Female Role Models: are they effective at encouraging girls to study science?

Thomas Breda, Julien Grenet, Marion Monnet, Clémentine van Effenterre

Institut des Politiques Publiques

FEMALE ROLE MODELS : ARE THEY EFFECTIVE AT ENCOURAGING GIRLS TO STUDY SCIENCE ?

IPP Policy Briefs

45

September 2019

Thomas Breda
Julien Grenet
Marion Monnet
Clémentine Van Effenterre

www.ipp.eu

In France, as in most developed nations, the under-representation of women in the sciences is a major obstacle to achieving equality in the workplace. Since 2014, the *For Girls in Science* awareness programme run by Fondation L'Oréal has offered one-hour classroom talks by young women with a science background (women working for the L'Oréal group and young researchers). These talks aim to combat the stereotypes associated with science-related careers and with women's role in the sciences, in order to make science more attractive to young women. Using a random assignment evaluation protocol on nearly 20,000 pupils in *seconde* (Year 11) and *terminale* scientifique (Year 13) year groups at French high schools in 2015-2016, we show that these one-off talks lead to a significant reduction in pupils' stereotypical representations of science-related careers and gender differences in scientific ability, among both girls and boys. Although the talks have no discernible impact on choice of educational track for all pupils in *seconde* and for boys in *terminale* S, they have significant effects on the post-baccalauréat track choices of girls in *terminale* S, for whom the proportion choosing a preparatory class for the most prestigious universities (CPGE) in a STEM subject rose from 11 to 14.5% (a 30% increase). One of the lessons learned from the study is that the ability to influence young girls' career choices depends not only on how effectively the female role models bust the stereotypes associated with science-related careers and gender roles in science, but also on the type of identification engendered by exposure to the role model.

- Talks by women in science to high school classes significantly reduce the prevalence of stereotypes associated with careers in science and women's role in the sciences, among both girls and boys.
- The programme did not significantly affect the educational track chosen by pupils in *seconde*, but caused the proportion of girls in *terminale* S who go on to choose a science CPGE course to rise from 11 to 14.5%.
- Among the highest achieving pupils in mathematics, the programme reduced by a third the difference in the number of boys and the number of girls who choose a science CPGE course.
- The programme's impact on pupils' choice of educational track depends heavily on the profile of the role models who give the classroom talks.
- One unanticipated effect of the programme is that, by emphasising the under-representation of women in scientific disciplines and careers, the talks reinforced the feeling among pupils, and particularly among low-achievers, that women are discriminated against in science.

The Institut des politiques publiques (IPP) has been developed through a scientific partnership between the Paris School of Economics (PSE) and the Centre for Research in Economics and Statistics (CREST). IPP's aim is to promote quantitative analysis and evaluation of public policy using cutting-edge research methods in economics.

CREST
CENTER FOR RESEARCH IN ECONOMICS AND STATISTICS

PARIS SCHOOL OF ECONOMICS
ECOLE D'ECONOMIE DE PARIS

Women nowadays are better qualified on average than men in most OECD countries but they continue to be under-represented in scientific and technical subjects and careers. In France in 2016, 31% of girls opted for the première (Year 12) science track after *seconde*, compared to 39% of boys. Conversely, girls were three times more likely to choose the première arts track (14% compared to 4% of boys). In higher education, although girls represent 55% of students (42% on CPGE courses and 58% at university), only 29% of students in science-related preparatory classes for the grandes écoles (CPGE) are girls [1].

This under-representation of women in scientific and technical disciplines is considered by researchers and the government to be a cause for concern, particularly because it contributes vastly to gender inequality in the employment market : depending on the country, the under-representation of women in science accounts for between 20 and 30% of the gender wage gap for people with higher education qualifications [2].

This policy brief analyses the results of the impact assessment of the *For Girls in Science* programme implemented in 2015-2016 at around a hundred high schools in the Paris region. The scheme, run by Fondation L'Oréal, every year brings young women with a science background into French high schools to meet pupils of both genders, in order to combat gender stereotypes and try to make the sciences more attractive to girls.

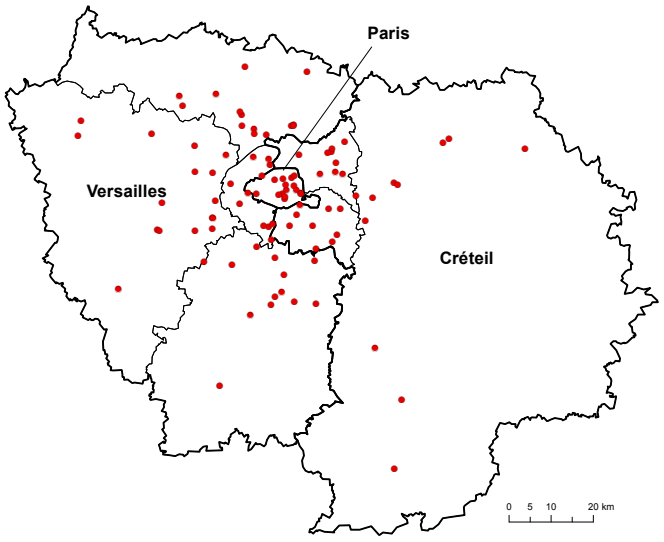
The results of the study show that the one-hour talks given in class by these young women significantly reduce the prevalence of stereotypes associated with careers in science and women's aptitude for science, among both girls and boys. Although the programme has no discernible impact on the subject choices of pupils in *seconde*, it does have significant effects on the post-baccalauréat courses of study chosen by girls in *terminale* scientifique.

