22,499	22,499	22,499	27,684	27,684	27,684	18,609	18,609	18,609	22,428	22,428	22,428
Mean of Y	0.803	0.889	0.807	0.459	0.599	0.468	0.153	0.250	0.161	0.061	0.150	0.068
School × Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Individual Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Class Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows the estimated coefficients of having a same-gender top performer (the gender homophily parameter) on students' likelihood of applying to and enrolling in a STEM university degree using three definitions of STEM. Columns (1), (4), (7), and (10) report the estimated coefficient of the same-gender top performer indicator when we use the baseline definition of STEM degrees (i.e., science, technology, engineering, and mathematics). Columns (2), (5), (8), and (11) report the estimated same-gender top performer effects when STEM university degrees also include degrees in economics and business in addition to baseline STEM. In columns (3), (6), (9), and (12) we add health sciences degrees to the augmented definition of STEM degrees. Individual controls include a student's age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and a student's baseline performance in science. Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). All specifications include controls for spillover effects (the top performer's baseline test score in science), conformity effects (the distance between the top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A10: Gender Homophily Effects on Student Enrollment in Top 20% STEM Degree

	Enrolled in Top 20% STEM Degree Main Definition				Enrolled in Top 20% STEM Degree Alternative Definition			
	Males		Females		Males		Females	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Gender Homophily	-0.003	-0.004	0.007***	0.007***	-0.003	-0.004	0.007***	0.007***
	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)
Observations	26,214	26,214	31,900	31,900	26,214	26,214	31,900	31,900
Mean of Y	0.054	0.054	0.040	0.040	0.054	0.054	0.040	0.040
School × Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Individual Controls	✓	✓	✓	✓	✓	✓	✓	✓
Class Controls		✓		✓		✓		✓

Notes: The table presents the estimated coefficients of having a same-gender top performer (the gender homophily parameter) on students' likelihood of enrolling in a STEM university degree in the top 20 percent using two definitions of university degree quality. We rank all STEM degrees using the first year for which we have data and select the top 20 percent of those degrees using two definitions. The "Main Definition" is based on the university's admissions score cutoffs. The "Alternative Definition" is based on enrolled students' annual mean national exam performance. The dependent variable—"Enrolled in a STEM University Degree in the Top 20%"—is a binary indicator that takes the value of 1 if a STEM university degree is in the top 20 percent based on each of the two postsecondary degree quality measures. Data from the first year are excluded from the analysis, since we use this year to derive the university degree quality measure. We assign the value of 0 to students who don't attend college. Individual controls include a student's age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and a student's baseline performance in science. Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). All specifications include controls for spillover effects (the top performer's baseline test score in science), conformity effects (the distance between the top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A11: Balancing Tests for Teacher Gender at the Individual Level in a Restricted Sample with Teacher Information

	Teacher Gender (1=Female)				
	(1)	(2)	(3)	(4)	(5)
Age	0.006				0.006
	(0.013)				(0.021)
Baseline Performance		0.006			0.007
		(0.004)			(0.004)
Born in Q1			-0.012		-0.006
			(0.010)		(0.018)
Female				-0.004	-0.006
				(0.006)	(0.006)
Observations	5,591	5,591	5,591	5,591	5,591
Mean of Y	0.492	0.492	0.492	0.492	0.492
P Value of Model	0.633	0.150	0.242	0.533	0.323
School × Year FE	✓	✓	✓	✓	✓
Subject FE	✓	✓	✓	✓	✓

Notes: Columns (1)-(4) report school × year fixed-effects estimates with outcome variable the teacher gender (1=female) and independent variable each of the student characteristics. In column (5) we include all control variables simultaneously in the regression and report the joint significance of those variables. Born in Q1 is a binary indicator that takes the value of 1 if the student is born in the first quarter of a calendar year and 0 otherwise. The baseline student performance is the standardized baseline subject-level performance. Standard errors are clustered at the class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A12: Balancing Tests for Same Gender Top at the Individual Level in a Restricted Sample with Teacher Information

	(1)	(2)
Males		
Share of Female Teachers	0.687	0.818
	(1.196)	(1.132)
Observations	199	199
Mean of Y	0.296	0.296
P Value of Model	0.001	0.000
School × Year FE	✓	✓
Class Controls	✓	✓
Individual Controls		✓
Females		
Share of Female Teachers	-1.496	-1.530
	(1.284)	(1.277)
Observations	253	253
Mean of Y	0.719	0.719
P Value of Model	0.017	0.011
School × Year FE	✓	✓
Class Controls	✓	✓
Individual Controls		✓

Notes: Columns (1)-(3) report school × year fixed-effects estimates from separate regressions of the relevant dependent variable on the treatment variable, i.e., gender homophily. In column (4) we include all control variables simultaneously in the regression and report the joint significance of those variables. We show these estimates separately for male (upper panel) and female (lower panel) students. Class controls include the proportion of female peers in the classroom, the class-level leave-out mean for baseline science test scores, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise, and the top performer's baseline science test score). Errors are clustered at the class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A13: Peer Role Models Controlling for the Share of Female Teachers

	Males		Females	
	(1)	(2)	(3)	(4)
		Test Scores in Science		
Gender Homophily	-0.163	-0.139	0.454***	0.417***
	(0.135)	(0.142)	(0.112)	(0.107)
Conformity	-0.254***	-0.254***	-0.277***	-0.277***
	(0.022)	(0.022)	(0.014)	(0.014)
Spillover	0.319**	0.273**	0.294**	0.242*
	(0.120)	(0.123)	(0.120)	(0.120)
		Choice of STEM Track		
Gender Homophily	0.022	0.023	0.164***	0.170***
	(0.050)	(0.052)	(0.055)	(0.056)
Conformity	-0.055***	-0.055***	-0.076***	-0.076***
	(0.009)	(0.009)	(0.011)	(0.011)
Spillover	0.121**	0.120**	0.040	0.048
	(0.046)	(0.047)	(0.059)	(0.063)
		Applied to STEM Degree		
Gender Homophily	0.010	0.002	0.201***	0.212***
	(0.063)	(0.068)	(0.064)	(0.063)
Conformity	-0.056***	-0.057***	-0.077***	-0.077***
	(0.011)	(0.011)	(0.014)	(0.014)
Spillover	0.110**	0.122**	0.084	0.095
	(0.048)	(0.053)	(0.057)	(0.059)
Observations	175	175	224	224
School × Year FE	✓	✓	✓	✓
Individuals Controls	✓	✓	✓	✓
Class Controls	✓	✓	✓	✓
Share of Female Teachers		✓		✓

Notes: The table reports the estimated effects of the same-gender top performer indicator (i.e., gender homophily parameter), the top performer's baseline performance (i.e., spillover effect parameter), and the distance between own student and top performer's baseline performance (i.e., conformity parameter) in a restricted sample with available teacher information. The dependent variable of end-of-grade 10 *Test Scores in Science* is standardized to have a 0 mean and a standard deviation of 1. *Choice of STEM Track* is a binary indicator that takes the value of 1 if a student enrolls in the STEM track at the beginning of grade 11 and 0 otherwise. *Applied to STEM Degree* is a binary indicator that take the value of 1 if a student applies or enrolls in a STEM degree at the university level and 0 otherwise, respectively. The outcomes of enrolled in STEM degree and enrolled in top 20% STEM degree have been excluded from this analysis because fewer than 20 students are admitted to STEM degree and fewer than five students are admitted to a top 20% STEM degree in this small sample, rendering the estimates unstable. Individual controls include a student's age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and a student's baseline performance in science. Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). All specifications include controls for spillover effects (the top performer's baseline test score in science), conformity effects (the distance between the top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A14: Estimated Effects of STEM Peer Role Models

