Backlash to Gender Equality?
Diversity Campaigns and Adolescent Career Choices*

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February 23, 2026

Abstract

We study how adolescents respond to gender-equality messages from corporations at the time of their first occupational choice. In a randomized field experiment with nearly 3,000 eighth-grade students in Switzerland, treated students viewed recruitment videos in which major employers emphasize their efforts to attract girls to math-intensive occupations and to promote women into management. The intervention significantly increases students' perceptions of women's hiring prospects, but it does not affect boys' or girls' occupational aspirations. Moreover, evidence from incentivized sabotage and helping games reveals no behavioral backlash among boys. Light-touch diversity messages can credibly shift beliefs about employer demand without generating behavioral backlash, but they are insufficient on their own to alter gendered career plans.

JEL classification: C93, J16, J24, I24, J71
Keywords: occupational choice; adolescents; social behavior; incentivized games; education.

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1 Introduction

A large literature shows that teams drawing on a broader range of perspectives are more innovative and productive, giving firms strong incentives to diversify recruitment and promotion (e.g., Bell et al., 2019; Herring, 2009; Hoogendoorn, Oosterbeek and Van Praag, 2013; Mayer, Warr and Zhao, 2018; Woolley et al., 2010). Gender is a central focus of these efforts: despite substantial progress, women remain underrepresented in many math-intensive, high-reward occupations and leadership positions (e.g., Bertrand, 2020; Blau and Kahn, 2017; Kahn and Ginther, 2017). In response, many employers have adopted visible diversity commitments and gender-targeted outreach, publicly emphasizing that women are actively sought for technical and managerial roles (e.g., Del Carpio and Guadalupe, 2022; Flory et al., 2024; Kalev, Dobbin and Kelly, 2006; Leibbrandt and List, 2025).

At the same time, such initiatives have raised concerns about unintended consequences. Public debates around gender equality and diversity policies are often polarized, including along gender lines, prompting the worry that messages perceived as favoring women could discourage men or provoke backlash (e.g., Cullen et al., 2024; Leibbrandt, Wang and Foo, 2018; Mathisen, 2025; Meagher and Shu, 2019). This tension is particularly salient in educational contexts, where gender-targeted messages increasingly appear in schools and public-facing corporate materials aimed at future workers (e.g., Bertrand et al., 2019; Breda et al., 2023; Carlana and Fort, 2022; Kulkarni et al., 2021). While such outreach may encourage girls to consider nontraditional careers, it could also reshape how boys perceive their own prospects or affect their interactions with female peers. Whether gender-focused recruitment messages expand opportunities for girls without discouraging or alienating boys remains an open empirical question—and one for which causal field evidence in school settings is still scarce (e.g., Beaman et al., 2012; Breda et al., 2023; Porter and Serra, 2020).

In this paper, we study how students who are about to make their first occupational choice respond to a gender-equality corporate outreach campaign. We partnered with two major Swiss employers to design an intervention that mirrors the gender diversity, equity, and inclusion communication used by large firms. The intervention consists of short videos in which real HR managers and apprentices emphasize that companies are actively seeking to recruit girls into technical occupations and to promote women in management tracks. We implemented a large-scale randomized controlled trial among nearly 3,000 8^{th} grade students in the Canton of Zurich, who are about to leave compul-

sory schooling and, for the majority, must choose a specific apprenticeship occupation. We delivered the videos during regular class time and then measured students' beliefs, occupational aspirations, and behavior in incentivized social-interaction tasks. This design allows us to examine whether a gender-equality message changes who considers entering math-intensive, male-dominated fields and whether it produces discouragement or backlash among boys.

The intervention strongly shifts students' perceptions about employer demand. Girls and boys alike understand that employers are actively seeking to recruit more women, particularly in math-intensive and male-dominated occupations. Immediately after the intervention, treated girls report higher perceived chances of receiving an offer in the featured occupations, while treated boys report lower perceived chances for themselves in the same jobs. Two weeks later, however, both girls and boys in the treatment group expect higher hiring chances for female applicants, and we find no evidence that boys believe that male applicants are worse off or that hiring is a zero-sum trade-off between women and men. Despite these sizeable changes in beliefs, the treatment does not raise girls' occupational aspirations either immediately or in the follow-up survey. For boys, we find no systematic discouragement from the promoted occupations. Overall, across the full set of belief and intention measures, the diversity messages are salient and credible but do not meaningfully change career plans for either gender.

We find no evidence that the gender-equality message triggers behavioral backlash against girls. To elicit behavioral responses, we use incentivized measures of antisocial and prosocial behavior toward girls, building on recent work that uses sabotage games in school settings (Alan, Carlana and Leone, forthcoming). In a sabotage game, students could spend tokens to reduce the payoff of an anonymous female classmate, while in a dictator-style help game they allocated tokens between an anonymous boy and girl from another school. Exposure to the gender-targeted videos does not increase boys' willingness to sabotage female classmates or reduce the share of tokens they give to girls. Taken together, these findings deliver a cautionary message: simply telling girls they are wanted may not be enough to overcome deeper barriers—factors like self-confidence and sense of belonging likely need to be addressed to shift aspirations. However, our results provide reassurance that we do not observe hostility or disengagement among boys, alleviating fears that pro-female outreach inevitably alienates young males.

This paper contributes to three related strands of literature on gender, education, and diversity interventions. First, we contribute to the literature on role models and

information interventions in education. A large body of work shows that exposure to female role models, mentoring programs, or stereotype-challenging information can increase girls' aspirations for STEM and other male-dominated fields, particularly when interventions are intensive or involve direct personal interaction (e.g., Breda et al., 2023; Del Carpio and Guadalupe, 2022; Palffy, Lehnert and Backes-Gellner, 2023; Porter and Serra, 2020). In contrast, we study a light-touch, corporate-style outreach that mirrors real-world recruitment campaigns: short videos in which large employers emphasize their desire to recruit women into male-dominated occupations. We show that such messages are clearly understood and shift students' beliefs about employer demand, but do not change girls' occupational aspirations. This finding helps delineate an important boundary of role-model and information-based interventions: while light-touch messages can update beliefs, they appear insufficient on their own to alter career plans when deeper constraints or preferences remain unchanged.

Second, we contribute to the literature on backlash and unintended consequences of pro-diversity policies. Prior research, largely focused on adults, documents resistance to affirmative action, gender quotas, and diversity initiatives, often driven by zero-sum thinking or perceived status threats (e.g., Chang et al., 2019; Cullen et al., 2024; Dobbin and Kalev, 2016; Leibbrandt, Wang and Foo, 2018). Experimental evidence further shows that advantaged groups may respond negatively to pro-diversity information, sometimes reducing cooperation or expressing resentment (Dover, Kaiser and Major, 2020; Flood, Dragiewicz and Pease, 2021). Much less is known about whether such backlash emerges earlier in the talent pipeline. Our study provides causal field evidence from schools and finds no indication of backlash among boys. Exposure to gender-equity corporate messaging does not reduce boys' interest in the featured occupations, lower their perceived opportunities, or worsen their behavior toward girls. These results suggest that concerns about backlash may be less salient at earlier stages of skill formation and before individuals enter competitive labor markets.

Third, we contribute methodologically to field experiments in schools by combining belief measures with incentivized behavioral outcomes. Recent work demonstrates that dictator and sabotage-style tasks can capture meaningful variation in prosocial and antisocial behavior among students in field settings (e.g., Alan, Carlana and Leone, forthcoming). We build on this approach to study a new question: whether gender-targeted outreach affects boys' behavior toward female peers. By pairing belief updates with costly behavioral choices, we can directly test whether diversity messaging changes not

only how students think about opportunities, but also how they interact with others. We find no increase in antisocial behavior and no reduction in helping behavior toward girls, reinforcing our conclusion that the intervention does not generate behavioral backlash.

The remainder of the paper is organized as follows. Section 2 describes the institutional setting, the design of the intervention, and the experimental procedures. Section 3 presents the data, summary statistics, and empirical strategy. Section 4 reports the main results on beliefs, aspirations, and behavioral responses. Section 5 concludes with a discussion of what our findings imply for the design of gender-targeted outreach campaigns and for efforts to increase gender diversity in technical and leadership pathways.

2 Experimental design

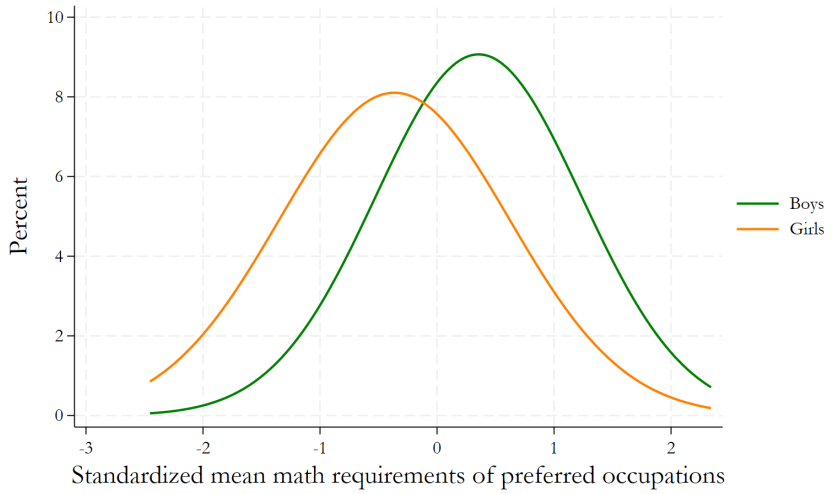
2.1 Background and institutional setting

In Switzerland, apprenticeships constitute a central pillar of the education and skill-formation system. By 8^{th} grade, most students begin searching for an apprenticeship to start after compulsory schooling (i.e., after 9^{th} grade). On average, 70 percent of students entering upper-secondary education start an apprenticeship, while the remaining 30 percent enroll in general-education programs that grant direct access to university (FSO, 2022; SCCRE, 2023). The apprenticeship model combines firm-based training with vocational schooling: apprentices typically spend three to four days per week working in a company, and the remaining time in vocational school, acquiring theoretical knowledge. Upon successful completion of their final examination, students receive either a Federal Vocational Education and Training Certificate (two-year programs) or Diploma (three- or four-year programs). Graduates can then either enter the labor market directly or continue their education. Five years after completion, the majority of students (58 percent) work in the occupation they trained for or pursue further studies in a related field (FSO, 2020).

In Switzerland, students face over 240 apprenticeship options, making the choice both challenging and critical for their future careers. Students in lower-secondary schools begin exploring career options at the start of 8^{th} grade, primarily during *career orientation* classes. Throughout this year, most students complete several trial apprenticeships (lasting one to five days) or attend occupation-specific information events hosted by companies. Applications usually begin between 8^{th} grade and 9^{th} grade, and contracts can be

signed up to a year in advance.[1]

Figure 1: Distribution of Math Requirements in Students' Aspired Apprenticeships, by Gender



Note: This figure uses baseline survey data from the study sample (see Section 3 for details) and shows the distribution of the average math requirements of the occupations students aspire to, separately for girls and boys. The sample includes 2,857 students in 8th grade in the canton of Zurich. The math requirement measure is standardized in the full sample to have mean 0 and standard deviation 1.

The choice of apprenticeship reflects the strong gender segregation of the Swiss labor market (SCCRE, 2023). Boys disproportionately aspire to careers in STEM-oriented fields, while girls more often prefer care, health, and personal service fields (GFS, 2024). To illustrate the magnitude of this divide, we map students' preferred occupations in 8th grade to expert assessments of the math requirements for each occupation.[2] As shown in Figure 1, the math requirements of girls' preferred occupations are, on average, about 0.7 standard deviations lower than those of boys' preferred occupations. These early differences in aspirations help explain the persistent occupational gender segregation observed in the Swiss labor market.

[1] Since students are still minors, parents must formally sign apprenticeship contracts on their behalf.

[2] For each occupation, experts rate the difficulty of the math requirement on a 0–100 scale, with 100 reflecting the highest requirement, and the importance of math for the occupation on a 1–5 scale, with 5 reflecting the highest importance. The requirement profiles are available at `https://www.anforderungsprofile.ch`. For our analysis, we compute an importance-weighted average math requirement and match this measure to students' aspired occupations. In practice, the occupation with the lowest math requirements (hairdresser EBA) has a value of 4 on the scale, and the occupation with the highest math requirements (technical designer; Konstrukteur EFZ) has a value of 82.