The *For Girls in Science* programme : a random assignment evaluation

The *For Girls in Science* awareness programme (see Box) takes the form of one-hour talks given in the classroom by young women with a science background or in a science-related career.

Evaluation of the programme took place at 98 of the 489 (public and private) general and technology high schools (lycées) in the Paris region during 2015-2016 (see Figure 1), with the support of the Ministry of Education and the three local education authorities (académies) for the Paris region (Créteil, Paris and Versailles). The high schools were recruited on a voluntary basis from a larger group of around 300 high schools of sufficient size for the experimental protocol. We checked that the participating high schools are representative of the general and technological high schools in the Paris region from the point of view of both social composition and pupil attainment.

Graphique 1 – High schools that took part in the *For Girls in Science* programme in 2015-2016



The talks were offered at two key points in pupils' school careers, at the end of which decisive choices are made regarding educational track : general and technological *seconde* year groups (GT) and *terminale* scientifique year groups (S).

For the purposes of the evaluation, two *seconde* GT classes and one *terminale* S class were randomly chosen at each high school from four *seconde* GT classes and two *terminale* S classes initially put forward by the school principal (see Figure 2). These "visited" classes received a visit from a young woman in science, and the other classes were used as "control" groups. The fact that the classroom talks were allocated randomly rather than on the basis of observable characteristics such as pupil attainment, or non-observable characteristics such as how much the class' main teacher is involved in pupils' choice of educational track, guarantees that classes that benefit from the programme and those that do not are, on average, comparable. The differences observed after the talks, between the "visited" classes and the "control" classes, can therefore be interpreted as measuring the programme's causal impact.

In total, the experiment involved 19,451 pupils, 13,700 of them in 416 *seconde* GT classes and 5,751 in 185 *terminale* S classes. The visits by the young women in science took place between November 2015 and March 2016 to

1. Source : Ministry of Education and Youth and Ministry of Higher Education, Research and Innovation, Filles et garçons sur le chemin de l'égalité, de l'école à l'enseignement supérieur – Édition 2019, MENJ-DEPP, 2019.
2. See Blau, F. and Kahn, L. (2017), "The Gender Wage Gap : Extent, Trends, and Explanations", Journal of Economic Literature, 2017, vol. 55, no. 3 ; Erb, L.-A. (2019), "Disciplines du diplôme de master et insertion professionnelle selon le genre", Éducation & Formations, no. 98.

Box : The *For Girls in Science* programme

The *For Girls in Science* programme is an awareness campaign launched in 2014 by Fondation L'Oréal. The programme aims to promote the diversity of science-related careers and to foster among girls a vocation for science, through classroom talks given by female role models (ambassadors) with a science background or working in the sciences.

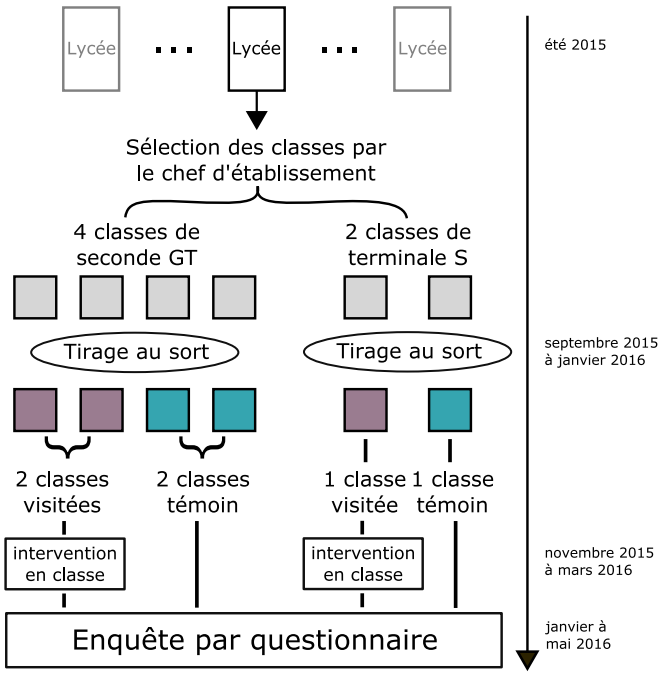
Ambassador profile : in 2015-2016, talks were given in class by around sixty young women with an average age of 33 years and two distinct profiles :

- 38 young female scientists working in L'Oréal's research and innovation department, who volunteered to take part in the programme ;
- 21 young female scientific researchers (PhD students or post-docs) on L'Oréal-UNESCO "For Women in Science" bursaries, who took part in the programme as part of the terms of their bursary.