	Males			Females		
	(1)	(2)	(3)	(4)	(5)	(6)
			Test Scores in Science			
Gender Homophily	0.018		0.005	0.059**		0.044**
	(0.025)		(0.021)	(0.024)		(0.021)
Conformity		-0.255***	-0.255***		-0.256***	-0.256***
		(0.002)	(0.002)		(0.002)	(0.002)
Spillover		0.239***	0.239***		0.265***	0.265***
		(0.016)	(0.016)		(0.014)	(0.014)
			Choice of STEM Track			
Gender Homophily	-0.004		-0.005	0.021**		0.017*
	(0.008)		(0.008)	(0.009)		(0.009)
Conformity		-0.032***	-0.032***		-0.059***	-0.059***
		(0.001)	(0.001)		(0.001)	(0.001)
Spillover		0.018***	0.018***		0.054***	0.055***
		(0.006)	(0.006)		(0.006)	(0.006)
			Applied to STEM Degree			
Gender Homophily	0.000		-0.001	0.021**		0.018*
	(0.009)		(0.009)	(0.010)		(0.010)
Conformity		-0.023***	-0.023***		-0.041***	-0.041***
		(0.001)	(0.001)		(0.002)	(0.002)
Spillover		0.023***	0.023***		0.037***	0.037***
		(0.006)	(0.006)		(0.007)	(0.007)
			Enrolled in STEM Degree			
Gender Homophily	0.003		0.002	0.015***		0.014**
	(0.008)		(0.008)	(0.006)		(0.006)
Conformity		-0.026***	-0.026***		-0.014***	-0.014***
		(0.002)	(0.002)		(0.001)	(0.001)
Spillover		0.030***	0.030***		0.015***	0.016***
		(0.006)	(0.006)		(0.004)	(0.004)
			Enrolled in Top 20% STEM Degree			
Gender Homophily	0.001		-0.000	0.007*		0.006*
	(0.005)		(0.005)	(0.004)		(0.004)
Conformity		-0.019***	-0.019***		-0.012***	-0.012***
		(0.001)	(0.001)		(0.001)	(0.001)
Spillover		0.020***	0.020***		0.014***	0.014***
		(0.003)	(0.003)		(0.003)	(0.003)
Observations	15,655	15,655	15,655	19,077	19,077	19,077
School × Year FE	✓	✓	✓	✓	✓	✓
Individuals Controls	✓	✓	✓	✓	✓	✓
Class Controls	✓	✓	✓	✓	✓	✓

Notes: The table reports the estimated coefficients of the same-gender top performer indicator (the gender homophily parameter), the top performer's baseline performance (the spillover effect parameter), and the distance between own student and top performer's baseline performance (the conformity parameter). A *STEM top performer* is defined as a record keeper who obtains a higher baseline test score in science compared with language. The dependent variable of end-of-grade 10 *Test Scores in Science* is standardized to have a 0 mean and a standard deviation of 1. *Choice of Humanities Track* is a binary indicator that takes the value of 1 if a student enrolls in the Humanities track at the beginning of grade 11 and 0 otherwise. *Applied to Humanities Degree* and *Enrolled in Humanities Degree* are binary indicators that take the value of 1 if a student applies or enrolls in a Humanities degree at university level and 0 otherwise, respectively. Individual controls include a student's age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and a student's baseline performance in science. Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). All specifications include controls for spillover effects (the top performer's baseline test score in science), conformity effects (the distance between the top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A15: Estimated Effects of Peer Role Models in Language and Humanities

	Males			Females		
	(1)	(2)	(3)	(4)	(5)	(6)
			Test Scores in Language			
Gender Homophily	0.022		0.017	0.021		0.017
	(0.022)		(0.021)	(0.019)		(0.018)
Conformity		-0.194***	-0.194***		-0.201***	-0.201***
		(0.002)	(0.002)		(0.002)	(0.002)
Spillover		0.198***	0.197***		0.204***	0.204***
		(0.009)	(0.009)		(0.008)	(0.008)
			Choice of Humanities Track			
Gender Homophily	0.008		0.008	-0.024***		-0.024***
	(0.006)		(0.006)	(0.007)		(0.006)
Conformity		0.035***	0.035***		0.059***	0.059***
		(0.001)	(0.001)		(0.001)	(0.001)
Spillover		-0.028***	-0.028***		-0.061***	-0.062***
		(0.003)	(0.003)		(0.003)	(0.003)
			Applied to Humanities Degree			
Gender Homophily	0.007		0.007	-0.019***		-0.019***
	(0.005)		(0.005)	(0.007)		(0.007)
Conformity		0.019***	0.019***		0.029***	0.029***
		(0.001)	(0.001)		(0.001)	(0.001)
Spillover		-0.018***	-0.018***		-0.031***	-0.032***
		(0.002)	(0.002)		(0.003)	(0.003)
			Enrolled in Humanities Degree			
Gender Homophily	0.004		0.004	-0.007		-0.008
	(0.006)		(0.006)	(0.008)		(0.008)
Conformity		0.013***	0.013***		0.021***	0.021***
		(0.001)	(0.001)		(0.001)	(0.001)
Spillover		-0.012***	-0.012***		-0.025***	-0.025***
		(0.003)	(0.003)		(0.004)	(0.004)
			Enrolled in Top 20% Humanities Degree			
Gender Homophily	0.000		0.000	-0.005		-0.005
	(0.004)		(0.004)	(0.004)		(0.004)
Conformity		-0.019***	-0.019***		-0.019***	-0.019***
		(0.001)	(0.001)		(0.001)	(0.001)
Spillover		0.017***	0.017***		0.020***	0.020***
		(0.002)	(0.002)		(0.002)	(0.002)
Observations	26,214	26,214	26,214	31,900	31,900	31,900
School × Year FE	✓	✓	✓	✓	✓	✓
Individuals Controls	✓	✓	✓	✓	✓	✓
Class Controls	✓	✓	✓	✓	✓	✓

Notes: The table reports the estimated coefficients of the same-gender top performer indicator (i.e., gender homophily parameter), the top performer's baseline performance (i.e., spillover effect parameter), and the distance between own student and top performer's baseline performance (i.e., conformity parameter). The dependent variable of end-of-grade 10 *Test Scores in Science* is standardized to have a 0 mean and a standard deviation of 1. *Choice of Humanities Track* is a binary indicator that takes the value of 1 if a student enrolls in the Humanities track at the beginning of grade 11 and 0 otherwise. *Applied to Humanities Degree* and *Enrolled in Humanities Degree* are binary indicators that take the value of 1 if a student applies or enrolls in a Humanities degree at the university level and 0 otherwise, respectively. Individual controls include a student's age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and a student's baseline performance in science. Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). All specifications include controls for spillover effects (the top performer's baseline test score in science), conformity effects (the distance between the top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A16: Estimated Homophily Effects on Applications and Enrollments in a STEM Degree when the Top Performer Chooses a STEM Track or University Degree

	Applied to STEM Degree				Enrolled in STEM Degree			
	Males		Females		Males		Females	
	Top STEM Track	Top STEM Degree	Top STEM Track	Top STEM Degree	Top STEM Track	Top STEM Degree	Top STEM Track	Top STEM Degree
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Gender Homophily	-0.009	-0.005	0.025***	0.023**	-0.001	0.003	0.009**	0.007
	(0.007)	(0.009)	(0.008)	(0.009)	(0.007)	(0.008)	(0.004)	(0.005)
Observations	17,142	13,703	21,093	16,861	14,168	11,277	17,098	13,644
Mean of Y	0.805	0.807	0.459	0.459	0.157	0.152	0.062	0.060
School × Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Individual Controls	✓	✓	✓	✓	✓	✓	✓	✓
Class Controls	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table presents the estimated coefficients of having a same-gender top performer (the gender homophily parameter) on STEM university applications and enrollment when the top performer chooses a STEM track in grade 11 (columns 1, 3, 5, 7) and applies to a STEM university degree (columns 2, 4, 6, 8). Individual controls include a student's age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and a student's baseline performance in science. Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). All specifications include controls for spillover effects (the top performer's baseline test score in science), conformity effects (the distance between the top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A17: Differential Spillover and Conformity Effects by Same Gender Top Status

	Spillover ×			Conformism ×		
	Homophily	Heterophily	P-value	Homophily	Heterophily	P-value
	(1)	(2)	(3)	(4)	(5)	(6)
	Test Scores in Science					
Males	0.193***	0.192***	0.223	-0.245***	-0.244***	0.840
Females	0.199***	0.195***	0.003	-0.248***	-0.242***	0.097
	Choice of STEM Track					
Males	0.022***	0.022***	0.723	-0.034***	-0.033***	0.614
Females	0.050***	0.049***	0.180	-0.056***	-0.057***	0.555
	Applied to STEM Degree					
Males	0.016***	0.017***	0.501	-0.023***	-0.023***	0.878
Females	0.034***	0.032***	0.017	-0.039***	-0.038***	0.660
	Admitted to STEM Degree					
Males	0.020***	0.021***	0.763	-0.025***	-0.025***	0.833
Females	0.013***	0.012***	0.015	-0.014***	-0.012***	0.322
	Enrolled in Top 20% STEM Degree					
Males	0.015***	0.016***	0.280	-0.017***	-0.018***	0.407
Females	0.011***	0.010***	0.004	-0.012***	-0.010***	0.018
School × Year FE	✓			✓		
Individual Controls	✓			✓		
Class Controls	✓			✓		