2.2 Intervention

In Switzerland, as in many other countries, large firms have intensified their efforts to promote gender equality in male-dominated occupations. Such initiatives often rely on outreach campaigns and media content designed to highlight career opportunities for underrepresented groups (Klingler-Vidra, 2018; Kulkarni et al., 2021). Our intervention builds on these real-world practices to examine whether gender diversity messages succeed in encouraging girls to consider math-intensive careers, and whether these same messages unintentionally trigger backlash among boys.

To ensure realism, the intervention closely mirrors existing corporate gender diversity campaigns. In collaboration with two large employers, we reviewed active initiatives and identified recurring themes of messaging around inclusion, diversity, and gender equality. The treatment consists of four short videos designed to resemble actual corporate recruitment materials using real female human resources (HR) managers and female apprentices. The videos highlight two occupations of particular relevance: commercial clerk (Kaufmann/Kauffrau) and information technologist (Informatiker/in). Commercial clerk apprenticeships are a major entry route into office and management jobs and are relatively gender-balanced at entry level (58 percent female) but largely unbalanced for top positions, whereas information technologist apprenticeships lead into math-intensive technical jobs in which women are still strongly underrepresented from the entry level (8 percent female).

The treatment consists of four videos (two occupations $\times$ two sectors), each lasting a bit more than four minutes. Each student viewed two videos—one featuring an information technologist and one featuring a commercial clerk. To increase engagement, students chose whether they wanted to see the content framed in the context of the finance sector or the public transport sector. All videos share a common structure: an introductory framing by a student narrator, a segment with a female apprentice, and a segment with a female HR manager. The core message is held constant across sectors, ensuring that framing varies but the treatment content remains identical.[3] After each video, students completed a short knowledge-check question.

At the beginning of each video, the female-voiced narrator addresses the class, presents the videos as part of a classroom activity on career choice, and introduces the occupation the student will learn more about. In the apprentice segment, a female apprentice describes her work and learning process. The apprentices explain that they work in teams,

[3]Detailed information about each script is available in Appendix C.

rotate through tasks, and started the apprenticeship without specialized prior knowledge. They stress that relevant skills are taught during the apprenticeship and that support from supervisors and colleagues helped them overcome initial doubts about their own abilities. The narrator then asks about access to apprenticeship positions and the prospects for young women. The apprentices respond that companies are actively looking for interested girls, that female applicants with good grades are in demand, and that they were positively surprised by how many firms were interested in them.

In the HR segment, a female HR manager elaborates on the firm's diversity policies and support for apprentices. The HR managers state that companies are committed to gender diversity, aim for balanced teams, and explicitly encourage young women to apply. HR managers also emphasize that apprentices receive training, are integrated into teams, and are supported in pursuing further qualifications, for example a vocational baccalaureate.

The closing messages summarize the core diversity framing. The narrator explains that companies in these occupations are intensively looking for interested young women, that girls have good chances, and that firms support their careers. Conceptually, the treatment combines three elements: information on the tasks in each occupation; reassurance that girls do not need extensive prior knowledge because skills are taught and supported during the apprenticeship; and explicit statements that companies seek female applicants and invest in their career development.

Control students received a neutral information package that matched the duration of the treatment information but omitted all references to gender diversity. They read short, occupation-specific texts describing typical tasks in the two apprenticeships and, as in the treatment group, chose for each occupation whether they wanted to learn about it in the finance sector or in the public transport sector. The texts contained the same task information as in the treatment videos. After reading the texts, control students watched three short videos on how to write a CV, how to save a PDF, and how to behave in a job interview. These videos provided only general advice that is publicly available. Thus, both groups received identical information about occupational tasks; the only systematic difference was the presence or absence of the gender-equality framing. This design holds occupational information constant, so any differences can be attributed to the gender-equality framing itself, rather than the informational content.

3 Data and descriptive statistics

3.1 Sample and Data Collection

Our sample consists of 8th grade students who attend secondary schools in the Canton of Zurich, Switzerland.[4] Through a collaboration with the Ministry of Education, we invited all schools in the canton of Zurich to participate[5]. Ultimately, our sample consists of 52 schools (out of 133 existing schools). Nine schools participated in both 2023/2024 and 2024/2025. During the fall semesters of the 2023/2024 (wave 1) and 2024/2025 (wave 2) school years, our research team conducted in-person visits to 192 classes across these schools. Each visit lasted approximately 45 minutes.

The main data collection consisted of three steps. First, students completed a baseline survey using the offline version of Qualtrics in which they provided contact details and background information, including occupational preferences, school grades in mathematics and German, and self-reported economic preferences (competitiveness and willingness to take risks). Second, Qualtrics randomly assigned students at the individual level to either the treatment group (gender-equality videos) or the control group (neutral information). Students wore headphones, worked in silence, and were instructed not to discuss the content.[6] After each video, students answered a brief knowledge-check question. Finally, immediately after the intervention, we first observed behavior in incentivized games and then collected measures of students' beliefs about their hiring chances in specific apprenticeships, occupational aspirations, academic self-confidence, and demographics. This setup minimizes spillovers for immediate outcomes; any later conversations can only attenuate treatment effects in the follow-up survey.

In addition, to capture medium-term effects, we invited students to complete a short online follow-up survey about two weeks after the school visit.[7] The survey took around five minutes to complete and was answered by roughly 60 percent of all students in the experimental sample. It focused on occupational interests, beliefs about hiring chances

[4]We did not invite students in the highest track (Gymnasium) to participate, as they are unlikely to be interested in an apprenticeship. We excluded students in the lowest (C) tracks and those with limited knowledge of German and/or special needs, as typically only middle-track students apply for and are accepted into the two apprenticeships of interest (commercial clerk and information technologist). When taking the survey, these students were assigned to the control group. We excluded students from the analysis who did not indicate "female" or "male" as their biological gender (less than 1 percent of the final sample) or who experienced significant issues with the survey (less than 1 percent of the final sample). Due to technical issues, few students completed the survey partially or entirely on paper.

[5]We did not invite schools in Winterthur to participate, because the school board of Winterthur had refused participation in the study.

[6]Enumerators monitored compliance and addressed technical issues throughout the session. The software enforced a minimum viewing time equal to the video length before students could proceed.

[7]Students received several reminders and had four weeks to complete the survey after the first invitation.

and fit in specific apprenticeships, perceived barriers to career choices, and recall and discussion of the videos.

3.2 Randomization and Baseline Descriptive Statistics

Within each class, the offline Qualtrics survey software automatically assigned approximately half of the students to the treatment group and half to the control group. Randomization occurred directly on students' devices immediately before the intervention. This within-class design maximizes statistical power for our primary outcomes and ensures that treated and control students share the same classroom environment, timing, and survey conditions.

Table 1 summarizes baseline characteristics by gender and treatment status and shows that randomization generates comparable groups. Our final analysis sample consists of 2,938 students. On average, students are 14 years old at the time of the intervention. Approximately 43 percent have at least one parent with tertiary education, while about one third have parents with vocational education but no tertiary degree. Academic performance is high: about 65 percent of students are enrolled in math courses with advanced requirements (A-level) and 75 percent in German courses with advanced requirements, and roughly half of students have grades of 5.0 or higher (where 4.0 is the passing grade and 6.0 the highest) in each subject. Boys tend to obtain higher math grades than girls, whereas girls outperform boys in German.[8]

Educational aspirations also differ by gender in the baseline survey. About 22 percent of boys and 26 percent of girls report plans to continue in the academic track. To measure occupational interests, we asked students which apprenticeships they are currently considering and required them to select at least one occupation from a comprehensive list. These reported preferences already mirror the gender composition of our two focal apprenticeships. Roughly 30 percent of both boys and girls indicate a commercial clerk apprenticeship, consistent with the relatively gender-balanced nature of this occupation. By contrast, 35 percent of boys but only 8 percent of girls report considering an IT apprenticeship, echoing the strong under-representation of women among information technologists. Consistent with these patterns, the occupations that boys list as current options have an average math requirement of 53 on a 0–100 scale, compared with 43 for girls; as shown in Figure 1, this gap corresponds to about 0.7 standard deviations and

[8]Because teacher-assigned grades are not directly comparable across A- and B-level classes, we control for students' academic skills considering the combination of grades (high vs. low) and course level (advanced vs. not advanced) in all analyses.

Table 1: Baseline Characteristics and Treatment–Control Balance

Variable	Boys				Girls			
	(1) Control	(2) Treated	(3) (2)-(1)	(4) Norm. Diff	(5) Control	(6) Treated	(7) (6)-(5)	(8) Norm. Diff
Age	14.083	14.097	0.007	0.031	14.037	14.050	0.010	0.031
	(0.440)	(0.443)			(0.417)	(0.406)		
Any parent has tertiary education	0.446	0.444	-0.003	0.004	0.402	0.429	0.005	0.055
	(0.497)	(0.497)			(0.491)	(0.495)		
Parent with vocational education	0.355	0.340	-0.024	0.032	0.348	0.331	-0.006	0.036
	(0.479)	(0.474)			(0.477)	(0.471)		
Math: advanced requirements	0.638	0.656	0.002	0.037	0.641	0.649	-0.015	0.017
	(0.481)	(0.475)			(0.480)	(0.478)		
German: advanced requirement	0.725	0.738	0.001	0.031	0.795	0.803	-0.013	0.021
	(0.447)	(0.440)			(0.404)	(0.398)		
Math grade >=5	0.516	0.543	0.021	0.055	0.461	0.494	0.033	0.066
	(0.500)	(0.498)			(0.499)	(0.500)		
German grade >= 5	0.480	0.498	0.003	0.036	0.635	0.628	0.002	0.014
	(0.500)	(0.500)			(0.482)	(0.484)		
Plans to attend academic track	0.215	0.230	0.017	0.035	0.257	0.256	0.003	0.002
	(0.411)	(0.421)			(0.437)	(0.437)		
Interest in commercial clerk	0.291	0.299	-0.012	0.018	0.313	0.304	-0.015	0.020
	(0.455)	(0.458)			(0.464)	(0.460)		
Interest in IT	0.312	0.380	0.059**	0.144	0.076	0.089	0.005	0.046
	(0.464)	(0.486)			(0.266)	(0.285)		
High hiring chance: Commercial clerk	0.232	0.234	0.009	0.004	0.230	0.293	0.059***	0.143
	(0.423)	(0.424)			(0.421)	(0.455)		
High hiring chance: IT	0.188	0.199	0.025	0.028	0.070	0.079	-0.002	0.037
	(0.391)	(0.400)			(0.255)	(0.270)		
Application effort - high: Commercial clerk	0.315	0.353	0.047	0.082	0.356	0.376	0.026	0.042
	(0.465)	(0.479)			(0.479)	(0.485)		
Application effort - high: IT	0.343	0.399	0.065*	0.116	0.408	0.434	0.007	0.052
	(0.475)	(0.490)			(0.492)	(0.496)		
Application effort - no callbacks: Commercial clerk	0.082	0.071	0.001	0.041	0.075	0.069	-0.004	0.019
	(0.274)	(0.257)			(0.263)	(0.255)		
Application effort - no callbacks: IT	0.103	0.076	-0.019	0.094	0.257	0.233	-0.033	0.056
	(0.304)	(0.265)			(0.438)	(0.423)		
Occupational math requirements	52.333	53.906	1.813**	0.124	42.202	43.231	0.597	0.072
	(13.345)	(11.974)			(14.169)	(14.282)		
High tolerance for risk	0.606	0.584	-0.021	0.045	0.471	0.431	-0.040	0.080
	(0.489)	(0.493)			(0.500)	(0.496)		
High competitiveness	0.612	0.565	-0.028	0.095	0.349	0.342	-0.035	0.015
	(0.488)	(0.496)			(0.477)	(0.475)		
Number of observations	766	718			747	707		

Note: This table reports baseline averages and balance statistics by treatment status and gender. Standard deviations are reported in parentheses. Columns (3) and (7) report treatment–control mean differences controlling for class fixed effects. Columns (4) and (8) report normalized differences following Imbens and Rubin (2015). The normalized difference is $\Delta = (\overline{X}_T - \overline{X}_C)/\sqrt{(S_T^2 + S_C^2)/2}$. For binary variables, we use $\Delta = (\overline{X}_T - \overline{X}_C)/\sqrt{\left[\overline{X}_T(1-\overline{X}_T) + \overline{X}_C(1-\overline{X}_C)\right]/2}$. *Advanced requirements* refer to course track (A-level vs. B-level). *High hiring chance* equals 1 when students choose at least 4 on a five-point Likert scale. *Application effort*: "high" equals 1 when students think they need to write more applications than the median student; "No callback" equals 1 when students report that, despite applying, they would never receive an offer. *Occupational math requirement* is the average math requirements of all occupations a student is interested in (on a 0–100 scale). Students are *highly competitive* when choosing at least 7 on a scale from 0 to 10. Students have a *high tolerance for risk* when choosing at least 4 on a scale from 0 to 5. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

suggests that gendered occupational aspirations emerge well before labor market entry.