Content of the talks : the classroom talks last an hour and consist of four parts.

- The presentation begins with a series of customisable slides highlighting two key facts : careers in science offer many opportunities but there is a severe shortage of graduates in relevant disciplines ; and (2) women are under-represented in the scientific disciplines and professions. These two facts are illustrated by examples of professional career paths and by statistics highlighting the differences in employment rates and average pay based on subjects studied, and showing the contribution of women's under-representation in the sciences to the gender wage gap.
- The second sequence starts with the showing of two videos which aim to illustrate and combat the stereotypical representations held by pupils about careers in science and women's role in the sciences.
- The third sequence focuses on the speaker's experience as a young woman in science and takes the form of an interactive Q&A session with pupils. Some examples of the topics discussed include the typical working day of a woman in science, their everyday interactions with colleagues, how much they are paid, and how they juggle work life and home life.
- The talk ends with a brief discussion of the diversity of science subjects and careers, illustrated by concrete examples such as design, environmental engineering and computer science.

Graphique 2 – Experimental protocol



classes randomly selected for a visit (approximately half).

The effects of the talks on the teenagers' perceptions and choice of educational track were measured by means of a survey by questionnaire. The questionnaire was administered in class to all pupils who took part in the experiment, between one and six months after the talk. The response rate to the survey was very high, with 90% of pupils completing the questionnaire. The pupils' responses were matched up with administrative data to give near-exhaustive information about their academic attainment (results in the diplôme national du brevet or baccalauréat) and about the educational track they had enrolled in the year after the talk (2016-2017 academic year).

Significant effects on pupils' perceptions

The programme's impact was evaluated so as to measure the effects of the classroom talks on several aspects of interest : the pupils' declared taste for the sciences, their attitude towards mathematics, their perception of careers and jobs in science and their perception of gender differences in relation to science. These effects are presented separately for girls and boys in *seconde* GT and *terminale* S.

No discernible impact on taste for the sciences and attitude towards mathematics

The programme's main aim was to increase pupils' interest in careers in science and combat the influence of gender stereotypes on girls' educational choices. Since the classroom talks did not focus on the sciences as such, the fin-

ding that they had no significant impact on pupils' declared taste for the sciences is unsurprising : the summary index we created based on the responses to the questions particularly about their taste (measured on a scale of 1 to 10) for the science subjects taught at high school (mathematics, physics/chemistry, biology) does not differ significantly in the visited classes and the control classes (see part (a) of Figure 3).

It can also be seen that the programme's effects on pupil self-confidence in mathematics was barely significant (see part (b) of Figure 3), which we measured using an index based on several questions concerning in particular pupils' self-assessment of their performance in this subject and whether they experienced anxiety when faced with a mathematics problem. More detailed analysis of the survey questionnaire reveals, however, that the programme led to a significant, though modest (between 2 and 7 percentage points), reduction in the proportion of pupils who say they feel anxious when they think about mathematics.

A significantly more positive perception of science-related careers

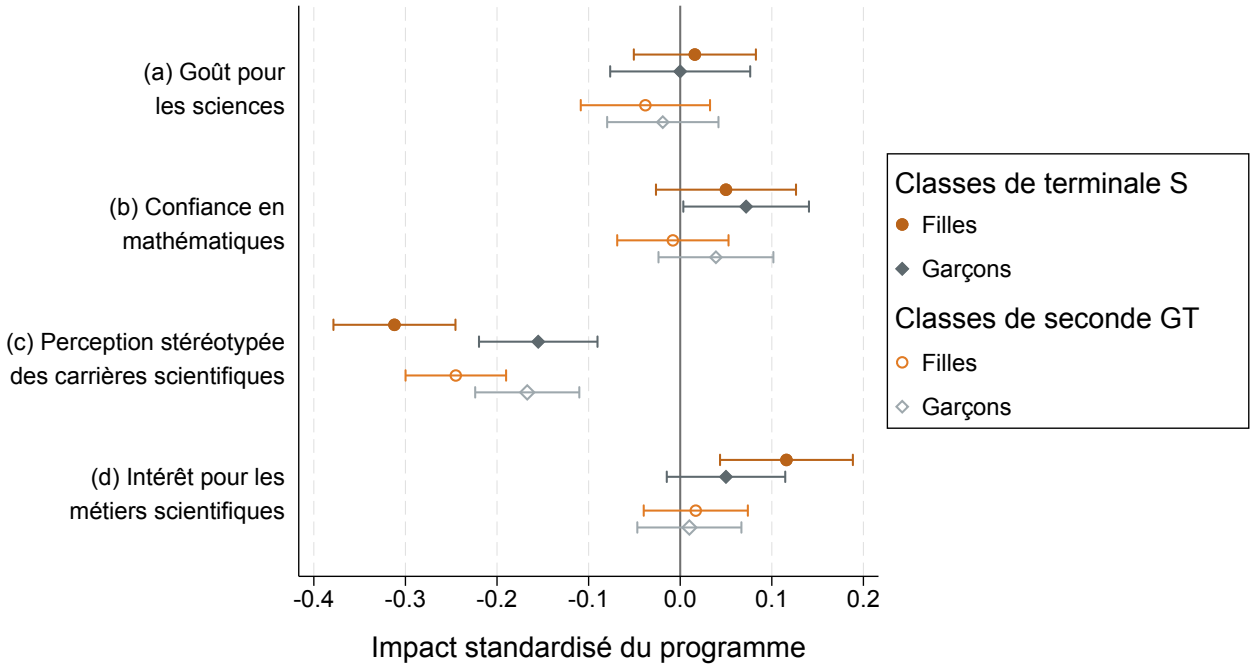
By contrast, the classroom talks significantly altered pupils' attitudes to science-related careers, which was one of the programme's main aims. The pupils' perceptions were measured on the basis of two factors : the prevalence of stereotypes related to careers in science, and whether the pupils saw themselves going into a scientific career.