Notes: The table presents the estimated coefficients of spillover (columns 1-2) and conformity (columns 4-5) influences among students with a top performer whose gender matches their own (the homophily condition) versus those with a top performer of the opposite gender (the heterophily condition). Column (3) reports p-values of tests of equality of spillover effects for students with a same- and an opposite-gender top performer. Column (6) reports the p-values of tests of equality of conformity effects for students with a same- and an opposite-gender top performer. Individual controls include a student's age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and a student's baseline performance in science. Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). Standard errors are clustered at class level. $*p < 0.1$,$**p < 0.05$,$***p < 0.01$

Table A18: Interaction Spillover, Conformity, and Homophily Effects

	Gender Homophily	Spillover	Conformity	Conformity × Homophily	Spillover × Homophily	Conformity × Spillover
	(1)	(2)	(3)	(4)	(5)	(6)
			Test Scores in Science			
Males	0.224	0.202***	-0.205***	0.000	-0.011	-0.002
Females	-0.054	0.194***	-0.237***	-0.006*	0.006	0.000
			Choice of STEM Track			
Males	0.107	0.019***	-0.064***	-0.001	-0.006	0.002**
Females	-0.085	0.040***	-0.088***	0.001	0.005	0.002*
			Applied to STEM Degree			
Males	0.256***	0.021*	-0.027***	0.000	-0.014***	0.000
Females	0.034	0.034**	-0.036***	-0.001	0.000	0.000
			Admitted to STEM Degree			
Males	-0.040	0.019**	-0.034***	-0.001	0.002	0.000
Females	-0.028	0.012	-0.007***	-0.001	0.002	0.000
			Enrolled in Top 20% STEM Degree			
Males	0.024	0.018	-0.007***	0.001	-0.002	-0.001
Females	-0.040	0.009	-0.008***	-0.002**	0.003	0.000

Notes: The table presents the estimated coefficients of the effect of multiple interaction terms between the following peer effects influences: the same-gender top performer indicator (the homophily parameter), the top performer's baseline performance (the spillover effect parameter), and the distance between own student and top performer's baseline performance (the conformity parameter). The estimated coefficients of the individual terms are presented in columns (1), (2), and (3). Individual controls include a student's age, a binary indicator that takes the value of 1 if a student is born in the first quarter of a calendar year and 0 otherwise, and a student's baseline performance in science. Class controls include the proportion of female peers in the classroom, a class-level leave-out mean for baseline test scores in science, the number of students in the class, leave-out mean age, leave-out percentage of students born in the first quarter of a calendar year, and characteristics of the top performer in the class (such as the top performer's age, a binary indicator that takes the value of 1 if the top performer is born in the first quarter of a calendar year and 0 otherwise). All specifications include school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A19: Gender Homophily Placebo Effects with a Random Student in the Class

	Males		Females	
	(1)	(2)	(3)	(4)
Test Scores in Science				
Gender Homophily with Random Student in Class	0.000828	0.000649	0.00598	0.000669
	(0.0167)	(0.0163)	(0.0153)	(0.0153)
Choice of STEM Track				
Gender Homophily with Random Student in Class	-0.000241	-0.000185	-0.000522	0.000424
	(0.00537)	(0.00567)	(0.00644)	(0.00672)
Applied to STEM Degree				
Gender Homophily with Random Student in Class	-0.000449	-0.000103	0.00183	0.000388
	(0.00584)	(0.00620)	(0.00671)	(0.00710)
Enrolled in a STEM Degree				
Gender Homophily with Random Student in Class	0.0000550	0.000193	0.00107	0.000233
	(0.00608)	(0.00644)	(0.00353)	(0.00373)
Enrolled in Top 20% STEM Degree				
Gender Homophily with Random Student in Class	0.000170	0.0000186	0.000665	0.00000184
	(0.00353)	(0.00370)	(0.00271)	(0.00286)
School × Year FE	✓	✓	✓	✓
Individual Controls	✓	✓	✓	✓
Class Controls		✓		✓

Notes: The table reports the estimated coefficients from the effects of a randomly selected student's gender (gender homophily with this student) in the class. For each class, we first randomly select a student and replace the top performer's gender with the gender of this randomly selected student. We then run the same regression specification as in the baseline analysis over 1,000 iterations, storing the coefficient for the gender of the randomly selected student. Columns (1) and (3) present the mean and standard deviation of the 1000 estimates without classroom-level controls for males and females, respectively. Columns (2) and (4) present the same coefficients with classroom-level controls. All specifications include individual controls and controls for spillover effects (the placebo top performer's baseline test score in science), conformity effects (the distance between the placebo top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A20: Gender Homophily Placebo Effects with the Top Performer from Another Class in the Same School-Cohort

	Males		Females	
	(1)	(2)	(3)	(4)
Test Scores in Science				
Gender Homophily with Top from Another Class	-0.0364	-0.0281	-0.0248	-0.0242
	(0.0172)	(0.0157)	(0.0167)	(0.0163)
Choice of STEM Track				
Gender Homophily with Top from Another Class	0.00726	0.00821	-0.0106	-0.0120
	(0.00624)	(0.00625)	(0.00685)	(0.00685)
Applied to STEM Degree				
Gender Homophily with Top from Another Class	0.00755	0.00803	-0.0105	-0.0108
	(0.00645)	(0.00648)	(0.00750)	(0.00762)
Enrolled in a STEM Degree				
Gender Homophily with Top from Another Class	-0.00116	-0.000586	-0.00433	-0.00400
	(0.00660)	(0.00666)	(0.00379)	(0.00379)
Enrolled in Top 20% STEM Degree				
Gender Homophily with Top from Another Class	-0.00160	-0.000826	-0.00369	-0.00341
	(0.00368)	(0.00373)	(0.00293)	(0.00291)
School × Year FE	✓	✓	✓	✓
Individual Controls	✓	✓	✓	✓
Class Controls		✓		✓

Notes: The table reports the estimated coefficients of having a same-gender top performer (the gender homophily parameter) in a different class than own in the same school cohort. We randomly select a class from the same school cohort and reconstruct the same gender binary indicator, which takes the value of 1 if the top performer's gender in that class matches that of the remaining students in that class. We then run the same regression specification as in the baseline analysis over 1,000 iterations, storing the coefficient for the same-gender indicator with the top-performing student in the randomly selected class. Columns (1) and (3) present the mean and standard deviation of these 1,000 estimates without class controls and columns (2) and (4) present the same coefficients with class controls. All specifications include individual controls and controls for spillover effects (the placebo top performer's baseline test score in science), conformity effects (the distance between the placebo top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A21: Gender Homophily Placebo Effects in Previous and Following Cohort

	Males		Females		Males		Females	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Test Scores in Science								
Gender Homophily in the Previous Cohort	0.038	0.039	-0.026	-0.030				
	(0.030)	(0.030)	(0.028)	(0.028)				
Gender Homophily in the Following Cohort					-0.016	-0.019	-0.021	-0.020
					(0.033)	(0.033)	(0.030)	(0.030)
Choice of STEM Track								
Gender Homophily in the Previous Cohort	-0.003	-0.003	0.000	-0.001				
	(0.006)	(0.006)	(0.007)	(0.006)				
Gender Homophily in the Following Cohort					0.010	0.010*	-0.006	-0.004
					(0.006)	(0.006)	(0.007)	(0.007)
Applied to STEM Degree								
Gender Homophily in the Previous Cohort	-0.000	-0.001	0.003	0.001				
	(0.007)	(0.007)	(0.007)	(0.007)				
Gender Homophily in the Following Cohort					-0.001	-0.000	-0.005	-0.004
					(0.007)	(0.006)	(0.007)	(0.007)
Enrolled in a STEM Degree								
Gender Homophily in the Previous Cohort	-0.004	-0.005	0.001	0.000				
	(0.007)	(0.007)	(0.004)	(0.004)				
Gender Homophily in the Following Cohort					0.003	0.002	-0.009**	-0.008**
					(0.006)	(0.006)	(0.004)	(0.004)
Enrolled in Top 20% STEM Degree								
Gender Homophily in the Previous Cohort	-0.004	-0.004	-0.005*	-0.006**				
	(0.004)	(0.004)	(0.003)	(0.003)				
Gender Homophily in the Following Cohort					0.004	0.004	-0.003	-0.004
					(0.004)	(0.004)	(0.003)	(0.003)
Observations	23,167	23,167	28,952	28,952	23,214	23,214	29,131	29,131
School × Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Individual Controls	✓	✓	✓	✓	✓	✓	✓	✓
Class Controls		✓		✓		✓		✓