Students are generally optimistic about their hiring prospects in both IT and commercial clerk apprenticeships, though girls are markedly less confident than boys in IT. Twenty-four percent of girls believe they would never receive an IT offer, compared with only 9 percent of boys. Self-reported economic preferences also display gender gaps: boys more often describe themselves as risk-taking (59 percent vs. 45 percent) and competitive (58 percent vs. 34 percent) than girls.

Randomization appears successful. Columns (3) and (7) of Table 1 report mean differences between treatment and control groups across predetermined characteristics. Only three out of 38 comparisons are statistically significant at the 5 percent level. Moreover, all normalized differences are below 0.25, the conventional benchmark suggested by Imbens and Rubin (2015), providing further evidence that the treatment and control groups are well balanced at baseline. All controls are included in our main specification to increase power.

3.3 Outcomes and measurement

We examine three main sets of outcomes: (i) students' beliefs about hiring prospects, (ii) occupational interests and aspirations, and (iii) gender-specific social interactions in incentivized games. Survey instruments are detailed in Appendix B.3, and enumerator instructions in Appendix B.5.

(i) Beliefs about hiring prospects. A direct aim of the intervention is to shift students' perceptions of employers' willingness to hire women in math-intensive as well as male-dominated fields. Immediately after the intervention, students reported how likely they thought it was that they would receive an apprenticeship offer in commercial clerk, IT, and two additional medium–high–math-intensity occupations (one male-dominated and one gender-neutral, randomly drawn). In the first wave, the question read: "If you were to apply for the following apprenticeships, how likely do you think you would get an offer?" In the second wave, we refined the wording to make students' own gender salient: "If you were to apply for the following apprenticeships, how likely do you think you as a girl/boy would get an offer?" Because this latter formulation more directly captures gender-specific self-beliefs about hiring chances, our main analysis relies on the gender-primed measure from the second wave.

In the follow-up survey, we elicited beliefs about hiring chances for typical applicants. For each occupation, students stated how many out of ten female students applying would receive an offer; this perceived hiring probability for female applicants is our primary medium-run belief outcome. We also asked the analogous question for male applicants and, separately, how many out of 100 applicants they thought would be girls. These additional measures allow us to explore whether treatment effects operate through beliefs about employer demand for women or through beliefs about the gender composition of the applicant pool.

(ii) Occupational interests and aspirations. While both treatment and control groups received identical information about typical tasks in commercial clerk and IT apprenticeships, only the treatment videos explicitly emphasized firms' demand for young women. We therefore examine whether this demand-side framing shifts students' aspirations for these two occupations in the short run. Immediately after the intervention, we used two incentivized measures of occupational interest. First, students took part in a lottery in which winners chose between a CHF 20 online-shopping voucher and a trial apprenticeship in one of several occupations, including commercial clerk and IT. Second, students could subscribe to occupation-specific newsletters and could select up to three occupations from a list that includes commercial clerk and IT. For each of the two treatment occupations, our main short-run aspiration outcome is an indicator equal to one if the student either chooses a trial apprenticeship in that occupation in the lottery or signs up for the corresponding newsletter (and zero otherwise).

Two weeks later, the follow-up survey provides a medium-run measure of aspirations. Students reported which apprenticeships they had been thinking about during the previous two weeks. For each of the two treatment occupations, we construct an indicator that equals one if the student reports having thought about that occupation in the past two weeks and zero otherwise; these are our primary medium-run aspiration outcomes. In addition, we collected self-assessments of perceived fit in commercial clerk, IT, and other math-intensive occupations (both gender-neutral and male-dominated), as well as perceived barriers to achieving their educational and career goals, which we use to explore potential mechanisms behind changes in occupational aspirations.

(iii) Social interactions and backlash behavior. A central concern is whether exposure to gender-equality messages provokes backlash from boys in their interactions with

girls. We measured this using incentivized games adapted from Alan, Carlana and Leone (forthcoming). The first was a sabotage game. In each of two rounds, students were randomly paired with a female or male classmate and anonymously competed in a two-minute task (math or verbal), with the order of task type randomized across classrooms.[9] Opponents were represented only by an avatar that revealed their gender. Within each pair, the student who solved more items correctly earned one token per correct answer, while the other earned no tokens, regardless of their own performance. After each round, both players received five additional tokens and decided how many tokens (from zero to five) to spend on canceling their opponent's correct answers and how many to keep. Each student played once against a male avatar and once against a female avatar, with the order randomized. Both the task performance and sabotage choices were incentivized. Tokens earned in the games determined small gifts that students received at the end of the school visit. To keep students engaged across rounds, we announced that only one game—selected at the end of the survey—would count for the payoff. Our main antisocial outcome is the number of tokens students use to sabotage female opponents. We also recorded sabotage against male opponents. After each round, we elicited beliefs about own and opponent performance and beliefs about how many tokens the opponent used, allowing us to examine whether the intervention affects perceived relative ability and anticipated sabotage.

Finally, students played a dictator (help) game designed to capture gender-specific prosocial behavior. They received five tokens to allocate between two anonymous peers from another school, represented by a male and a female avatar, and decided how many tokens to give to each. Our main prosocial outcome is the share of tokens allocated to the female student. Taken together, the sabotage and help games provide complementary incentivized measures of antisocial (punishing) and prosocial (helping) responses toward girls after exposure to the diversity message.

Summary statistics. Table 2 reports control-group means of the main outcome variables.[10] Appendix Table A1 reports raw means for all underlying variables in the control group. Girls expect substantially higher hiring chances than boys for commercial clerk apprenticeships, whereas boys are more optimistic than girls for IT apprenticeships. A similar pattern holds more broadly (Panel A, Appendix Table A1): boys are more op-

[9] We randomize at the classroom level whether students first solve a math or a verbal task.

[10] Variables labeled "(std.)" are standardized to have mean 0 and standard deviation 1 in the control group; binary outcomes are reported in levels.

timistic in other male-dominated, math-intensive occupations, while girls are more optimistic in gender-neutral, math-intensive occupations. These gender gaps in perceived hiring chances are very similar across questions with and without gender priming.

Table 2: Summary Statistics for Main Outcome Variables

Variable	Boys			Girls			Difference
	Obs	Mean	S.D.	Obs	Mean	S.D.	p-value
Panel A: Short-term outcomes							
Job prospect (gender priming): Commercial clerk (std.)	428	-0.238	1.039	416	0.245	0.895	0.000
Job prospect (gender priming): IT (std.)	428	0.170	1.049	416	-0.175	0.915	0.000
Interest in commercial clerk	766	0.359	0.480	747	0.412	0.493	0.033
Interest in IT	766	0.415	0.493	747	0.157	0.364	0.000
Sabotage female student (std.)	766	0.125	1.044	747	-0.129	0.936	0.000
Help female student (std.)	766	-0.526	1.000	747	0.540	0.652	0.000
Panel B: Medium-term outcomes							
Female offers: Commercial clerk (std.)	419	-0.056	1.045	452	0.052	0.955	0.109
Female offers: IT (std.)	419	-0.038	1.003	452	0.036	0.997	0.276
Interest in commercial clerk	443	0.298	0.458	476	0.288	0.453	0.736
Interest in IT	443	0.300	0.459	476	0.092	0.290	0.000

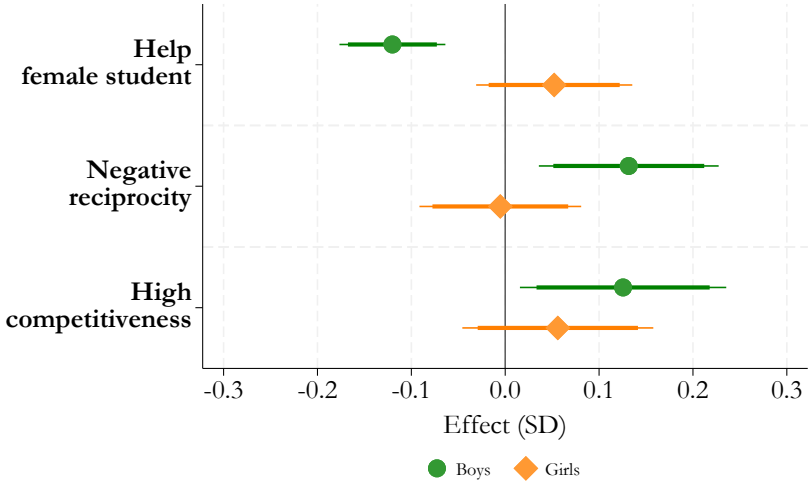
Note: This table reports control-group means of all main outcome variables by gender. Variables labelled "(std.)" are standardized to have mean 0 and standard deviation 1 in the control group. Panel A reports short-term outcomes collected immediately after the intervention; Panel B reports medium-term outcomes from the two-week online follow-up survey. The last column reports p-values from two-sample t-tests of equality between boys and girls. In Panel B, the number of observations varies across outcome variables because of follow-up attrition. *Job prospect (gender priming)* measures students' perceived likelihood that they themselves, as a girl/boy, would receive an apprenticeship offer in the respective occupation on a five-point Likert scale from "very unlikely" to "very likely". *Female offers* measures students' beliefs about the number of female applicants (out of ten) who would receive an offer in the respective occupation. *Sabotage female student (std.)* is the standardized number of tokens (out of five) that a student uses to reduce a female opponent's score in the sabotage game. *Help female student (std.)* is the standardized share of five tokens allocated to the female (rather than male) recipient in the dictator (help) game. *Interest in commercial clerk / IT (short run)* equals 1 if a student either signs up for the occupation-specific newsletter or chooses a trial apprenticeship in that occupation in the lottery, and 0 otherwise. *Interest in commercial clerk / IT (medium run)* equals 1 if a student reports having thought about the respective occupation during the last two weeks, and 0 otherwise. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Gender differences in occupational aspirations are consistent with these belief patterns but differ across occupations (Panel B, Appendix Table A1). For commercial clerk apprenticeships, boys and girls report very similar levels of short- and medium-run interest and perceived fit, with at most small differences in favor of girls, consistent with the relatively gender-balanced composition of this occupation. By contrast, we observe large and persistent gender differences in IT: boys are much more likely than girls to express interest in an IT apprenticeship, both immediately after the intervention and two weeks later, and they report substantially higher perceived fit in IT.

Consistent with prior research (DellaVigna et al., 2013; Kamas and Preston, 2021), boys display more antisocial behavior and lower levels of prosociality toward girls (Panel C, Appendix Table A1). Boys sabotage more than girls on average (2.5 vs. 2.1 tokens), with similar behavior toward male and female opponents and in both verbal and math

tasks. Both boys and girls accurately anticipate the sabotage behavior of boys (an average belief of about 2.6 tokens, compared with the true average of about 2.5), but they substantially overestimate the sabotage behavior of girls: boys expect female opponents to use roughly 2.6 tokens and girls expect about 2.4 tokens, whereas female opponents actually use about 2.1 tokens. Boys also display less prosociality toward girls in the dictator game, allocating 35 percent of tokens to girls compared with 60 percent among girls. These baseline patterns confirm that gendered preferences and behaviors are already salient at this stage, making this a critical context in which to study potential backlash.

Figure 2: Correlates of Sabotage Against Female Classmates



Note: This figure reports correlations between students' sabotaging behavior toward girls and three related constructs: the share of tokens used to help female students in the dictator (help) game (standardized), reported willingness to take revenge in case of unfair treatment (negative reciprocity) in the two-week follow-up survey (standardized), and an indicator for being highly competitive. The dependent variable, *Sabotage female student (std.)*, is standardized to have mean 0 and standard deviation 1 in the control group and measures the number of tokens (out of five) used to reduce a female opponent's payoff. For "Help female student" and "High competitiveness", the sample consists of $N_{\text{boys}} = 1,484$ and $N_{\text{girls}} = 1,454$; for "Negative reciprocity", the sample consists of $N_{\text{boys}} = 431$ and $N_{\text{girls}} = 469$. The figure displays point estimates with 95% and 90% confidence intervals.