To measure the extent to which the pupils' representations of science-related careers were affected by stereotypes, we asked them their opinion of the following five statements : "scientific studies are necessarily long", "jobs in science are boring", "jobs in science are solitary", "pay is higher for jobs in science", and "it's difficult to have a fulfilling personal life when you work in science". The pupils' responses to these questions were then combined to create a standardised index (i.e. expressed in standard deviation units) to quantify the extent to which their perceptions of scientific careers were affected by stereotypes.

Comparison of the responses of pupils in the visited classes and those in the control classes shows that the speakers' visits caused a very significant reduction in the negative stereotypes associated with science-related careers, among both girls and boys (see part (c) of Figure 3) : on average, these stereotypes fell by 17 to 31% of one standard deviation among pupils in the visited classes compared to the control classes, especially among girls in *terminale* S.

In addition to this very significant reduction in stereotypes associated with science-related careers, we were also interested in the programme's impact on the interest expressed by the pupils in these careers. This interest was

Graphique 3 – Effects of the programme on pupils' perceptions of the sciences and science-related careers



Interpretation : This graph compares the impact of the *For Girls in Science* programme on pupils' perceptions of the sciences and science-related careers, according to the class attended in 2015-2016 (*seconde* GT or *terminale* S) and according to gender. Perceptions are measured using summary indices based on the responses to the survey questionnaire. Each index is standardised so that the classes that were not visited by a young woman in science (control classes) take the value 0. Each point represents the mean value of the index in the visited classes and measures the programme's estimated impact on the aspect in question. The indices are expressed in standard deviation units : a value of 0.10 corresponds to an effect equivalent to 10% of a standard deviation. In education, effects below 5% of a standard deviation are generally considered to be "weak", effects between 5 and 20% "moderate" and effects above 20% "strong". The 95% confidence intervals are represented by T-shaped horizontal bars.
Sources : Survey by questionnaire conducted in 2016 as part of the evaluation of the *For Girls in Science* programme.

measured using an index based on the responses to several questions, particularly whether the pupils were interested in at least one occupation from a list of scientific and non-scientific professions. Although the results indicate that the classroom talks did not significantly alter interest in science-related careers among pupils in *seconde* GT or boys in *terminale* S (see part (d) of Figure 3), they did significantly increase interest among girls in *terminale* S (by around 12% of a standard deviation).