Notes: The table shows the placebo effects of having a same-gender top performer in the previous cohort (columns 1 - 4) and in the following cohort (columns 5-8). Effects on male and female students are reported in columns (1)-(2), (5)-(6) and (3)-(4), (7)-(8), respectively. These placebo top performers are selected from the same school and class number (i.e., 1, 2 etc), but a different cohort (previous or following). In the text, we discuss the reasons for the change in the number of observations compared with the baseline analysis. We focus on the gender of the top performer, which is reported in the placebo classroom in the previous or following cohort. All specifications include individual controls and controls for spillover effects (the placebo top performer's baseline test score in science), conformity effects (the distance between the placebo top performer's and own baseline performance in science), and school-by-year fixed effects. Standard errors are clustered at class level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Table A22: Survey Responses: Responsibilities of Record Keepers

	Mean	Std.Dev	Min	Max
	(1)	(2)	(3)	(4)
Tasked with Tracking Absences in the Attendance Book	0.967	0.178	0	1
Transporting the Attendance Book	0.461	0.499	0	1
Keeping an Updated Class Seating Plan	0.177	0.382	0	1
Remedial Teaching or Assisting the Teacher During the Lesson	0.004	0.066	0	1

Note: This table shows summary statistics for participating students in the survey questionnaire item "Do the duties of the record keeper in your class include (multiple answers)?". Students could choose multiple choices from the list that was provided.

Table A23: Balance of Characteristics Across Treatment Groups, Lab-in-the-Field Experiment

	Full sample			Same-Gender			Opposite-Gender			(Same - Opposite)	
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean Diff	P-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Males											
Had a Female Top Performer	0.69	0.46	308	0.66	0.47	166	0.73	0.45	142	-0.06	0.24
Had a Female Second Best	0.58	0.49	255	0.56	0.50	132	0.60	0.49	123	-0.04	0.51
Shown STEM	0.52	0.50	385	0.52	0.50	201	0.52	0.50	184	0.00	0.94
School 1	0.36	0.48	385	0.36	0.48	201	0.36	0.48	184	-0.00	0.99
School 2	0.18	0.39	385	0.20	0.40	201	0.17	0.38	184	0.03	0.44
School 3	0.22	0.42	385	0.19	0.39	201	0.26	0.44	184	-0.07	0.12
School 4	0.08	0.27	385	0.08	0.27	201	0.08	0.27	184	0.00	0.90
School 5	0.16	0.37	385	0.17	0.38	201	0.14	0.35	184	0.03	0.38
Grade 11	0.32	0.47	385	0.33	0.47	201	0.30	0.46	184	0.02	0.61
Grade 12	0.32	0.47	385	0.31	0.47	201	0.34	0.47	184	-0.02	0.62
Females											
Had a Female Top Performer	0.81	0.40	464	0.84	0.37	219	0.78	0.42	245	0.06	0.08
Had a Female Second Best	0.69	0.46	416	0.69	0.46	206	0.69	0.46	210	-0.00	0.98
Shown STEM	0.49	0.50	632	0.49	0.50	302	0.49	0.50	330	-0.00	0.99
School 1	0.56	0.50	632	0.55	0.50	302	0.58	0.49	330	-0.03	0.46
School 2	0.13	0.33	632	0.15	0.35	302	0.11	0.32	330	0.03	0.21
School 3	0.12	0.33	632	0.11	0.31	302	0.14	0.35	330	-0.03	0.20
School 4	0.05	0.22	632	0.07	0.25	302	0.04	0.19	330	0.03	0.09
School 5	0.14	0.34	632	0.14	0.34	302	0.14	0.34	330	-0.00	0.98
Grade 11	0.22	0.42	632	0.23	0.42	302	0.22	0.41	330	0.02	0.62
Grade 12	0.22	0.41	632	0.22	0.42	302	0.21	0.41	330	0.01	0.70

Notes: The table shows summary statistics of the pretreatment characteristics for participants in the survey experiment, along with the differences between treatments. "Had a Female Top" and "Had a Female Second Best" are binary indicators that take the value of 1 if the survey participant had a reported female best or second-best performer in grade 10 and 0 otherwise.

Table A24: Impact of Same Gender Reported Top Performer on STEM Track and Lab-in-the-Field Experiment: Actual Experiences

	STEM Track Choice	
	Males	Females
Same-gender Top	0.006	0.136*
	(0.087)	(0.080)
Observations	229	271
Y Mean	0.82	0.59
Y St. Dev.	0.39	0.49
Class FE	✓	✓

Notes: The table is produced using data from the survey experiment. The treatment variable *Reported Same Gender Top* takes the value of 1 if the gender of the participating student matches that of their reported top performer/record keeper in grade 10. The outcome is a binary indicator that takes the value of 1 if participating students chose a STEM track in grade 11 and 0 otherwise. Heteroskedasticity-robust standard errors are reported in parentheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table A25: Impact of Reported Same Gender Top Performer on Student Interactions

	Males				Females			
	(1) Talk about Lessons	(2) Talk about Career Paths	(3) Talk about School, Trips and Activities	(4) Talk about Study Choices	(5) Talk about Lessons	(6) Talk about Career Paths	(7) Talk about School, Trips and Activities	(8) Talk about Study Choices
Reported Same Gender Top	0.084	0.034	0.040	0.045	0.068	-0.029	0.100	0.025
	(0.059)	(0.057)	(0.070)	(0.033)	(0.051)	(0.050)	(0.066)	(0.032)
Observations	243	243	243	243	351	351	351	351
Mean of Y	0.169	0.169	0.342	0.045	0.199	0.165	0.419	0.066
SD of Y	0.375	0.375	0.475	0.208	0.400	0.372	0.494	0.248
School FE	✓	✓	✓	✓	✓	✓	✓	✓
Grade FE	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table reports estimated coefficients of having a same-gender reported top performer (the gender homophily parameter) on various outcomes. Those outcome variables are binary indicators that indicate whether each participating student had those types of interactions with their reported top performers in class. We use the related question from the questionnaire, which asked participants "Your interactions with the record keeper included (multiple answers)." *Talk about Lessons* is a binary indicator that takes the value of 1 if the student selected the response "We talked about lessons". *Talk about Career Paths* is a binary indicator that takes the value of 1 if the student selected the response "We discussed career paths." *Talk about School, Trips and Activities* is a binary indicator that takes the value of 1 if the student selected the response "We discussed class issues such as field trips, student elections, events, etc." *Talk about Study Choices* is a binary indicator that takes the value of 1 if the student selected the response "We discussed study choices." All regressions include a binary indicator equal to 1 if students' reported second-best performer in school was female. Heteroskedasticity-robust standard errors are reported in parentheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Online Appendix:

Questionnaire in English

Questionnaire (English)

The researchers Dr. Rigissa Megalokonomou and Dr. Sofoklis Goulas invite you to a study on the **role model function of classmates.** The following questions concern the role of the record keepers and whether the record keepers can have a role as an example in the classroom.

The questions will ask you to recall your high school experiences. Participation in the survey is optional and takes no more than 9 minutes. There is no risk to you from participating or not participating in this study. Personal privacy is guaranteed.

For each completed participation, € 0.50 will be deposited to one of the following charitable organizations based on the choices of the participants: SOS Children's Village Greece, All Together We Can, Schedia, Kivotos you Kosmos or another you will indicate to us.

If you have any questions about the questionnaire, you can contact the researchers by email at r.megalokonomou@uq.edu.au or goulas@stanford.edu

If you are not satisfied with the way this study was conducted or have questions, complaints, or questions about the research or your rights as participants, please contact the Stanford Institutional Review Board (IRB) to speak with someone independent of the research organization. Call 650-723-2480 or by mail at Stanford IRB, Stanford University, 1705 EI Camino Real, Palo Alto, CA 94306.