We further explore the predictive validity of our experimental games in Figure 2. Boys who allocate a larger share of tokens to help female students in the dictator game display about 0.12 standard deviations lower sabotage toward female students in the sabotage game.[11] Moreover, boys who report stronger negative reciprocity and boys with a high preference for competition are also more likely to sabotage female classmates to

[11]Boys who help female students are also less likely to sabotage male students, although the coefficient is about 24% smaller in magnitude (Appendix Table A2). This suggests that sabotage behavior reflects both overall antisocial tendencies and a gender-specific component.

increase their chances of winning. Somewhat surprisingly, the sabotage measure is not systematically correlated with these related constructs for girls.

Attrition. Appendix Table A3 shows that attrition between the baseline and follow-up surveys does not differ by treatment status for either boys (columns 1–2) or girls (columns 3–4). Overall, about 56 percent of boys and 62 percent of girls participate in the follow-up survey used to evaluate the medium-run outcomes.

3.4 Empirical strategy

To assess the impact of the intervention on the various outcomes, we estimate the following OLS specification at the student level:

$$Y_{ic} = \alpha + \beta \, \text{Treated}_i + \gamma' \mathbf{X}_i + \rho_c + \varepsilon_{ic}, \tag{1}$$

where Y_{ic} denotes the outcome of interest for student i in class c, Treated_i is an indicator equal to one if the student was assigned to the gender-equality videos, and ρ_c denotes class fixed effects. The vector $\mathbf{X}_i$ contains baseline student characteristics, including age, math and German skills, plans to pursue academic education, parental education, pre-treatment interest in commercial clerk/IT, whether students have a high perceived chance to get hired as a commercial clerk or in IT, whether they believe they need to write many applications or will never receive an offer as a commercial clerk or IT, the average math requirement of their preferred occupations, high risk tolerance, high preference for competition, and indicators for imputed values. The error term is denoted by ε_{ic}. We report heteroskedasticity-robust standard errors.

Because treatment was individually randomized within classes, the coefficient β can be interpreted as the intention-to-treat effect of assignment to the gender-equality videos on outcome Y_{ic}, conditional on class fixed effects and baseline controls. Including $\mathbf{X}_i$ improves precision; results are similar without these controls. We also estimate specifications with school fixed effects as a robustness check and obtain qualitatively identical results. Given strong theoretical reasons and institutional features that point to heterogeneous responses by gender—and because the intervention explicitly targets perceptions of women's hiring prospects—we report separate estimates for boys and girls.

In additional analyses reported in Appendix D, we allow treatment effects to vary by several pre-treatment student characteristics and find no systematic heterogeneity for

any of our main outcomes.

4 Results

4.1 Treatment effects on beliefs about hiring prospects

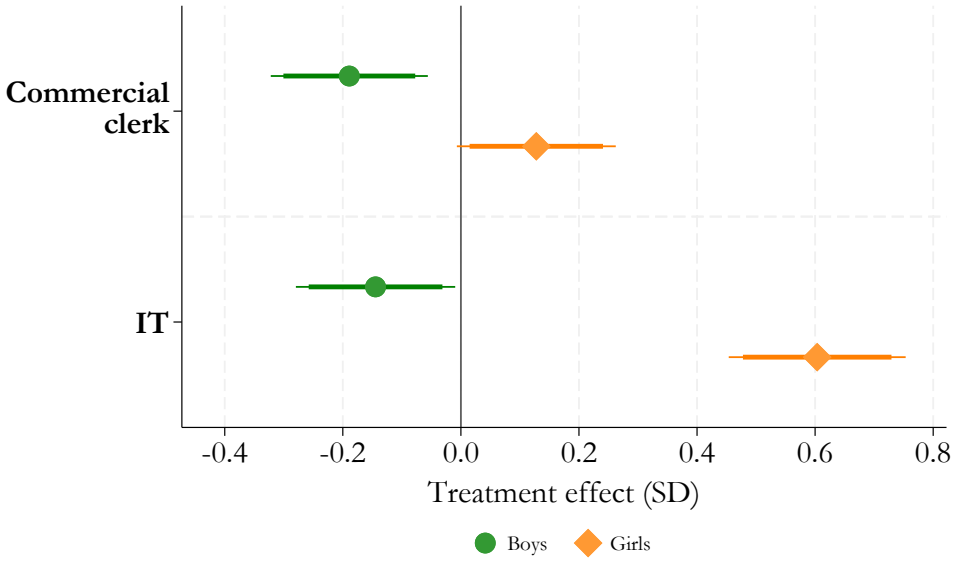
Immediate effect. We begin by analyzing whether exposure to the gender-equality messages alters students' expectations about their own likelihood of receiving apprenticeship offers. Right after the intervention, girls in the treatment group report higher expected hiring chances than girls in the control group for the two occupations targeted by the intervention, commercial clerk and IT (Graph (a) of Figure 3). Their perceived probability of receiving an offer increases by about 0.13 standard deviations for commercial clerk apprenticeships and by 0.60 standard deviations for IT. Boys, in contrast, report lower expected hiring chances in response to the treatment (–0.19 standard deviations for commercial clerk and –0.14 standard deviations for IT). These effects are based on the gender-primed belief measure ("How likely do you think you as a girl/boy would get an offer?") collected in the second wave.

Panel A of Appendix Table A5 reports the corresponding estimates using the original scales and shows that these patterns are robust. The effects are strongest for girls in IT, the most male-dominated and math-intensive occupation of the two treatment occupations, consistent with the idea that the intervention is most salient when it directly counters entrenched gender norms. We also find positive spillovers to other male-dominated, math-intensive occupations: treated girls report higher perceived chances of receiving offers in these fields as well. By contrast, when we use the first-wave question that did not ask students to condition explicitly on their own gender (no gender priming), treatment effects largely mirror average outcomes across genders and are attenuated, as expected.

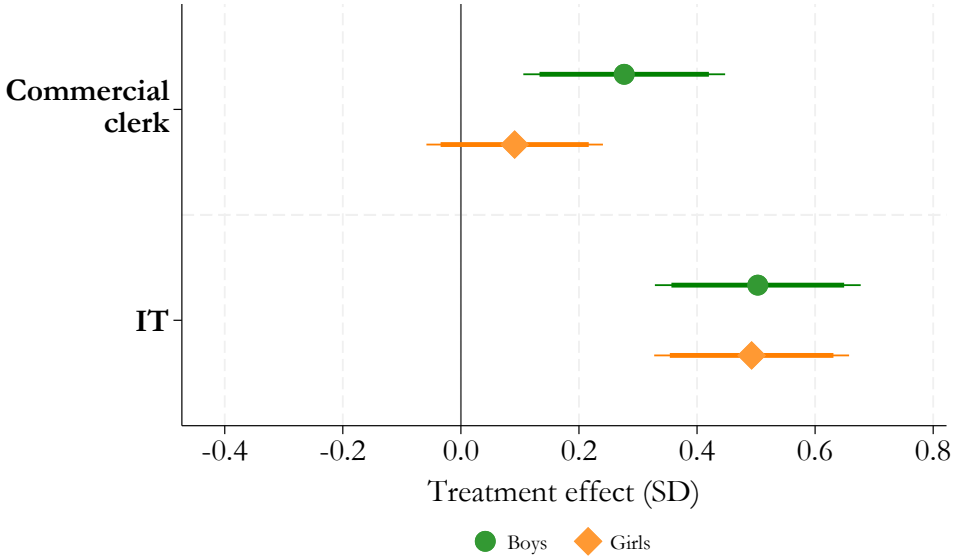
In additional questions, students were asked how many applications they expected to submit before receiving an offer. Girls in the control group believe they would need to send around eight applications for commercial clerk and nearly nine for IT (Panel A, Appendix Table A5). The treatment reduces these expectations by about two applications, suggesting that the diversity message increases girls' confidence in their hiring prospects. Boys expect to submit fewer applications overall—roughly seven for both occupations—and their expectations are statistically unaffected by the treatment.

Figure 3: Treatment Effects on Beliefs About Own and Female Hiring Chances

(a) Short-Term Outcome: Job Prospect (Gender-Primed)



(b) Medium-Term Outcome: Female Offers



Note: Graph (a): *Job prospect (gender priming)* is elicited immediately after the intervention and measures students' perceived likelihood that they themselves, as a girl or boy, would receive an apprenticeship offer in the respective occupation on a five-point Likert scale from "very unlikely" to "very likely." Graph (b): *Female offers* is elicited in the two-week follow-up survey and measures students' beliefs about the number of female applicants (out of ten) who would receive an offer in the respective occupation. All outcomes are standardized to have mean 0 and standard deviation 1 in the control group. Panel (a): $N_{boys} = 824$, $N_{girls} = 819$. Panel (b): $N_{boys} = 790$, $N_{girls} = 868$. All regressions include class fixed effects and controls for age, math and German type, plans to pursue academic education, parental education, pre-treatment interest in commercial clerk/IT, whether students have a high perceived chance to get hired as commercial clerk / IT, whether they believe they need to write many applications / never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, high risk tolerance, high preference for competition, and indicators for imputed values. The figure reports 95% and 90% confidence intervals.

Persistence over time. In the two-week follow-up survey, we examine whether these belief changes persist and generalize to beliefs about other applicants (Panel B, Appendix Table A5). Students were asked: "Out of 10 female students applying to [occupation], how many receive an offer?" For IT, both girls and boys in the treatment group increase their perceived female hiring chances by roughly one applicant relative to the control group, from a control mean of around four. This corresponds to an increase of approximately 25 percent, or about 0.5 standard deviations (Graph (b) of Figure 3), and is statistically significant at the 1 percent level. For commercial clerk, a more gender-balanced occupation, the effects are smaller: the treatment raises girls' beliefs by about 0.09 standard deviations (not statistically significant) and boys' beliefs by about 0.28 standard deviations (significant at the 1 percent level). Overall, both boys and girls come to expect more offers for female applicants in math-intensive fields, with markedly stronger effects in male-dominated occupations.

No perceived zero-sum trade-off. A potential concern with gender-targeted promotion is that boys might interpret messages about firms' demand for women as implying worse prospects for men. Panel B of Appendix Table A5 shows no evidence of such a perceived zero-sum trade-off. Boys' beliefs about the hiring chances of male applicants do not decline in response to the treatment. If anything, boys and girls report a small increase in the perceived hiring chances of male applicants in gender-neutral occupations, while girls' beliefs about male hiring chances slightly decrease for IT.

Beliefs about applicant composition. To test whether the observed treatment effects are driven by changes in beliefs about the composition of the applicant pool rather than employer demand, we also asked students to estimate the expected share of female applicants in each occupation ("Out of 100 students applying to [occupation], how many do you think are girls?"). We find no systematic treatment effects on these perceptions (Panel B of Appendix Table A5). This suggests that students interpreted the intervention primarily as information about firms' hiring behavior toward women, rather than as a signal that more girls would apply.

Taken together, these results indicate that the intervention successfully conveys its central message: firms are actively seeking to recruit women, particularly in math-intensive and male-dominated occupations. Both girls and boys absorb the message,

without generating concern among boys that their own opportunities would be reduced. For completeness, Appendix Table A4 shows that all results are qualitatively and quantitatively similar when estimated without class fixed effects or baseline controls, consistent with individual-level randomization within classes.

4.2 Treatment effects on occupational aspirations

We next examine whether exposure to the gender diversity messages affects students' interest in the featured occupations for both girls and boys. In particular, we ask whether the intervention raises girls' interest in these careers without discouraging boys, which would otherwise indicate an unintended backlash.