Significant reduction in gender stereotypes about aptitude for science

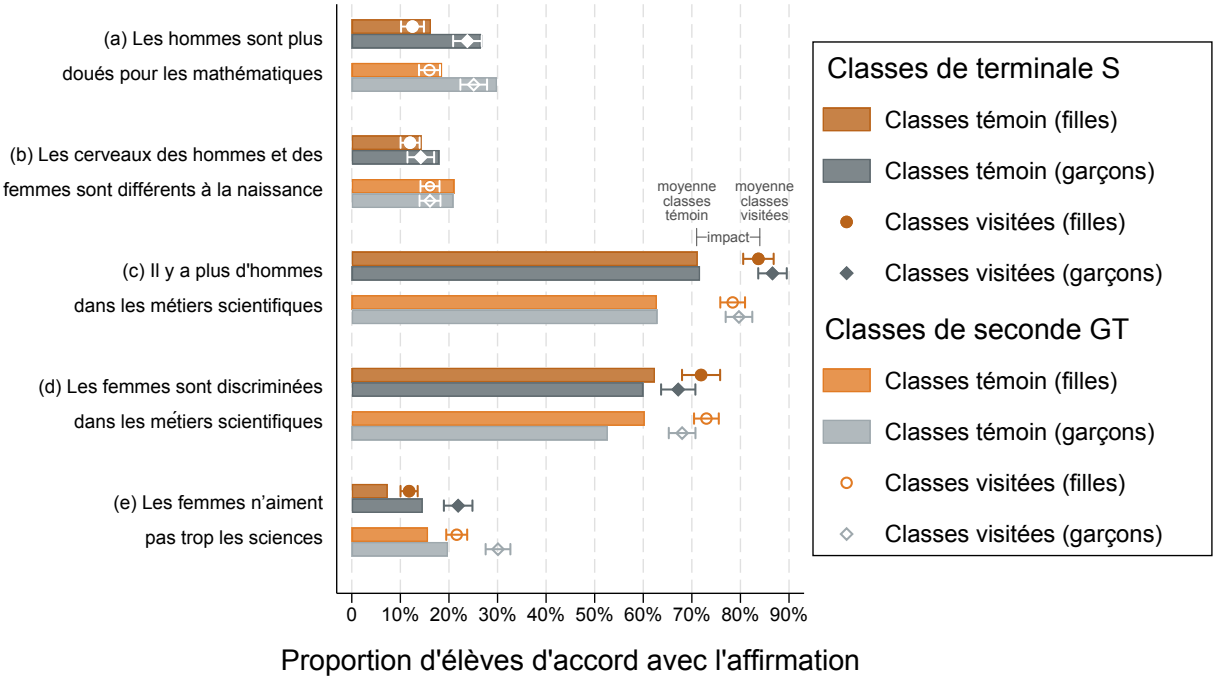
As well as having a major effect on pupils' perception of science-related careers, the *For Girls in Science* programme met its second objective, causing a very significant reduction in the prevalence of stereotypes about men's and women's aptitude for science (see parts (a) and (b) of Figure 4). This reduction in gender stereotypes is observed in both girls and boys : in *seconde* GT, the proportion of boys who say they agree with the statement that "men are better at mathematics than women" falls from 30% in the control classes to 25% in the visited classes ; among girls, this proportion falls from 19 to 16%. In *terminale* S, the impact is of a similar magnitude (a reduction of 3 to 4 percentage points) among both girls and boys.

Greater visibility of the under-representation of women in science

While the programme succeeds in combating the stereotype that women are "naturally" less good at science, it also has the effect of making much more visible the objective fact that they are under-represented in the sciences : the proportion of pupils who say they agree with this statement increases by 12 to 17 percentage points in the visited classes compared with the control classes (see part (c) of Figure 4).

One unanticipated effect of the programme is that, by emphasising the under-representation of women in scientific disciplines and careers, the talks reinforced the feeling among the pupils that women "don't like science as much as men" and are "discriminated against in science-related careers" (see parts (d) and (e) of Figure 4). An analysis of the survey data suggests that pupils rationalise the under-representation of women in the sciences not by resorting to explanations based on differences in aptitude between the sexes, but instead on the basis that women are less keen on science (the proportion of pupils who said they agreed with this statement increased by 5 to 10 percentage points in the visited classes compared to the control classes) and that they would be discriminated against in science-related careers (increase of 7 to 15 percentage points). The survey data also show that these indirect effects of the classroom talks are more pronounced among

Graphique 4 – Effects of the programme on the perception of gender differences in relation to science



Interpretation : This graph compares pupils' perceptions regarding gender differences in relation to science, according to class attended in 2015-2016 (*seconde* GT or *terminale* S) and according to gender. Perceptions are measured based on the responses to the survey questionnaire. The horizontal bars indicate the proportion of pupils who say they agree with the statement concerned in the control classes. The points indicate the proportions observed in the classes visited by a young woman in science. As shown on the graph, the programme's impact is measured by the difference between the means observed for the visited classes and the control classes. The 95% confidence intervals are represented by T-shaped horizontal bars.
Sources : Survey by questionnaire conducted in 2016 as part of the evaluation of the *For Girls in Science* programme.

low-achieving pupils. This phenomenon should be examined alongside an analysis of the programme's effects on choice of educational track, which varies significantly with pupil attainment.

A significant impact on the educational choices of girls in *terminale* S

The effects of the *For Girls in Science* programme on pupils' educational track can be measured very precisely using the near-exhaustive administrative data available on enrolments for secondary and higher education courses.

In seconde : no effect on educational track

Cross-checking the experimental data with administrative data for school and university enrolment shows that the classroom talks did not cause a discernible change in the educational track of pupils in *seconde* GT classes (see part (a) of Figure 5). The fact that première S is the most popular course of study among the highest-achieving pupils, particularly those who do not want to close off their options and are keen to keep a wide range of potential higher education courses open to them, could explain the absence of any effects on orientation towards this track caused by the programme.