The GDPR gives you certain rights with regard to your study data, including the right to (1) request access to, correct, or erase your study data, (2) object to or restrict our processing of your study data, and (3) request that we move, copy or transfer your study data to another organization. You may also withdraw your consent at any time. If you withdraw your consent or request your study data be erased, we can still legally collect, use and share Your Study Data up to the point in time that you withdraw your consent or request your data be erased. Even if you withdraw your consent, we may still use your study data that has been anonymized by removing any data that identifies you. We may also use and share your study data that has been pseudonymized by removing your name and certain other identifiers so that the data does not directly identify you, where permitted by law. Your anonymized or pseudonymized data may be used for purposes of (a) public health, (b) scientific or historical research or statistical analysis as allowed by the EU or EU Member State laws, and (c) saving or storing for important reasons of public interest. We will keep your study data in identifiable form if required by law. There is no limit on the length of time we will keep your study data for this research because it may be analyzed for many years. We will also keep your Study Data to follow our legal and regulatory requirements. We will keep it as long as it is useful, unless you decide you no longer want to take part. You are allowing access to this information indefinitely as long as you do not withdraw your consent. You consent to the collection, use and transfer of your study data, which includes health and other sensitive personal data, for the purpose of carrying out the research study and know that you can withdraw your consent at any time, and we will stop processing your personal data, except as described above.

If you agree to participate in the study, select "Agree".

- o Agree
- o Disagree

==

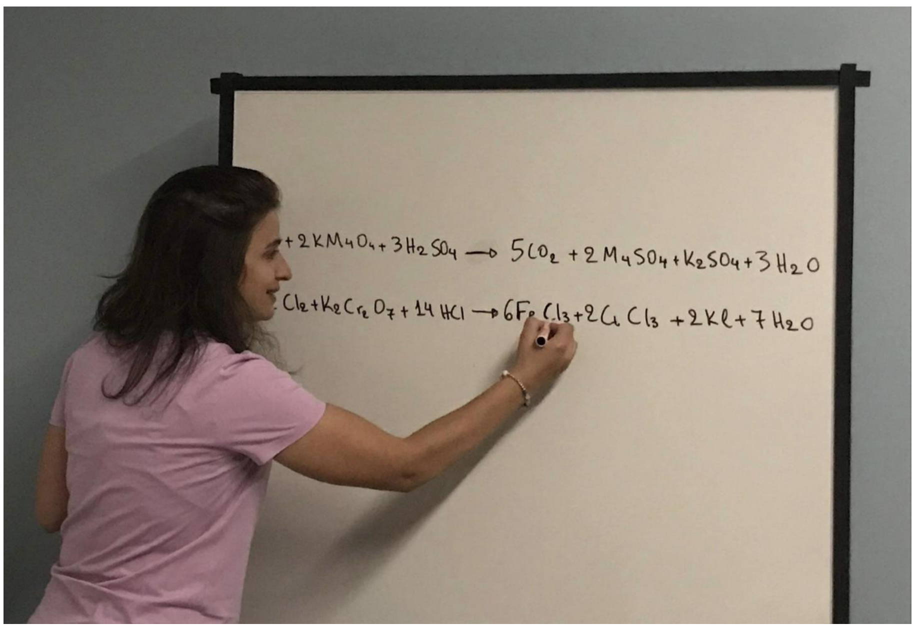
1. What is your gender?
   - Male
   - Female
   - Non-binary
   - I do not wish to answer

[TREATMENT BLOCKS]

[The following questions are displayed for all participants. In the treatment block, participants receive a random treatment in which only the questions related to the allocated treatment are displayed. A participant receives only one treatment]

[Treatment 1 – A Female excelling in STEM]

The following questions are about your experience as a student



[Figure 1]

2. A top performing **female** student in your classroom would be an example for you with respect to:

	0 means Strongly Disagree and **100** means **Strongly Agree** 0 10 20 30 40 50 60 70 80 90 100
Choice of **STEM** Track	

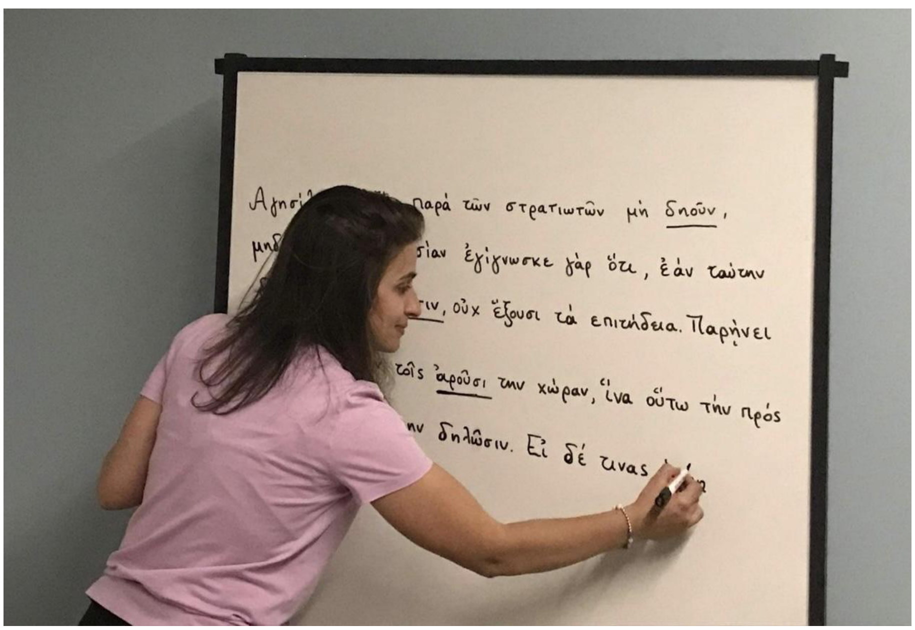
3. Why do you think exposure to a top performing **female** in your classroom would affect you (multiple answers)?

- ☐ It would improve my self-confidence
- ☐ It would increase the sense that success is feasible for me
- ☐ I would obtain information from her
- ☐ I would study with her
- ☐ Other ____________________

[End of Treatment 1]

[Treatment 2 – A Female Excelling in Non-STEM]

[Questions in Treatment 2 are identical to the questions in Treatment 1. The only difference is that participants in Treatment 2 will be shown [Figure 2] instead of [Figure 1].

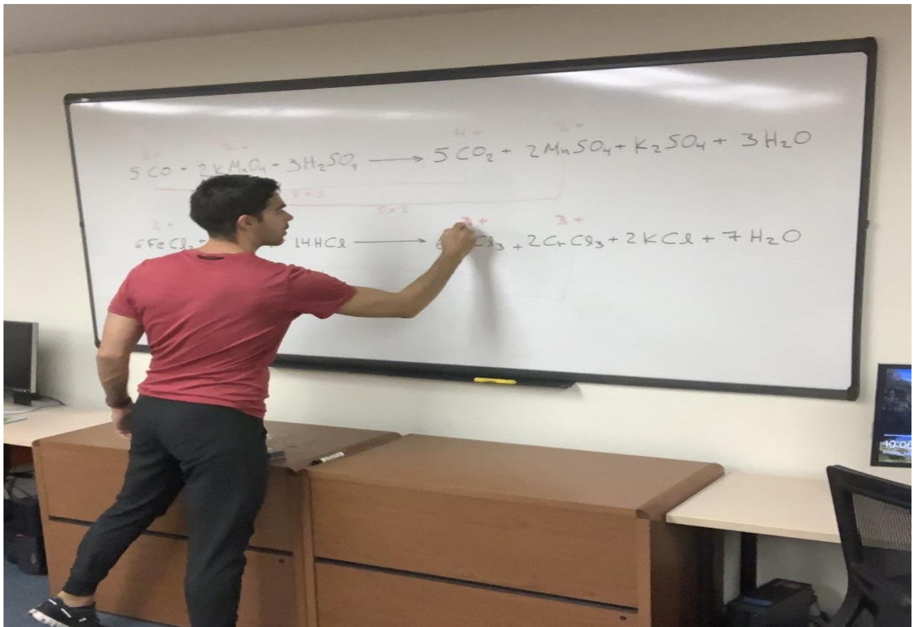


[Figure 2]

[End of Treatment 2]

[Treatment 3 – A Male Excelling in STEM]

The following questions are about your experience as a student.