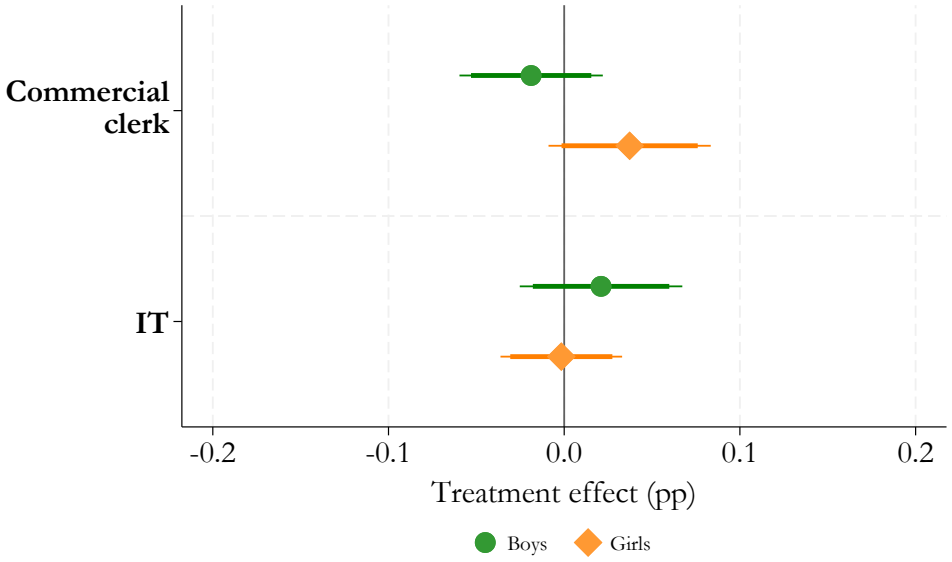
Short-term effects. Graph (a) of Figure 4 summarizes the short-term impacts on students' stated interest in the two featured occupations, measured by sign-ups for a newsletter or a lottery to win a trial apprenticeship. Contrary to the intervention's goal, we find no evidence that the gender-equality message increases girls' interest in either commercial clerk or IT apprenticeships. Boys' interest in IT also remains unchanged. Appendix Table A7 reports the corresponding estimates separately for newsletter sign-ups and for trial apprenticeship lottery participation, rather than the combined outcome measure shown in Figure 4. The only notable effect is a 4.7 percentage point decline in boys' sign-ups for a commercial clerk trial apprenticeship relative to the control group, corresponding to a 24 percent reduction—a statistically significant decrease.

Medium-term effects. Two weeks later, we reassessed students' occupational interests in the follow-up survey (Graph (b) of Figure 4). Consistent with the short-term results, we find no statistically significant differences in reported interest for either gender. Estimated treatment effects remain small and statistically indistinguishable from zero across all medium-term outcomes.

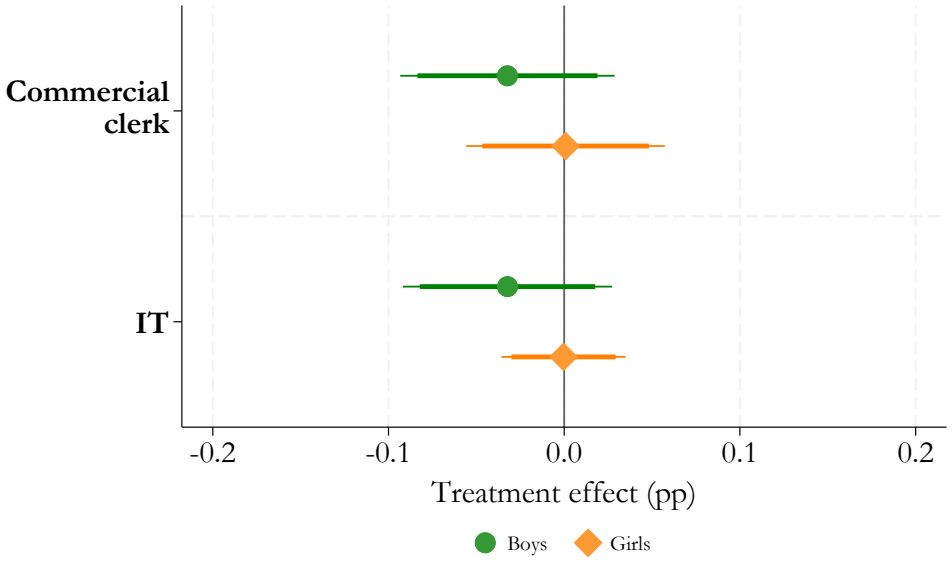
We also explore whether the gender-equality message influences students' perceived fit with math-intensive or male-dominated careers—a possible mechanism linking beliefs to aspirations. If girls interpreted the videos as encouraging signals, we might expect them to feel more confident in their suitability for these roles; conversely, boys could experience a decline in perceived fit. However, the evidence does not support either pattern. Across all measures of perceived fit, including those for commercial clerk, IT,

Figure 4: Treatment Effects on Interest in Promoted Occupations

(a) Short-Term Outcome: Sign-Up for Newsletter or Trial Apprenticeship



(b) Medium-Term Outcome: Occupation Considered in the Last Two Weeks



Note: Graph (a): The short-term outcome is an indicator for whether the student shows interest in the treatment occupation by signing up for either a newsletter and/or the chance to win a trial apprenticeship immediately after the intervention. Graph (b): The medium-term outcome is an indicator of whether the student reports having thought about the occupation in the last two weeks in the follow-up survey. All outcomes are binary indicators; coefficients are shown in percentage points. Panel (a): $N_{boys} = 1{,}484$, $N_{girls} = 1{,}454$. Panel (b): $N_{boys} = 842$, $N_{girls} = 912$. All regressions include class fixed effects and controls for age, math and German type, plans to pursue academic education, parental education, pre-treatment interest in commercial clerk/IT, whether students have a high perceived chance to get hired as commercial clerk / IT, whether they believe they need to write many applications/ never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, high risk tolerance, high preference for competition, and indicators for imputed values. The figure reports 95% and 90% confidence intervals.

and gender-neutral as well as male-dominated math-intensive occupations, treatment effects are close to zero and statistically insignificant (Panel B, Appendix Table A7).[12]

A natural question is why these belief shifts did not translate into higher aspirations for girls. One explanation is timing: by 8th grade, occupational preferences and academic self-concepts may already be relatively fixed, shaped by years of socialization, early tracking, and feedback about strengths and abilities. From this perspective, our intervention is early in the horizon of firms—slightly before typical corporate outreach—but late in the process through which gendered career intentions are formed. A single exposure that signals strong employer demand for girls may therefore be too light to shift plans that students perceive as already aligned with their abilities and identity. At the same time, the lack of systematic effects for boys indicates that such messages do not provoke backlash, even when they explicitly highlight gender-targeted recruitment efforts. Together, these findings show that corporate-style gender diversity, equity and inclusion communication can meaningfully shift beliefs about opportunities, but it appears insufficient to change deeper determinants of choice and career trajectories at this stage of adolescence.

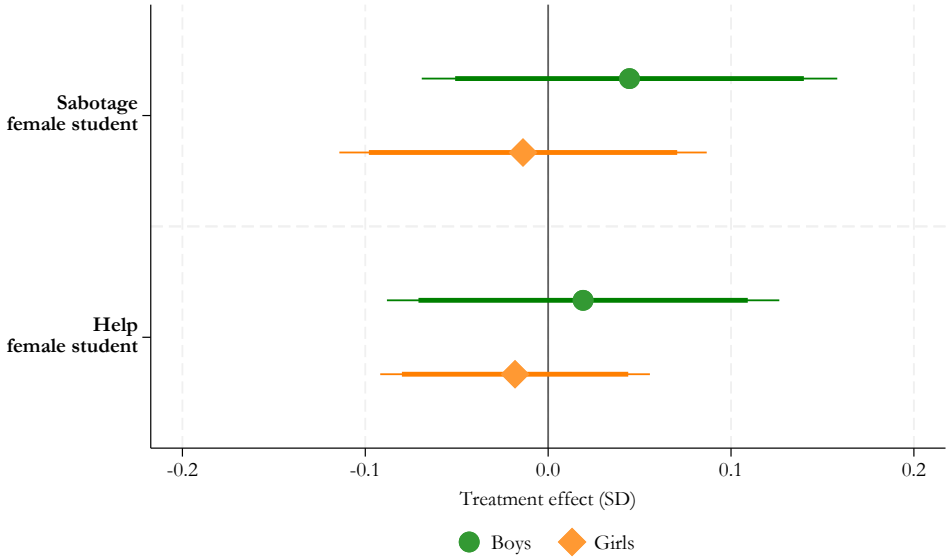
4.3 Treatment effects on backlash behavior

A central concern surrounding gender-targeted initiatives is that emphasizing women's advancement might provoke backlash among men, manifested as antisocial behavior or reduced willingness to cooperate with women. We test this hypothesis directly using behavioral data from the sabotage and help games, which are designed to measure antisocial and prosocial behavior toward female peers (Chakraborty and Serra, 2024).

Antisocial behavior: sabotage game. Figure 5 displays treatment effects on the number of tokens students use to sabotage a female opponent, a direct measure of negative behavior toward girls. If the gender diversity message had elicited backlash, we would expect treated boys to sabotage female opponents more often than boys in the control group. We find no such pattern. Girls' sabotaging behavior is similarly unaffected by the intervention.

[12]For completeness, Appendix Table A6 reports the results without baseline controls. We observe some small impacts on boys' interest in IT, which likely reflect baseline imbalances in initial IT interest.

Figure 5: Treatment Effects on Antisocial and Prosocial Behavior Toward Female Classmates



Note: This figure shows treatment effects on anti- and prosocial behavior towards female students in the sabotage and help games. Students could use up to five tokens to sabotage or help a female student. The dependent variables are standardized to have mean 0 and standard deviation 1 in the control group. Sample sizes: $N_{boys} = 1{,}484$, $N_{girls} = 1{,}454$. All regressions include class fixed effects and control for age, math and German track, plans to pursue academic education, parental education, pre-treatment interest in commercial clerk/IT, baseline hiring beliefs, expected number of applications needed, the average math requirement of preferred occupations, risk tolerance, preference for competition, and indicators for imputed values. For *Sabotage female student*, we additionally control for whether students played the verbal or math task against a female opponent and whether they played against a female first. For *Help female student*, we additionally control for the type of game and the order in which the female and male students are displayed. The figure reports 95% and 90% confidence intervals.

Prosocial behavior: helping female students We also examine whether exposure to gender-equality messages affects students' willingness to help female peers in the dictator game, where they can allocate tokens between a male and a female student. If boys perceived the diversity message as threatening, we might expect them to give fewer tokens to female students and keep more tokens for their in-group displaying stronger gender-homophily (Campigotto, Rapallini and Rustichini, 2022). Again, Figure 5 provides no support for this hypothesis. Treated boys allocate an almost identical share of tokens to girls as control boys, and treated girls' allocations are also unchanged. Treated boys, if anything, distribute slightly more tokens to girls than control boys, but the difference is tiny (around 0.01 standard deviations) and statistically insignificant.

We conduct a series of checks to assess the robustness of these findings. First, both boys and girls tend to sabotage less in the first of the two games, but the treatment effect does not vary by the gender of the opponent or by the order of play (Appendix Table A10). This suggests that learning or anchoring effects do not drive our results.

Second, because students played both a math-based task and a verbal task—domains that are often stereotypically associated with boys and girls, respectively (Alan, Ertac and Mumcu, 2018; Carlana, 2019)—we examine whether behavior differs by task type. As shown in Appendix Table A11, the estimated treatment effects are similar across both types of tasks and statistically indistinguishable from zero.

We also examine whether the diversity message changes students' expectations about others' performance and antisocial behavior (Appendix Table A9). Specifically, we ask whether students anticipate a different number of correct answers or more sabotage from male versus female opponents. The intervention might increase the perceived ability of girls in male-dominated fields, such as math. Furthermore, if students expect backlash to increase following the intervention, we would observe higher anticipated sabotage. However, we find no significant differences between treatment and control groups in anticipated sabotage behavior. We also do not observe meaningful changes in the scores in the verbal and math tasks between treatment and control groups, or in the expected score of the opponent, with the only exception being a small increase in the expected score of a female opponent for girls (significant at the 10 percent level).[13]

Across all measures, including both actual behavior and anticipated behavior, we find no evidence of backlash among boys. The gender equality message neither increases antisocial conduct nor reduces prosocial tendencies. Overall, these results provide reassuring evidence that emphasizing firms' commitment to hiring women does not trigger resentment or competitive hostility among adolescent boys. Gender equality messages can thus be communicated in educational settings without generating negative interpersonal dynamics.