In terminale S, one girl in every two classes changes orientation to a science CPGE

In *terminale* S, the programme's effects on educational track differ significantly according to pupil gender. The classroom talks did not alter boys' educational track in any statistically detectable way but they did have significant effects on girls' post-baccalauréat orientation (see part (b) of Graph 5) : whereas in the control classes, only 11% of girls enrolled for a science CPGE at the start of the 2016-2017 academic year, this proportion was 14.5% among the girls in the visited classes 3. This increase of 3.5 percentage points (i.e. 30% of the rate observed in the control classes) means that, on average, the programme encouraged one girl in every two *terminale* S classes (i.e. one girl in 28) to enrol in a science CPGE instead. The results also reveal a significant increase in the proportion of girls choosing to enrol on CPGE courses or undergraduate degree courses in male-dominated subjects (mathematics, physics, computer science), from 16.5% in the control classes to 20% in the visited classes.

Among the highest-achieving pupils, a one-third reduction in the difference between the numbers of boys and girls enrolling on science CPGE courses

A more detailed analysis of the experimental data reveals that the programme's effects on the choice of post-baccalauréat educational track are mainly apparent among girls in *terminale* S with the highest attainment in mathematics (see part (a) of Figure 6), which is consistent with the fact that these pupils are a priori best prepared for success on a science CPGE course : among the top 20% of pupils in terms of mathematics results in the baccalauréat, 45% of the girls in the visited classes choose a science CPGE course compared with only 28% in the control classes. Our results also show that girls with the highest attainment in mathematics were even more sensitive to the "positive" messages conveyed during the classroom talks (studying science does not of necessity take a long time, women are as good at mathematics as men, etc.). Conversely, among the lowest-achieving pupils, the talks generated less interest in science-related careers and reinforced the idea that women are discriminated against in science.

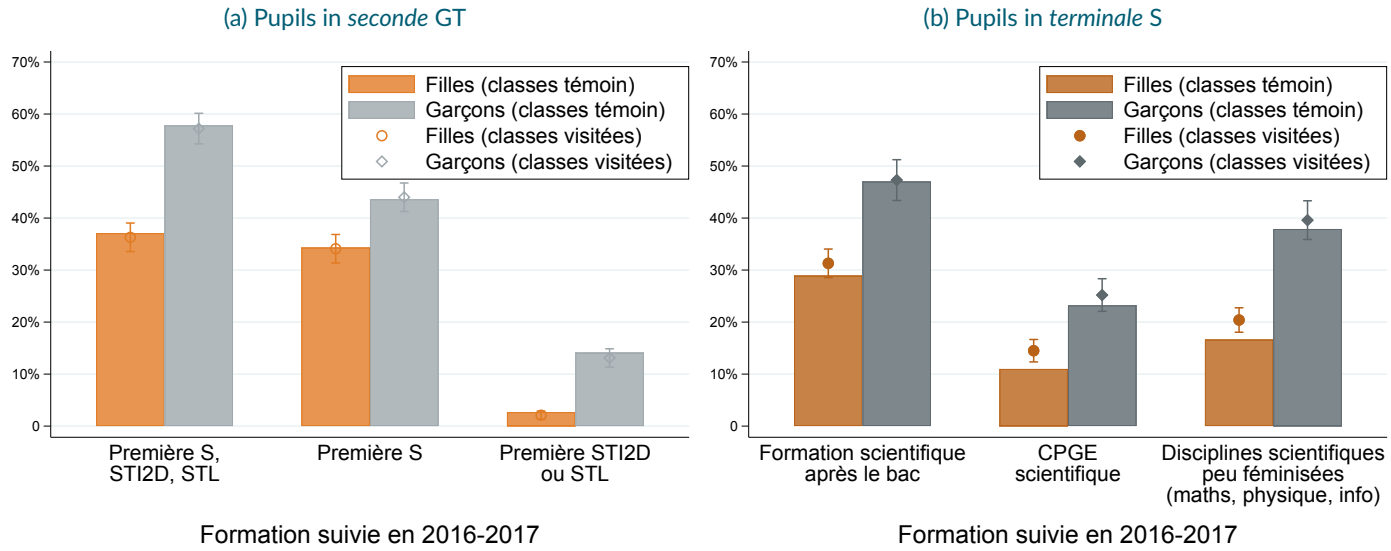
Although the programme also seems to have encouraged some of the boys with the highest attainment in mathematics to choose a science CPGE course, the effect is more moderate and only marginally significant. Overall, the classroom talks contributed to a reduction of approximately 30% in the difference in rates of entry to science CPGE courses between girls and boys.

Varying effects of the role models on pupil orientation

One of the lessons learned from the study is that the programme's ability to influence pupils' choice of educational track depends on the profile of the role model who gives the classroom talk. The increase in the proportion of girls in *terminale* S enrolling for a science CPGE course is only significant in the classes visited by young female scientists who were L'Oréal employees (see part (b) of Figure 6). The PhD students and post-doctoral researchers on a L'Oréal-UNESCO bursary had a smaller, non-significant effect on orientation towards a science CPGE course, though they did succeed in improving perceptions of science-related careers among pupils and in busting stereotypes regarding gender aptitude for science.