[Figure 3]

4. A top performing **male** student in your classroom would be an example for you with respect to:

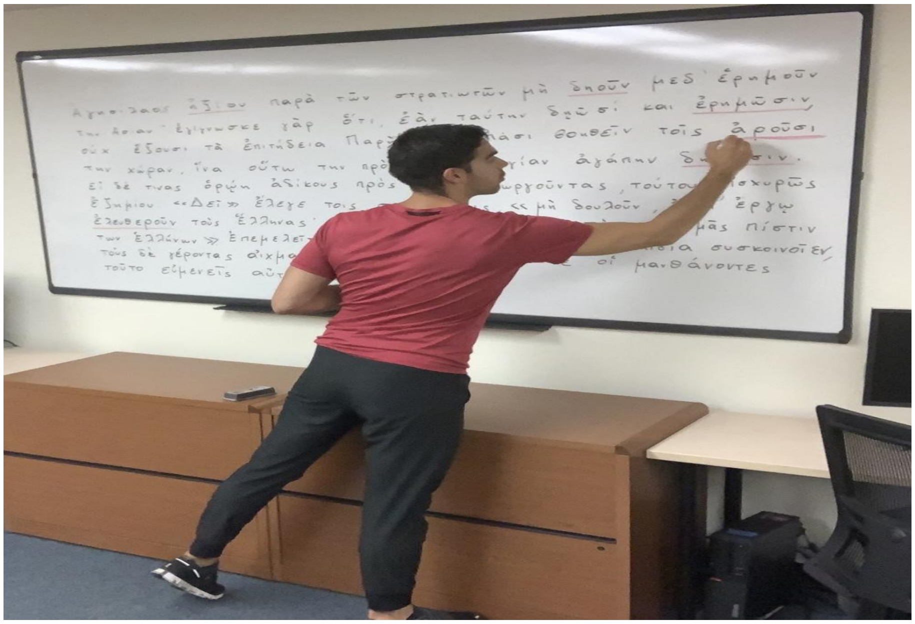
	0 means Strongly Disagree and **100** means **Strongly Agree** 0 10 20 30 40 50 60 70 80 90 100
Choice of **STEM** Track	

5. Why do you think exposure to a top performing **male** in your classroom would affect you (multiple answers)?

- ☐ It would improve my self-confidence
- ☐ It would increase the sense that success is feasible for me
- ☐ I would obtain information from her
- ☐ I would study with him
- ☐ Other ____________________

[End of Treatment 3]

[Treatment 4 – A Male Excelling in Non-STEM]
[Questions in Treatment 4 are identical to questions in Treatment 3. The only difference is that participants in Treatment 4 will be shown [Figure 4] instead of [Figure 3].



[Figure 4]

[End of Treatment 4]

[END OF TREATMENT BLOCK]

---

6. What would encourage you to pursue competitive postsecondary studies or careers, such as those in STEM? (multiple answers)
   - ☐ Parental role models
   - ☐ Peer role models
   - ☐ Scoring high in STEM subjects
   - ☐ Information about professional prospects
   - ☐ My own preferences

7. Do you remember if the record keeper in your classroom in grade 10 was a girl or a boy?
   - ☐ Yes, it was a girl
   - ☐ Yes, it was a boy
   - ☐ No, I don’t remember
   - ☐ I was the record keeper in my classroom

8. Do you remember if the second-best performing student in your classroom in grade 10 was a girl or a boy?
   - Yes, it was a girl
   - Yes, it was a boy
   - No, I don't remember
   - I was the second-best performing student in my classroom

9. Was the record keeper in your classroom an example for you?
   - Yes, the record keeper in my classroom was an example for me
   - No, the record keeper in my classroom was not an example for me

[Ask the following question for the participants who selected "No, the record keeper in my classroom was not an example for me" in question 9]

10. Why was the record keeper not a role model for you (multiple answers)?
    - Had anti-social behavior
    - They reported other students to teachers
    - Was arrogant
    - Was a nerd
    - Other ________________

11. Your interaction with the record keeper included (multiple answers):
    - We talked about lessons
    - We discussed study choices
    - We discussed career paths
    - We discussed class issues such as field trips, student elections, events, etc.
    - I didn't hang out with the record keeper
    - Other __________________

12. Do the duties of the record keeper in your class include (multiple answers)?
    - Keeping an updated class seating plan
    - Tasked with tracking absences in the attendance book
    - Transporting the absence book
    - Remedial teaching or assisting the teacher during the lesson
    - Other ____________________________

13. Which was your chosen study track in grade 11?

☐ Humanities

☐ Science or Information Technology

14. Do you know of cases in which the record keeper resigned from his/her duties?

☐ No

☐ Yes

15. Is there anything else you would like us to know about your record keeper?

☐ Yes ___________________

☐ No

If you would like to participate in our next survey, please fill in your email address below. We will also send you the findings of our survey for your information as well as confirmation of our donations.

Thank you

____

To which charity would you like us to donate the amount of money related to your completion?

☐ SOS Children's Village of Greece

☐ Together We Can

☐ Drawings

☐ Ark of the World

☐ Other________________________

Questionnaire in Greek

Ερωτηματολόγιο (Ελληνικά)

Οι ερευνητές Δρ. Ρήγισσα Μεγαλοκονόμου και Δρ. Σοφοκλής Γούλας σας προσκαλούν στην έρευνα για το **ρόλο των συμμαθητών στο σχολείο ως παραδείγματα.** Οι επομένες ερωτήσεις αφορούν το θεσμό του απουσιολόγου και το κατά πόσο ο/η απουσιολόγος μπορεί να έχει ρόλο παραδείγματος στην τάξη.

Οι ερωτήσεις αφορούν στο εάν μπορείτε να ανακαλέσετε αναμνήσεις από το Λύκειο ή όχι. Η συμμετοχή στην έρευνα είναι προαιρετική και δεν διαρκεί πάνω από 9 λεπτά. Δεν διατρέχετε κανέναν κίνδυνο από τη συμμετοχή σας ή μη στη μελέτη αυτή. Το προσωπικό απόρρητο διασφαλίζεται.

Για κάθε ολοκληρωμένη συμμετοχή, 50 λεπτά του ευρώ θα κατατεθούν σε έναν από τους εξής φιλανθρωπικούς φορείς βάσει των επιλογών των συμμετεχόντων: Παιδικά Χωριά SOS Ελλάδος, Όλοι Μαζί Μπορούμε, Σχεδία, Κιβωτός του Κόσμου ή άλλον που θα μας υποδείξετε.

Αν έχετε οποιαδήποτε απορία σχετικά με το ερωτηματολόγιο, μπορείτε να επικοινωνήσετε με τους ερευνητές μέσω email στις διευθύνσεις r.megalokonomou@uq.edu.au ή goulas@stanford.edu.

Αν δεν είστε ικανοποιημένοι με τον τρόπο που διεξάγεται η μελέτη αυτή ή έχετε απορίες, παράπονα ή ερωτήσεις σχετικά με την έρευνα ή με τα δικαιώματά σας ως συμμετέχοντες, παρακαλώ επικοινωνήστε με το Stanford Institutional Review Board (IRB) για μιλήσετε με κάποιον ανεξάρτητο από την ερευνητική ομάδα στο τηλέφωνο 650-723-2480 ή ταχυδρομικά στη διεύθυνση Stanford IRB, Stanford University, 1705 El Camino Real, Palo Alto, CA 94306.

Ο κανονισμός GDPR κατοχυρώνει ορισμένα δικαιώματα ως προς τα δεδομένα σας, συμπεριλαμβανωμένων το δικαίωμα (1) να ζητήσετε πρόσβαση, να διορθώσετε ή να διαγράψετε τα δεδομένα σας, (2) να αποσύρετε ή να περιορίσετε την επεξεργασία των δεδομένων σας, και (3) να ζητήσετε τη μεταφορά ή αντιγραφή των δεδομένων σας σε άλλο φορέα. Μπορείτε επίσης να αποσύρετε τη συγκατάθεσή σας οποιαδήποτε στιγμή. Αν αποσύρετε τη συγκατάθεσή σας ή ζητήσετε τη διαγραφή των δεδομένων σας, εξακολουθούμε να μπορούμε να συλλέξουμε ή να χρησιμοποιήσουμε τα δεδομένα σας μέχρι τη στιγμή που αποσύρετε τη συγκατάθεσή σας ή ζητήσετε τη διαγραφή των δεδομένων σας. Ακόμα και αν αποσύρετε τη συγκατάθεσή σας, εξακολουθούμε να μπορούμε να χρησιμοποιήσουμε ανωνυμοποιημένα στοιχεία σας αφαιρώντας πληροφορίες που πιθανόν σας ταυτοποιούν. Μπορούμε επίσης να χρησιμοποιήσουμε ψευδωνυμοποιημένα δεδομένα σας αφαιρώντας πληροφορίες που πιθανόν σας ταυτοποιούν όπως ορίζει ο νόμος. Τα ανωνυμοποιημένα ή ψευδωνυμοποιημένα δεδομένα σας μπορούν να χρησιμοποιηθούν στα πλαίσια (α) δημόσιας υγείας, (β) επιστημονικής, ιστορικής ή στατιστικής ανάλυσης όπως ορίζουν οι κατά χώρα νόμοι των μελών της ΕΕ, και (γ) την αποθήκευση σημαντικών πληροφοριών δημοσίου συμφέροντος. Θα διατηρήσουμε τα δεδομένα σας σε ταυτοποιήσιμη μορφή αν το απαιτεί ο νόμος. Δεν υπάρχει χρονικό όριο στη διατήρηση των δεδομένων σας επιστημονική έρευνα. Θα διατηρήσουμε τα δεδομένα σας για όσο καιρό παραμένουν χρήσιμα ή μέχρι να αποσύρετε τη συγκατάθεσή σας. Παραχωρείτε συγκατάθεση για τη συλλογή, χρήση και μεταφορά των δεδομένων σας για τους σκοπούς επιστημονικής έρευνας και γνωρίζετε ότι μπορείτε να αποσύρετε τη συγκατάθεσή σας οποιαδήποτε στιγμή και θα παύσουμε την επεξεργασία των δεδομένων σας όπως περιγράφεται ανωτέρω.