4.4 Discussion: mechanisms and heterogeneity

Students clearly internalize the core content of the intervention. Girls update their perceived hiring prospects upward, while boys exhibit only a small, short-run decline in gender-primed beliefs about their own hiring chances and, two weeks later, no longer perceive their labor market opportunities to be lower than in the control group. In other words, the gender-equity message does not induce a perceived zero-sum trade-off between women's and men's chances (Chinoy et al., 2023). This likely helps explain why

[13]We also checked whether self-confidence in own math and language skills is affected. Consistent with the overall pattern, we do not observe any significant effect at the 5 percent level, with only a small reduction in confidence in language for girls. For completeness, Appendix Table A8 reports all results from the sabotage and help games estimated without class fixed effects or additional controls. The results remain both quantitatively and qualitatively unchanged.

we observe no behavioral backlash in our incentivized games. Had boys viewed the message as reducing their relative chances, we would expect to see more sabotage or less help toward female peers. Instead, boys' behavior toward girls remains stable across treatment and control groups.

At the same time, the message does not increase girls' aspirations for the featured occupations or their perceived fit in math-intensive fields. Both treatment and control groups received information about the relevant occupations, but only the treatment group received the explicit diversity framing. Even a clear and explicit gender-equality message delivered through two professionally produced videos appears insufficient, by itself, to shift career intentions or self-concept in the short run. Moreover, we find no evidence that the intervention changes students' perceived fit with math-intensive or male-dominated careers, for either gender. Together, these results suggest that awareness of external demand for diversity is not enough on its own to alter how adolescents see themselves or the careers they want to pursue.

To explore potential mechanisms, we examine treatment effects across subgroups defined by a set of pre-registered characteristics: school track, parental education, baseline interest in IT and commercial clerk, and economic preferences.

First, we assess whether gender-equality messages increase girls' interest in math-intensive, male-dominated occupations among those who may have had less prior exposure to female role models or weaker baseline interest in these fields. Appendix D shows no evidence of heterogeneous effects along any of these dimensions. Across all subgroups, the estimated impact on girls' occupational interests is a precisely estimated zero.

Second, we examine heterogeneity among boys to test mechanisms emphasized in theories of backlash, including status threat, social identity, and relative deprivation. These frameworks predict that individuals who perceive their group's status or future opportunities as threatened by out-group advancement may respond defensively, particularly when opportunities are viewed as fixed and competition is salient. In this context, boys who are strongly oriented toward math-intensive, male-dominated occupations, or who exhibit high competitiveness, may be especially prone to interpret gender-equality messages as zero-sum—implying that gains for girls come at the expense of boys' own prospects. Such perceptions could manifest as reduced interest in the promoted occupations or as antisocial behavior toward girls. Appendix D provides strong evidence against these mechanisms. Across all subgroups, treatment effects are statistically indis-

tinguishable from zero for both occupational interests and behavioral outcomes. Even among boys for whom status threat or relative deprivation concerns would be theoretically most salient, we find no indication that the diversity messages activated zero-sum thinking or triggered defensive responses.

5 Conclusion

This paper studies how gender-equity messages shape adolescents' beliefs, aspirations, and behavior at a critical decision point in their educational trajectories. We partnered with major employers to experimentally vary exposure to a gender-equality message embedded in realistic recruitment videos, delivered during school hours to a large sample of 8^{th} grade students in Zurich who are about to choose an apprenticeship occupation. The evidence paints a consistent picture: gender-targeted promotion successfully communicates firms' intentions to recruit more women and improves girls' beliefs about their hiring chances, but it neither provokes backlash among boys nor meaningfully shifts girls' occupational choices. Heterogeneity analyses confirm that these average effects are not masking offsetting responses among particular subgroups, and that across a broad set of baseline characteristics we find no systematic differences in treatment effects.

Our study takes place in the Swiss apprenticeship context, where career decisions occur at an early age and gender-typing of fields is pronounced. This early decision point may simultaneously heighten the potential impact of outreach and the resistance to changing plans: students are close enough to the apprenticeship search for employer messages to be salient, but many have already formed relatively stable views about "appropriate" occupations and their own comparative advantage. We believe the core insight—that a one-time gender-equity message can shift perceptions without necessarily altering actual choices—is likely to extend to other settings, though the magnitude and nature of responses could differ for older students or in cultures with stronger or weaker gender norms. Future research in varied institutional environments (e.g., universities or other countries) would help assess how robust these patterns are and which features of context moderate the effectiveness of corporate-style outreach.

A distinctive feature of our study is the use of incentivized behavioral measures collected in schools, rather than relying solely on survey questions about attitudes toward gender equality or hypothetical reactions to diversity policies. In online or self-

administered surveys, responses to questions about backlash, discrimination, or fairness are particularly vulnerable to social desirability bias and experimenter demand. By contrast, our sabotage and help games were framed as competitive and cooperative tasks with real monetary consequences for classmates, implemented in a familiar classroom environment. This design allows us to capture subtle forms of antisocial and prosocial behavior toward female peers that might not be revealed in self-reported answers. The absence of backlash in these incentivized behaviors therefore provides a stronger test than simply observing stated agreement with gender-equality statements. Of course, our measures cannot rule out all forms of backlash: subtle attitudinal shifts or later reactions could occur outside the observed time frame. However, within the scope of our experiment, we find no sign of negative behavioral response.

From a policy perspective, our findings are both reassuring and cautionary. On the reassuring side, emphasizing firms' efforts to promote gender equality does not appear to alienate boys or foster antagonism, even during adolescence, a life stage in which social identity and concerns about fairness are particularly salient. At the same time, the results temper expectations about what short, information-based campaigns can accomplish in terms of closing gender gaps in career aspirations. Gender diversity messages of the type used by large employers appear effective in signaling intentions and shifting beliefs about opportunities, but they do not, by themselves, reorient girls' occupational plans.

These conclusions point to a broader lesson for the design of gender-equality policies. Representation-focused messages and corporate commitments may be a necessary ingredient for changing norms and expectations, but they are unlikely to be sufficient. Efforts to promote diversity in STEM and leadership fields may need to combine such messages with deeper engagement strategies—such as mentorship, role-model interactions, hands-on experiences, or classroom-level interventions that build skills, confidence, and a sense of belonging (Breda et al., 2023; Cohodes, Ho and Robles, 2022; Porter and Serra, 2020). Future work could explore how diversity messages interact with these richer interventions, and whether repeated exposure over longer horizons can gradually translate belief changes into sustained shifts in educational and occupational choices.

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Supplemental Appendix

Backlash to Gender Equality?

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A Appendix Tables

Table A1: Summary statistics of all outcome variables

Variable	Boys			Girls			Difference
	Obs	Mean	S.D.	Obs	Mean	S.D.	p-value
Panel A: Beliefs about hiring prospects in different occupations							
Panel A.1: Short-term outcomes							
Job prospect (gender priming): Commercial clerk	428	3.530	0.896	416	3.947	0.771	0.000
Job prospect (gender priming): IT	428	3.526	0.983	416	3.202	0.857	0.000
Job prospect (gender priming): Gender-neutral math	428	3.091	1.033	416	3.529	0.894	0.000
Job prospect (gender priming): Male-dominated math	428	3.593	1.115	416	2.606	0.866	0.000
Commercial clerk - no gender priming	337	3.338	1.085	331	3.459	1.045	0.143
IT - no gender priming	337	3.190	1.107	331	2.677	1.039	0.000
Gender-neutral math - no gender priming	337	2.579	1.183	331	2.885	1.114	0.001
Male-dominated math - no gender priming	337	2.920	1.127	331	2.329	1.100	0.000
Application effort: Commercial clerk	408	6.919	9.877	398	8.050	12.227	0.148
Application effort: IT	387	7.649	9.885	326	8.825	11.495	0.142
Panel A.2: Medium-term outcomes							
Female offers: Commercial clerk	419	5.549	2.145	452	5.772	1.959	0.109
Female offers: IT	419	3.916	1.976	452	4.062	1.963	0.276
Female offers: Math-gender neutral	375	4.613	2.299	424	4.474	2.134	0.375
Female offers: Math male-dominated.	375	2.933	2.139	424	3.340	2.164	0.008
Male offers: Commercial clerk	419	5.279	1.971	452	5.115	1.874	0.208
Male offers: IT	419	5.697	1.979	452	5.954	2.079	0.063
Male offers: Math-gender neutral	375	4.168	2.016	424	4.337	1.889	0.221
Male offers: Math male-dominated	375	6.285	2.274	424	6.432	2.164	0.352
Female share: Commercial clerk	419	53.998	18.339	452	59.834	17.776	0.000
Female share: IT	419	34.344	17.881	452	34.447	18.470	0.933
Female share: Math-gender neutral	375	41.000	21.699	424	42.123	21.500	0.464
Female share: Math male-dominated	375	19.453	16.226	424	20.024	16.424	0.622
Panel B: Occupational aspirations							
Panel B.1: Short-term outcomes							
Interest in commercial clerk	443	0.381	0.486	476	0.422	0.494	0.033
Interest in IT	443	0.418	0.494	476	0.155	0.363	0.000
Wants newsletter: Commercial clerk	443	0.321	0.467	476	0.347	0.476	0.508
Wants newsletter: IT	443	0.393	0.489	476	0.139	0.346	0.000
Wants trial apprenticeship: Commercial clerk	443	0.199	0.399	476	0.261	0.439	0.001
Wants trial apprenticeship: IT	443	0.178	0.383	476	0.057	0.232	0.000
Panel B.2: Medium-term outcomes							
Interest in commercial clerk	443	0.298	0.458	476	0.288	0.453	0.736
Interest in IT	443	0.300	0.459	476	0.092	0.290	0.000
Fit: Commercial clerk (std.)	429	-0.069	1.069	458	0.065	0.927	0.045
Fit: IT (std.)	429	0.374	0.951	458	-0.350	0.915	0.000
Fit: Math-gender neutral (std.)	384	-0.005	1.035	430	0.005	0.969	0.886
Fit: Math male-dominated (std.)	384	0.409	0.986	430	-0.366	0.862	0.000
Career oriented (std.)	371	-0.005	1.019	423	0.004	0.984	0.897
Fit career/family	409	1.983	1.054	444	2.128	1.126	0.052
Not good enough in math	409	2.513	1.168	444	2.872	1.175	0.000
Gender is an issue	409	1.831	1.023	444	1.989	1.029	0.025
Panel C: Behavior in experimental games							
Sabotage male student: Verbal task	387	2.424	1.427	358	2.115	1.257	0.002
Sabotage female student: Verbal task	379	2.478	1.463	389	2.095	1.272	0.000
Sabotage male student: Math task	379	2.578	1.511	389	2.147	1.328	0.000
Sabotage female student: Math task	387	2.439	1.439	358	2.117	1.332	0.002
Score: Verbal task	766	9.238	3.499	747	8.250	3.157	0.000
Score: Math task	766	11.514	4.983	747	8.976	3.816	0.000
Misperception of score: Verbal task	766	-2.728	3.655	747	-4.303	3.609	0.000
Misperception of score: Math task	766	-4.781	5.127	747	-6.238	4.966	0.000
Anticipated sabotage, male opponent: Verbal task	387	2.610	1.302	358	2.542	1.131	0.449
Anticipated sabotage, female opponent: Verbal task	379	2.578	1.250	389	2.411	1.184	0.058
Anticipated sabotage, male opponent: Math task	379	2.697	1.371	389	2.586	1.151	0.227
Anticipated sabotage, female opponent: Math task	387	2.755	1.251	358	2.427	1.173	0.000
Expected score of male opponent: Verbal task	387	9.721	3.689	358	9.500	3.238	0.387
Expected score of female opponent: Verbal task	379	9.446	4.028	389	9.455	3.317	0.973
Expected score of male opponent: Math task	379	11.520	4.738	389	10.761	4.132	0.018
Expected score of female opponent: Math task	387	11.295	4.447	358	10.134	3.822	0.000
Help female student: Verbal task	369	0.353	0.232	371	0.599	0.149	0.000
Help female student: Math task	397	0.352	0.231	376	0.598	0.152	0.000
Language confidence	766	3.766	0.858	747	3.867	0.830	0.020
Math confidence	766	3.884	0.833	747	3.446	0.905	0.000

Note: This table reports the means of the control group for all collected outcome variables. Variables labeled "(std.)" are standardized to have mean 0 and standard deviation 1 in the control group. Panel A.1, B2, and C reports short-term outcomes collected immediately after the intervention. Panel A.2 and B.2 report medium-term outcomes from the two-week online follow-up survey. The number of observations in these panels varies across outcome variables because of follow-up attrition. *Job prospect (gender priming)* measures students' perceived likelihood that they themselves, as a girl/boy, would receive an apprenticeship offer in the respective occupation on a five-point Likert scale from "very unlikely" to "very likely". *Application effort*: measures students' perception of how many applications they need to write to get a job. We correct unreasonably high numbers downwards. *Male/Female offers* measures students' beliefs about the number of male/female applicants (out of ten) who would receive an offer in the respective occupation. *Female share* measures students' beliefs about the number of female applicants (out of 10) in the respective occupation. *Interest in commercial clerk / IT (short run)* is the share of students interested in the respective newsletter and/or trial apprenticeship- *Interest in commercial clerk / IT (medium run)* is the share of students who report having thought about the respective occupation during the last two weeks. *Fit* is the standardized index, measuring students' fit to the occupation and environment in the respective occupation.