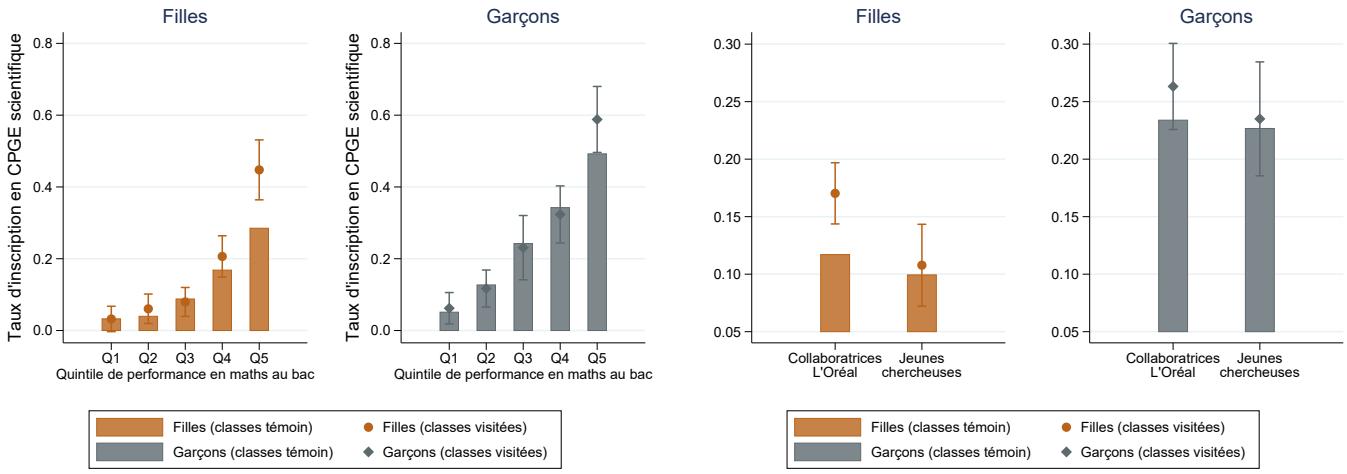
The additional analyses we conducted to try to explain this contrast suggest that the professional situation of the L'Oréal employees could have been seen as more attractive and more easily achievable. They increased pupils' interest in jobs in science to a greater extent and made the under-representation of women in science less apparent.

Graphique 5 – Impact of the programme on pupils' educational track in 2016-2017



Interpretation : This graph shows the impact of the *For Girls in Science* programme on pupils' orientation towards a science track in the year after the talks. The left-hand part of the graph compares the orientation of girls and boys in the seconde GT classes : the vertical bars indicate the proportions of pupils enrolled in a general or technical science première class (S, STI2D or STL series) at the start of the 2016-2017 academic year ; the points indicate the proportions observed in the classes visited by a young woman in science. The 95% confidence intervals are represented by T-shaped horizontal bars. The right-hand part of the graph compares the orientations of girls and boys in the terminale S classes, distinguishing between those enrolling for post-baccalauréat science courses, science CPGE courses and courses related to male-dominated science subjects (mathematics, physics, computer science).
Sources : Pupil databases of the Créteil, Paris and Versailles education authorities (2015-2016 and 2016-2017) ; SISE-Inscrits, SISE-ENS, SISE-Ingé, SISE-Mana and SISE-Priv databases (2016-2017).

Graphique 6 – Differences in effects on enrolment for a science CPGE course by pupils in terminale S



Interpretation : In the left-hand part of the graph, pupils in terminale S are split into five groups of equal size (quintiles) based on their results in written mathematics exams for the baccalauréat : the Q1 quintile corresponds to the 20% of pupils with the lowest attainment in mathematics, whereas Q5 corresponds to the 20% of pupils with the highest attainment. In the right-hand part of the graph, pupils are distributed according to whether the talks at their school were given by a L'Oréal group employee or by a young researcher (on a L'Oréal-UNESCO bursary). The vertical bars indicate the proportions of pupils enrolled on a science CPGE course in the academic year after the talk. The red points indicate the proportions observed in the visited classes. The 95% confidence intervals are represented by T-shaped horizontal bars.
Sources : Pupil databases of the Créteil, Paris and Versailles education authorities (2015-2016 and 2016-2017) and OCEAN-BAC database (2016).

These results seem to support the hypothesis that the ability of role models to influence girls' choice of educational track depends not only on how effectively they bust general stereotypes associated with science-related careers and gender roles in science, but also on the attractiveness of their own situation to the girls : the more they can identify with the role model, the more likely the role model will be to influence their choice of educational track.

Conclusion and perspectives

By using a large sample of nearly 20,000 pupils in around a hundred high schools in the Paris region, the random assignment evaluation of the *For Girls in Science* programme enables fairly precise conclusions to be drawn as to the effectiveness of female role models at encouraging girls to study science.