Αν συμφωνείτε να συμμετάσχετε στη μελέτη, επιλέξτε "Συμφωνώ"

- ○ Συμφωνώ
- ○ Διαφωνώ

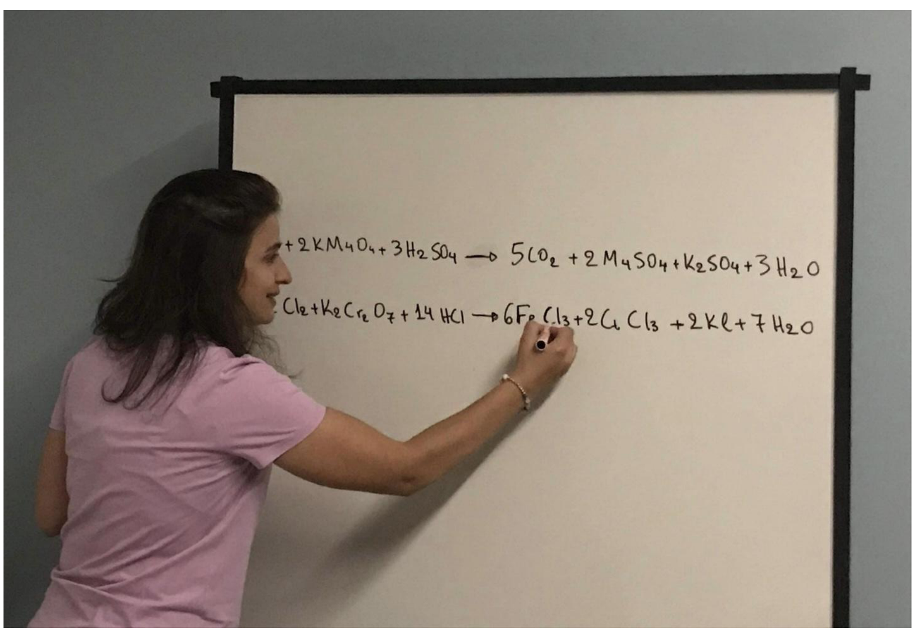
==

1. Ποιο είναι το φύλο σας;
   - ○ Άρρεν
   - ○ Θήλυ
   - ○ Μη δυαδικό
   - ○ Δεν επιθυμώ να απαντήσω

[TREATMENT BLOCKS]
[The following questions are displayed for all participants. In the treatment block, participants receive a random treatment in which only the questions related to the allocated treatment are displayed. A participant receives only one treatment]

[Φωτογαρφία 1 – A Female excelling in STEM]

Οι επόμενες ερωτήσεις αφορούν τις εμπειρίες σας ως μαθητή/μαθήτρια.



[Φιγούρα 1]

2. Ένα **κορίτσι** που διακρίνεται στα μαθήματα στην τάξη σας θα ήταν για εσάς παράδειγμα ως προς:

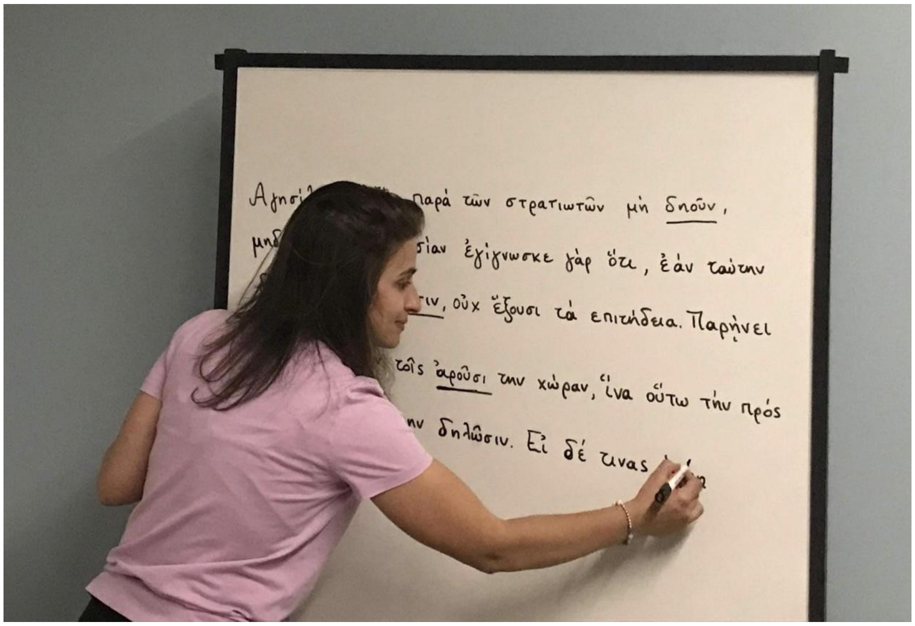
	0 σημαίνει **Δεν Συμφωνώ Καθόλου** και **100** σημαίνει **Συμφωνώ Απόλυτα** 0 10 20 30 40 50 60 70 80 90 100
Επιλογή **Θετικής** ή **Τεχνολογικής** Κατεύθυνσης	

3. Γιατί πιστεύετε θα σας επηρέαζε η εικόνα ενός **κοριτσιού** που διακρίνεται στην τάξη σας; (πολλαπλές απαντήσεις)

- ☐ Θα βελτίωνε την αυτοπεποίθησή μου
- ☐ Θα με έκανε να νιώσω ότι μπορώ να διακριθώ κι εγώ
- ☐ Θα έπαιρνα πληροφορίες από αυτήν
- ☐ Θα διάβαζα μαζί της
- ☐ Other ____________________

[End of Treatment 1]

[Treatment 2 – A Female Excelling in Non-STEM]
[Questions in Treatment 2 are identical to the questions in Treatment 1. The only difference is that participants in Treatment 2 will be shown [Figure 2] instead of [Figure 1].

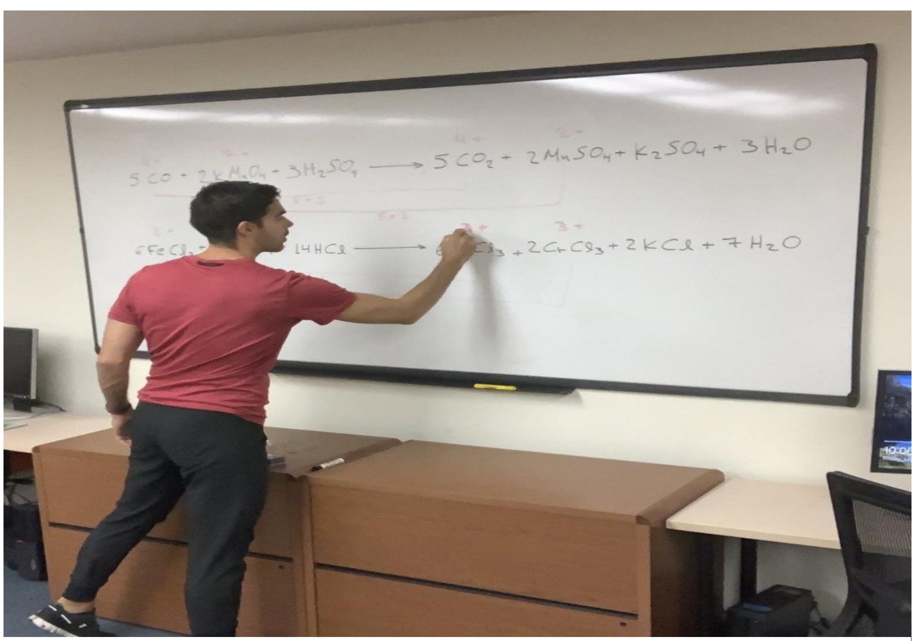


[Φιγούρα 2]

[End of Treatment 2]

[Treatment 3 – A Male Excelling in STEM]

Οι επόμενες ερωτήσεις αφορούν τις εμπειρίες σας ως μαθητή/μαθήτρια.