Table A2: Motivating the sabotage game

	Boys	Girls
Panel A: Sabotage female student		
Help female student	-0.120***	0.052
Panel B: Sabotage male student		
Help female student	-0.091***	-0.003
Number of observations	1,484	1,454

Note: This table reports correlations between students' sabotaging behavior with prosocial behavior towards girls, that is, the share of tokens used to help a female over a male student. The dependent variable, as well as the independent variables, are standardized to mean 0 and standard deviation 1 of the entire control sample. OLS estimates, robust standard errors in parentheses. Significance levels: *p $<$ 0.10, **p $<$ 0.05, ***p $<$ 0.01

Table A3: Attrition between baseline and follow-up sample

	Boys		Girls	
	(1)	(2)	(3)	(4)
Treated	-0.023	-0.032	-0.021	-0.018
	(0.026)	(0.026)	(0.025)	(0.025)
Age		0.008		0.026
		(0.030)		(0.031)
Any parent has tertiary education		0.009		0.004
		(0.036)		(0.034)
Parent with vocational education		0.023		0.013
		(0.036)		(0.034)
Math: advanced requirements		0.115***		0.100***
		(0.042)		(0.037)
German: advanced requirement		0.039		0.066
		(0.046)		(0.043)
Math grade >= 5		0.051*		0.081***
		(0.028)		(0.028)
German grade >= 5		0.051*		0.023
		(0.029)		(0.030)
Plans to attend academic track		-0.011		-0.038
		(0.034)		(0.032)
Interest in commercial clerk		-0.034		0.019
		(0.031)		(0.029)
Interest in IT		0.028		-0.036
		(0.029)		(0.049)
High hiring chance: Commercial clerk		0.075**		-0.039
		(0.038)		(0.037)
High hiring chance: IT		0.016		0.028
		(0.039)		(0.052)
Application effort - no callbacks: Commercial clerk		0.043		0.038
		(0.067)		(0.073)
Application effort - no callbacks: IT		-0.008		-0.046
		(0.064)		(0.046)
Application effort - high: Commercial clerk		-0.026		0.053
		(0.044)		(0.044)
Application effort - high: IT		0.039		-0.038
		(0.043)		(0.047)
Mean math requirement of preferred occupations		-0.000		-0.001
		(0.001)		(0.001)
High tolerance for risk		0.056**		0.045*
		(0.027)		(0.026)
High competitiveness		-0.054**		-0.014
		(0.027)		(0.028)
Mean follow-up participation rate	0.567	0.567	0.627	0.627
Observations	1484	1484	1454	1454

Note: The dependent variable is a dummy which assumes value 1 if the student completed the follow-up survey and 0 otherwise. In columns (2) and (4) we impute missing values for German grade >= 5, missing mean math requirements, hiring chances and application effort. We control for whether the value was imputed. OLS estimates, robust standard errors in parentheses. Significance levels: *p < 0.10, **p < 0.05, ***p < 0.01

Table A4: Treatment impact on the beliefs about hiring prospects in different occupations (no controls)

Variable	Boys					Girls				
	Obs	Treatment	s.e	q-value	Mean control group	Obs	Treatment	s.e	q-value	Mean control group
Panel A: Beliefs about own chances of offer (short-term outcomes)										
Commercial clerk - no gender priming	659	0.143*	0.081	0.122	3.338	635	0.077	0.082	0.150	3.459
IT - no gender priming	659	0.198**	0.083	0.049	3.190	635	0.271***	0.087	0.009	2.677
Gender-neutral math - no gender priming	659	0.297***	0.091	0.012	2.579	635	0.042	0.088	0.266	2.885
Male-dominated math - no gender priming	659	0.065	0.090	0.486	2.920	635	-0.033	0.086	0.266	2.329
Commercial clerk - gender priming	824	-0.182***	0.062	0.015	3.530	819	0.130**	0.056	0.043	3.947
IT - gender priming	824	-0.132**	0.065	0.085	3.526	819	0.607***	0.067	0.001	3.202
Gender-neutral math - gender priming	824	-0.018	0.068	0.658	3.091	819	-0.137**	0.064	0.043	3.529
Male-dominated math - gender priming	824	0.083	0.073	0.270	3.593	819	0.119*	0.063	0.054	2.606
Application effort: Commercial clerk	786	-0.353	0.677	0.503	6.919	786	-1.772**	0.796	0.043	8.050
Application effort: IT	761	-0.445	0.697	0.486	7.649	669	-2.073**	0.826	0.034	8.825
Panel B: Gendered beliefs about applicants and offers (medium-term outcomes)										
Female offers: Commercial clerk	790	0.545***	0.149	0.002	5.549	868	0.283**	0.134	0.074	5.772
Female offers: IT	790	1.116***	0.152	0.001	3.916	868	0.974***	0.148	0.001	4.062
Female offers: Math-gender neutral	713	0.372**	0.173	0.052	4.613	816	0.153	0.151	0.304	4.474
Female offers: Math male-dominated.	713	0.537***	0.172	0.005	2.933	816	0.617***	0.168	0.002	3.340
Male offers: Commercial clerk	790	0.284**	0.136	0.052	5.279	868	0.056	0.129	0.431	5.115
Male offers: IT	790	0.160	0.141	0.238	5.697	868	-0.305**	0.140	0.074	5.954
Male offers: Math-gender neutral	713	0.507***	0.158	0.005	4.168	816	0.316**	0.136	0.074	4.337
Male offers: Math male-dominated	713	0.058	0.170	0.514	6.285	816	-0.128	0.155	0.374	6.432
Female share: Commercial clerk	790	0.342	1.342	0.514	53.998	868	-0.711	1.234	0.394	59.834
Female share: IT	790	0.306	1.303	0.514	34.344	868	-0.432	1.217	0.431	34.447
Female share: Math-gender neutral	713	-2.080	1.570	0.190	41.000	816	-2.773*	1.456	0.091	42.123
Female share: Math male-dominated	713	-1.051	1.159	0.322	19.453	816	-1.478	1.062	0.165	20.024

Note: This table reports treatment effects on all outcome variables measuring whether the treatment message was understood. Panel A reports short-term outcomes collected immediately after the intervention. Panel B reports medium-term outcomes from the two-week online follow-up survey. The number of observations in these panels varies across outcome variables because of follow-up attrition. *Job prospect (gender priming)* measures students' perceived likelihood that they themselves, as a girl/boy, would receive an apprenticeship offer in the respective occupation on a five-point Likert scale from "very unlikely" to "very likely". *Application effort*: measures students' perception on how many applications they need to write to get a job. We correct unreasonably high numbers downwards. *Female share* measures students' beliefs about the number of female applicants (out of 10) in the respective occupation. *Male/Female offers* measures students' beliefs about the number of male/female applicants (out of ten) who would receive an offer in the respective occupation. *Female share* measures students' beliefs about the number of female applicants (out of 100) in the respective occupation. We report Anderson's sharpened False Discovery Rate (FDR) q-values, calculated by panel and gender. OLS estimates, robust standard errors in parentheses. Significance levels: *p $<$ 0.10, **p $<$ 0.05, ***p $<$ 0.01

Table A5: Treatment impact on the beliefs about hiring prospects in different occupations (with controls)

Variable	Boys					Girls				
	Obs	Treatment	s.e	q-value	Mean control group	Obs	Treatment	s.e	q-value	Mean control group
Panel A: Beliefs about own chances of offer (short-term outcomes)										
Commercial clerk - no gender priming	659	0.128	0.081	0.246	3.338	635	0.103	0.082	0.100	3.459
IT - no gender priming	659	0.030	0.077	0.497	3.190	635	0.246***	0.091	0.018	2.677
Gender-neutral math - no gender priming	659	0.248**	0.098	0.059	2.579	635	0.044	0.099	0.261	2.885
Male-dominated math - no gender priming	659	0.139	0.094	0.246	2.920	635	-0.037	0.093	0.261	2.329
Commercial clerk - gender priming	824	-0.163***	0.058	0.059	3.530	819	0.110*	0.059	0.058	3.947
IT - gender priming	824	-0.135**	0.064	0.107	3.526	819	0.565***	0.072	0.001	3.202
Gender-neutral math - gender priming	824	-0.026	0.073	0.497	3.091	819	-0.183***	0.068	0.018	3.529
Male-dominated math - gender priming	824	0.075	0.077	0.393	3.593	819	0.127*	0.068	0.058	2.606
Application effort: Commercial clerk	786	-0.703	0.567	0.303	6.919	786	-2.068***	0.753	0.018	8.050
Application effort: IT	761	-0.727	0.608	0.303	7.649	669	-1.702**	0.785	0.039	8.825
Panel B: Gendered beliefs about applicants and offers (medium-term outcomes)										
Female offers: Commercial clerk	790	0.568***	0.179	0.009	5.549	868	0.187	0.157	0.373	5.772
Female offers: IT	790	0.991***	0.175	0.001	3.916	868	0.970***	0.166	0.001	4.062
Female offers: Math-gender neutral	713	0.271	0.213	0.338	4.613	816	0.183	0.178	0.395	4.474
Female offers: Math male-dominated.	713	0.341*	0.205	0.234	2.933	816	0.586***	0.189	0.012	3.340
Male offers: Commercial clerk	790	0.202	0.152	0.338	5.279	868	0.046	0.151	0.799	5.115
Male offers: IT	790	0.040	0.161	0.539	5.697	868	-0.282*	0.152	0.193	5.954
Male offers: Math-gender neutral	713	0.381**	0.189	0.173	4.168	816	0.324**	0.160	0.168	4.337
Male offers: Math male-dominated	713	0.202	0.201	0.338	6.285	816	-0.176	0.178	0.395	6.432
Female share: Commercial clerk	790	-0.551	1.569	0.539	53.998	868	-0.813	1.378	0.728	59.834
Female share: IT	790	-0.811	1.572	0.539	34.344	868	-0.598	1.366	0.728	34.447
Female share: Math-gender neutral	713	-3.106	1.913	0.234	41.000	816	-3.006*	1.766	0.208	42.123
Female share: Math male-dominated	713	-1.646	1.408	0.338	19.453	816	-0.607	1.198	0.728	20.024

Note: This table reports treatment effects on all outcome variables measuring whether the treatment message was understood. Panel A reports short-term outcomes collected immediately after the intervention. Panel B reports medium-term outcomes from the two-week online follow-up survey. The number of observations in these panels varies across outcome variables because of follow-up attrition. *Job prospect (gender priming)* measures students' perceived likelihood that they themselves, as a girl/boy, would receive an apprenticeship offer in the respective occupation on a five-point Likert scale from "very unlikely" to "very likely". *Application effort*: measures students' perception on how many applications they need to write to get a job. We correct unreasonably high numbers downwards. *Female share* measures students' beliefs about the number of female applicants (out of 10) in the respective occupation. *Male/Female offers* measures students' beliefs about the number of male/female applicants (out of ten) who would receive an offer in the respective occupation. *Female share* measures students' beliefs about the number of female applicants (out of 100) in the respective occupation. We control for class-fixed effects, age, Math and German type, plan to pursue academic education, parental education, whether students have pre-treatment interest in commercial clerkship / IT, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many application / never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, high risk tolerance, high preference for competition, and imputed values. We report Anderson's sharpened False Discovery Rate (FDR) q-values, calculated by panel and gender. OLS estimates, robust standard errors in parentheses. Significance levels: *p $<$ 0.10, **p $<$ 0.05, ***p $<$ 0.01

Table A6: Estimation of treatment effect on occupational aspirations (no controls)