The results show, firstly, that the role models have an effect on orientating girls towards the sciences only in the subject fields where are they are most under-represented : the study did not find that the role models have a significant impact on orientation towards the première S stream, where girls are only moderately under-represented. Conversely, the *For Girls in Science* programme's speakers had a major effect on girls' orientation towards higher education courses where they are most under-represented : science CPGE courses and male-dominated subjects (mathematics, physics, computer science). The role models also had a greater impact among girls with the highest attainment in mathematics, who tend to opt much less often for the sciences than their male counterparts (see part (a) of Graph 6). These results suggest that female role models are effective at combating the effects of gender stereotypes where these are sufficiently strong to cause major segregation between the sexes, but they do not influence orientation in other cases.

The second lesson learned from the study is that role models can pass on a number of general messages and change pupils' perceptions and stereotypical representations without necessarily altering their educational orientation. It can thus be seen that, by emphasising women's under-representation in the sciences, role models could reinforce the feeling that women are discriminated against in science-related careers and, consequently, discourage some pupils who only have a fairly limited awareness of these phenomena. Finally, and above all, role models can have very varied effects on orientation depending on their profile, even if they have been effective at combating stereotypes regarding science-related jobs and women's aptitude for science. This suggests that the role model's identity and girls' ability to identify positively with their individual career path are at least as important as the messages they convey, for reducing women's under-representation in scientific disciplines and science-related careers.

Reference of the study

This report is based on the paper : "Can Female Role Models Reduce the Gender Gap in Science? Evidence from Classroom Interventions in French High Schools", by Thomas Breda, Julien Grenet, Marion Monnet and Clémentine Van Effenterre, PSE Working Document No 2018-06. https : //halshs.archives-ouvertes.fr/halshs-01713068
This study received financial support from Fondation L'Oréal. The results in this policy brief represent the work of its authors only.

Authors

Thomas Breda is a researcher at CNRS, a professor at the Paris School of Economics, and "Employment" programme director at the IPP.
Julien Grenet is a researcher at CNRS, a professor at the Paris School of Economics, and Deputy Director of the IPP.
Marion Monnet is a PhD student at EHESS and the Paris School of Economics, affiliated to the IPP.
Clémentine Van Effenterre is a professor of Economics at the University of Toronto and a research affiliate at the IPP.

Acknowledgements

The authors would like to thank Fondation L'Oréal, the Ministry of National Education and Youth, the Directorate for Assessment, Planning and Performance (MENJ-DEPP), the Sub-Directorate for Information Systems and Statistical Studies (MESRI-SIES) and Créteil, Paris and Versailles education authorities for their support for this study and for provision of the data used in the evaluation.

IPP publications on education and gender inequality

IPP Policy Briefs :

- n° 38 "Sexual division of labour in the French Parliament", Q. Lippmann (2019).
- n° 35 "Multi-collège catchment areas in Paris : an effective tool for combating social segregation ?", J. Grenet and Y. Souidi (2018).
- n° 28 "Does class size influence student achievement ?", A. Bouguen, J. Grenet and M. Gurgand (2017).
- n° 25 "How does children's school schedule affect mothers' labor supply ? Temporal flexibility and inequalities in the labor market", E. Duchini and C. Van Effenterre (2017).
- n° 24 "Améliorer la mobilité des enseignants sans pénaliser les académies les moins attractives ?", J. Combe, O. Tercieux and C. Terrier (2016).
- n° 23 "Analysing socio-fiscal policies through the lens of gender inequality", A. Bozio, S. Cottet, M. Monnet and L. Romanello (2016).
- n° 19 "How to improve learning to read at school ? The impact of teachers' practices in pre-school", A. Bouguen (2015).
- n° 17 "How much does grade repetition in French primary and secondary schools cost ?", A. Benhenda and J. Grenet (2015).
- n° 15 "Are girls discriminated against in the sciences ? Lessons from the ENS competitive entrance exams", T. Breda and S.-T. Ly (2014).
- n° 14 "A helping hand for girls ? Gender bias in marks and its effects on student progress", C. Terrier (2014).
- n° 13 "Does the composition of classes affect social and educational diversity ?", S.-T. Ly, E. Maurin and A. Riegert (2014).
- n° 11 "Can we increase the social and academic mix in the education system ? The impact of allocation procedures on Lycée students in the Paris region", G. Fack and J. Grenet (2014).

IPP Reports :

- n° 14 *Assessing the gender impact of tax and benefit reforms*, S. Cottet, M. Monnet and L. Romanello (2016).
- n° 13 *Impact evaluation of social and educational programmes for disadvantaged students*, P. Bressoux, M. Gurgand, N. Guyon, M. Monnet and J. Pernaudet (2016).
- n° 12 *Feminisation and firms' economic and social performance*, T. Breda (2015).
- n° 7 *The cost of grade retention : an evaluation*, A. Benhenda and J. Grenet (2015).
- n° 4 *Social and academic mix in the Paris region : the role of junior-high and high schools*, S.-T. Ly, E. Maurin and A. Riegert (2014).
- n° 3 *The impact of student assignment procedures on social and educational diversity in the high schools of the Paris region*, G. Fack, J. Grenet and A. Benhenda (2014).