[Φιγούρα 3]

4. Ένα **αγόρι** που διακρίνεται στα μαθήματα στην τάξη σας θα ήταν για εσάς παράδειγμα ως προς:

	0 σημαίνει **Δεν Συμφωνώ Καθόλου** και **100** σημαίνει **Συμφωνώ Απόλυτα** 0 10 20 30 40 50 60 70 80 90 100
Επιλογή **Θετικής** ή **Τεχνολογικής** Κατεύθυνσης	

5. Γιατί πιστεύετε θα σας επηρέαζε η εικόνα ενός **αγοριού** που διακρίνεται στην τάξη σας; (πολλαπλές απαντήσεις)

☐ Θα βελτίωνε την αυτοπεποίθησή μου

☐ Θα με έκανε να νιώσω ότι μπορώ να διακριθώ κι εγώ

☐ Θα έπαιρνα πληροφορίες από αυτόν

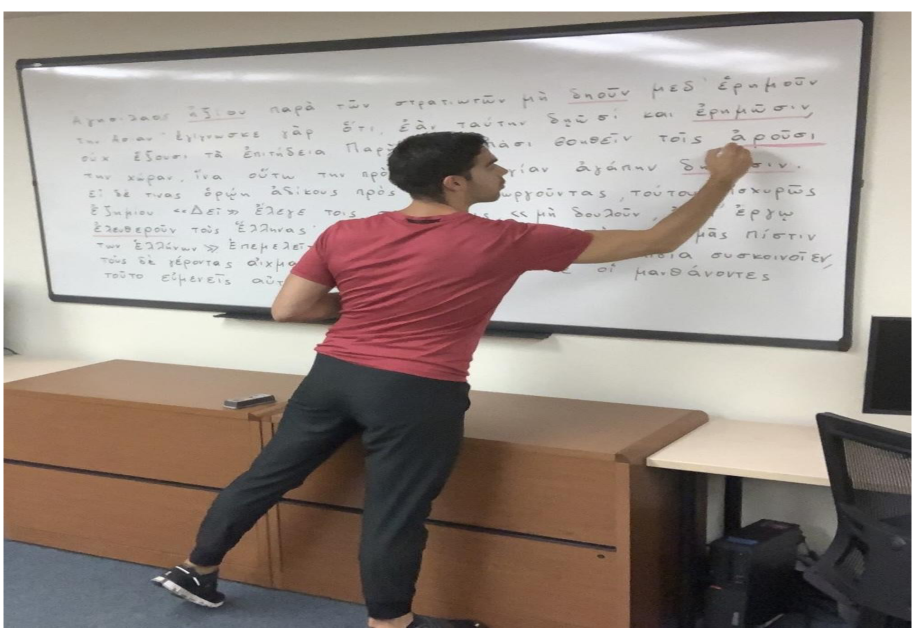
☐ Θα διάβαζα μαζί του

☐ Other ____________________

[End of Treatment 3]

[Treatment 4 – A Male Excelling in Non-STEM]

[Questions in Treatment 4 are identical to questions in Treatment 3. The only difference is that participants in Treatment 4 will be shown [Figure 4] instead of [Figure 3].



[Φιγούρα 4]

[End of Treatment 4]

[END OF TREATMENT BLOCK]

6. Τι θα σας ενθάρρυνε να ακολουθήσετε σπουδές ή επαγγέλματα στις θετικές/πρακτικές επιστήμες, όπως σε Επιστήμη, Τεχνολογία, Μηχανική και Μαθηματικά; (πολλαπλές απαντήσεις)

- Ενήλικες με ρόλο προτύπου για μένα
- Συνομήλικοι με ρόλο προτύπου για μένα
- Το να έχω υψηλές επιδόσεις σε θετικά/πρακτικά μαθήματα
- Πληροφόρηση σχετικά με την πιθανότητά επαγγελματικής αποκατάστασης
- Οι δικές μου προτιμήσεις

7. Θυμάστε εάν ο/η απουσιολόγος της τάξης σας στην Α’ Λυκείου ήταν αγόρι ή κορίτσι;

- Ναι, ήταν κορίτσι
- Ναι, ήταν αγόρι
- Όχι, δεν θυμάμαι
- Εγώ ήμουν ο απουσιολόγος στην τάξη μου

8. Θυμάστε εάν ο δεύτερος καλύτερος μαθητής της τάξης σας στην Α’ Λυκείου ήταν αγόρι ή κορίτσι;

- Ναι, ήταν κορίτσι
- Ναι, ήταν αγόρι
- Όχι, δεν θυμάμαι
- Εγώ ήμουν ο δεύτερος καλύτερος μαθητής στην τάξη μου

9. Ήταν ο/η απουσιολόγος της τάξης σας ήταν για εσάς παράδειγμα;

- Ναι ο/η απουσιολόγος της τάξης μου ήταν για εμένα παράδειγμα
- Όχι, ο/η απουσιολόγος της τάξης μου δεν ήταν για εμένα παράδειγμα

[Ask the following question for the participants who selected Όχι, ο/η απουσιολόγος της τάξης μου δεν ήταν για εμένα παράδειγμα” in question 9]

10. Γιατί δεν ήταν ο/η απουσιολόγος της τάξης σας παράδειγμα για εσάς; (πολλαπλές απαντήσεις)

- Είχε αντικοινωνική συμπεριφορά
- Μαρτυρούσε τους μαθητές στους καθηγητές
- Ήταν αλαζόνας
- Ήταν σπασίκλας

- [ ] Άλλο ______________________________

11. Η παρέα σας με τον/την' απουσιολόγο περιλάμβανε: (πολλαπλές απαντήσεις)
    - [ ] Συζητάγαμε για τα μαθήματα
    - [ ] Συζητάγαμε για επιλογές σπουδών
    - [ ] Συζητάγαμε για επαγγελματικές κατευθύνσεις
    - [ ] Συζητάγαμε για ζητήματα της τάξης όπως εκδρομές, μαθητικές εκλογές, εκδηλώσεις κ.α.
    - [ ] Δεν έκανα παρέα με τον/την απουσιολόγο
    - [ ] Άλλο ______________________________

12. Τα καθήκοντα του/της απουσιολόγου της τάξης σας περιλάμβαναν: (πολλαπλές απαντήσεις)
    - [ ] Διατήρηση επικαιροποιημένου πλάνου της τάξης
    - [ ] Καταγραφή απουσιών στο απουσιολόγιο
    - [ ] Μεταφορά του απουσιολογίου
    - [ ] Υποστήριξη του καθηγητή κατά τη διάρκεια του μαθήματος ή ενισχυτική διδασκαλία
    - [ ] Άλλο____________________

13. Τι ομάδα προσανατολισμού επιλέξατε στην Β' Λυκείου;
    - [ ] Ανθρωπιστικών Σπουδών
    - [ ] Θετικών ή Τεχνολογικών Σπουδών

14. Γνωρίζετε περιπτώσεις όπου παραιτήθηκε ο/η απουσιολόγος από τα καθήκοντα του/της;
    - [ ] Όχι
    - [ ] Ναι

15. Υπάρχει κάτι άλλο που θέλατε να γνωρίζουμε για τον/την απουσιολόγο σας;
    - [ ] Ναι ______________________________
    - [ ] Όχι

Αν θα θέλατε να συμμετάσχετε σε επόμενη έρευνά μας, παρακαλώ συμπληρώστε παρακάτω τη διεύθυνση ηλεκτρονικής σας αλληλογραφίας (email). Θα σας στείλουμε επίσης τα πορίσματα της έρευνάς μας για την πληροφόρησή σας καθώς και επιβεβαίωση των δωρεών μας.

Σας ευχαριστούμε

____

Σε ποιο φιλανθρωπικό φορέα επιθυμείτε να δωρίσουμε το χρηματικό ποσό που αφορά στη συμμετοχή σας;

- ☐ Παιδικά Χωριά SOS Ελλάδος
- ☐ Όλοι Μαζί Μπορούμε
- ☐ Σχεδία
- ☐ Κιβωτός του Κόσμου
- ☐ Άλλον ___________________________________