Variable	Boys					Girls				
	Obs	Treatment	s.e	q-value	Mean control group	Obs	Treatment	s.e	q-value	Mean control group
Panel A: Short-term outcomes										
Interest in commercial clerk	1,484	-0.002	0.025	0.491	0.359	1,454	0.035	0.026	1.000	0.412
Interest in IT	1,484	0.072***	0.026	0.032	0.415	1,454	0.010	0.019	1.000	0.157
Wants newsletter: Commercial clerk	1,484	-0.000	0.024	0.491	0.307	1,454	0.030	0.025	1.000	0.323
Wants newsletter: IT	1,484	0.043*	0.025	0.094	0.377	1,454	0.009	0.018	1.000	0.137
Wants trial apprenticeship: Commercial clerk	1,484	-0.040**	0.020	0.061	0.195	1,454	-0.005	0.023	1.000	0.266
Wants trial apprenticeship: IT	1,484	0.051**	0.021	0.039	0.174	1,454	0.012	0.013	1.000	0.060
Panel B: Medium-term outcomes										
Interest in commercial clerk	842	0.003	0.032	1.000	0.298	912	0.033	0.031	1.000	0.288
Interest in IT	842	0.033	0.032	1.000	0.300	912	0.011	0.020	1.000	0.092
Fit: Commercial clerk (std.)	810	-0.023	0.073	1.000	-0.069	879	-0.023	0.064	1.000	0.065
Fit: IT (std.)	810	0.086	0.065	1.000	0.374	879	0.016	0.063	1.000	-0.350
Fit: Math-gender neutral (std.)	732	-0.029	0.075	1.000	-0.005	827	0.041	0.068	1.000	0.005
Fit: Math male-dominated (std.)	732	-0.035	0.072	1.000	0.409	827	-0.009	0.060	1.000	-0.366
Career oriented (std.)	709	-0.059	0.078	1.000	-0.005	815	0.026	0.068	1.000	0.004
Fit career/family	776	0.058	0.079	1.000	1.983	855	0.076	0.078	1.000	2.128
Not good enough in math	776	-0.004	0.084	1.000	2.513	855	0.012	0.080	1.000	2.872
Gender is an issue	776	0.019	0.074	1.000	1.831	855	0.028	0.068	1.000	1.989

Note: This table reports treatment effects on all outcome variables regarding occupational aspirations. Variables labeled "(std.)" are standardized to have mean 0 and standard deviation 1 in the control group. Panel A reports short-term outcomes collected immediately after the intervention. Panel B reports medium-term outcomes from the two-week online follow-up survey. *Interest in commercial clerk / IT (short run)* is the share of students interested in the respective newsletter and/or trial apprenticeship- *Interest in commercial clerk / IT (medium run)* is the share of students who report having thought about the respective occupation during the last two weeks. *Fit* is the standardized index, measuring students' fit to the occupation and environment in the respective occupation. *Career oriented* is the standardized index, measuring students' aspiration to continue their education, and to take on responsibilities. *Fit family/career* measures on a 5-point scale (1 not at all to 5 very much) whether students believe that having a career and family is an obstacle to their choice of educational career. *Not good enough in math* measures on a 5-point scale (1 not at all to 5 very much) whether students believe that their math skills is an obstacle to their choice of educational career. *Gender is an issue* measures on a 5-point scale (1 not at all to 5 very much) whether students believe that their gender is an obstacle to their choice of educational career. We report Anderson's sharpened False Discovery Rate (FDR) q-values, calculated by panel and gender. OLS estimates, robust standard errors in parentheses. Significance levels: *p $<$ 0.10, **p $<$ 0.05, ***p $<$ 0.01

Table A7: Estimation of treatment effect on occupational aspirations (with controls)

Variable	Boys					Girls				
	Obs	Treatment	s.e	q-value	Mean control group	Obs	Treatment	s.e	q-value	Mean control group
Panel A: Short-term outcomes										
Interest in commercial clerk	1,484	-0.019	0.021	0.880	0.359	1,454	0.037	0.024	1.000	0.412
Interest in IT	1,484	0.021	0.024	0.880	0.415	1,454	-0.002	0.018	1.000	0.157
Wants newsletter: Commercial clerk	1,484	-0.008	0.022	1.000	0.307	1,454	0.030	0.024	1.000	0.323
Wants newsletter: IT	1,484	-0.001	0.024	1.000	0.377	1,454	0.000	0.017	1.000	0.137
Wants trial apprenticeship: Commercial clerk	1,484	-0.047***	0.018	0.053	0.195	1,454	0.001	0.021	1.000	0.266
Wants trial apprenticeship: IT	1,484	0.017	0.019	0.880	0.174	1,454	0.003	0.012	1.000	0.060
Panel B: Medium-term outcomes										
Interest in commercial clerk	842	-0.032	0.031	1.000	0.298	912	0.001	0.029	1.000	0.288
Interest in IT	842	-0.032	0.030	1.000	0.300	912	-0.000	0.018	1.000	0.092
Fit: Commercial clerk (std.)	810	-0.031	0.073	1.000	-0.069	879	-0.076	0.060	1.000	0.065
Fit: IT (std.)	810	0.051	0.062	1.000	0.374	879	-0.037	0.060	1.000	-0.350
Fit: Math-gender neutral (std.)	732	-0.071	0.089	1.000	-0.005	827	0.015	0.078	1.000	0.005
Fit: Math male-dominated (std.)	732	-0.011	0.086	1.000	0.409	827	0.022	0.068	1.000	-0.366
Career oriented (std.)	709	-0.136	0.094	1.000	-0.005	815	0.024	0.077	1.000	0.004
Fit career/family	776	0.027	0.094	1.000	1.983	855	0.062	0.096	1.000	2.128
Not good enough in math	776	-0.007	0.090	1.000	2.513	855	-0.050	0.087	1.000	2.872
Gender is an issue	776	-0.035	0.088	1.000	1.831	855	0.067	0.079	1.000	1.989

Note: This table reports treatment effects on all outcome variables regarding occupational aspirations. Variables labeled "(std.)" are standardized to have mean 0 and standard deviation 1 in the control group. Panel A reports short-term outcomes collected immediately after the intervention. Panel B reports medium-term outcomes from the two-week online follow-up survey. *Interest in commercial clerk / IT (short run)* is the share of students interested in the respective newsletter and/or trial apprenticeship- *Interest in commercial clerk / IT (medium run)* is the share of students who report having thought about the respective occupation during the last two weeks. *Fit* is the standardized index, measuring students' fit to the occupation and environment in the respective occupation. *Career oriented* is the standardized index, measuring students' aspiration to continue their education, and to take on responsibilities. *Fit family/career* measures on a 5-point scale (1 not at all to 5 very much) whether students believe that having a career and family is an obstacle to their choice of educational career. *Not good enough in math* measures on a 5-point scale (1 not at all to 5 very much) whether students believe that their math skills is an obstacle to their choice of educational career. *Gender is an issue* measures on a 5-point scale (1 not at all to 5 very much) whether students believe that their gender is an obstacle to their choice of educational career. We control for class-fixed effects, age, Math and German type, plan to pursue academic education, parental education, whether students have pre-treatment interest in commercial clerkship / IT, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications/ never have a chance to get an offer in commercial clerk / IT, the average math requirement of their preferred occupations, high risk tolerance, high preference for competition, and imputed values. We report Anderson's sharpened False Discovery Rate (FDR) q-values, calculated by panel and gender. OLS estimates, robust standard errors in parentheses. Significance levels: *p $<$ 0.10, **p $<$ 0.05, ***p $<$ 0.01

Table A8: Estimation of treatment effect on behavior in experimental games (no controls)

Variable	Boys					Girls				
	Obs	Treatment	s.e	q-value	Mean control group	Obs	Treatment	s.e	q-value	Mean control group
Sabotage male student: Verbal task	747	0.140	0.108	1.000	2.424	690	0.066	0.100	1.000	2.115
Sabotage female student: Verbal task	737	0.003	0.110	1.000	2.478	764	-0.042	0.090	1.000	2.095
Sabotage male student: Math task	737	-0.106	0.114	1.000	2.578	764	0.091	0.093	1.000	2.147
Sabotage female student: Math task	747	0.041	0.107	1.000	2.439	690	0.075	0.101	1.000	2.117
Score: Verbal task	1,484	0.237	0.193	1.000	9.238	1,454	0.127	0.173	1.000	8.250
Score: Math task	1,484	0.057	0.260	1.000	11.514	1,454	0.105	0.207	1.000	8.976
Misperception of score: Verbal task	1,484	0.067	0.191	1.000	-2.728	1,454	0.061	0.196	1.000	-4.303
Misperception of score: Math task	1,484	-0.519*	0.267	1.000	-4.781	1,454	0.190	0.258	1.000	-6.238
Anticipated loss, male opponent: Verbal task	747	0.037	0.096	1.000	2.610	690	0.148*	0.089	1.000	2.542
Anticipated loss, female opponent: Verbal task	737	0.107	0.094	1.000	2.578	764	-0.070	0.085	1.000	2.411
Anticipated loss, male opponent: Math task	737	-0.018	0.098	1.000	2.697	764	-0.013	0.082	1.000	2.586
Anticipated loss, female opponent: Math task	747	-0.096	0.095	1.000	2.755	690	0.070	0.089	1.000	2.427
Expected score of male opponent: Verbal task	747	0.085	0.291	1.000	9.721	690	0.238	0.270	1.000	9.500
Expected score of female opponent: Verbal task	737	-0.153	0.279	1.000	9.446	764	-0.114	0.256	1.000	9.455
Expected score of male opponent: Math task	737	-0.285	0.357	1.000	11.520	764	0.087	0.306	1.000	10.761
Expected score of female opponent: Math task	747	-0.195	0.332	1.000	11.295	690	0.363	0.303	1.000	10.134
Help female student: Verbal task	719	0.016	0.018	1.000	0.353	734	-0.006	0.011	1.000	0.599
Help female student: Math task	765	0.013	0.016	1.000	0.352	720	-0.013	0.011	1.000	0.598
Language confidence	1,484	0.016	0.044	1.000	3.766	1,454	-0.073*	0.043	1.000	3.867
Math confidence	1,484	0.052	0.043	1.000	3.884	1,454	0.051	0.047	1.000	3.446

Note: This table reports treatment effects on all outcome variables regarding behavioral changes collected immediately after the treatment. "*Sabotage male/female student* is the number of tokens (out of five) that a student uses to reduce the opponent's score in the sabotage game. *Score:* Students can achieve a maximum of 30 points in each game. *Misperception of score* is the difference between the believed score minus the student's actual score. *Anticipated sabotage* measures students' beliefs about the sabotaging behavior of their opponent. *Help female student* is the share of five tokens allocated to the female (rather than male) recipient in the dictator (help) game. *Language and math confidence* are measured from 1 (student disagrees that they are good at math/language) to 5 (student agrees fully that they are good at math/language). We report Anderson's sharpened False Discovery Rate (FDR) q-values, calculated by panel and gender. OLS estimates, robust standard errors in parentheses. Significance levels: *p $<$ 0.10, **p $<$ 0.05, ***p $<$ 0.01

Table A9: Estimation of treatment effect on behavior in experimental games (with controls)

Variable	Boys					Girls				
	Obs	Treatment	s.e	q-value	Mean control group	Obs	Treatment	s.e	q-value	Mean control group
Sabotage male student: Verbal task	747	0.196	0.128	1.000	2.424	690	0.039	0.120	1.000	2.115
Sabotage female student: Verbal task	737	0.094	0.131	1.000	2.478	764	-0.064	0.103	1.000	2.095
Sabotage male student: Math task	737	-0.047	0.135	1.000	2.578	764	0.113	0.100	1.000	2.147
Sabotage female student: Math task	747	0.029	0.131	1.000	2.439	690	0.038	0.120	1.000	2.117
Score: Verbal task	1,484	0.177	0.203	1.000	9.238	1,454	-0.013	0.179	1.000	8.250
Score: Math task	1,484	0.093	0.262	1.000	11.514	1,454	0.079	0.202	1.000	8.976
Misperception of score: Verbal task	1,484	0.004	0.204	1.000	-2.728	1,454	0.066	0.205	1.000	-4.303
Misperception of score: Math task	1,484	-0.540*	0.276	1.000	-4.781	1,454	0.104	0.257	1.000	-6.238
Anticipated loss, male opponent: Verbal task	747	0.006	0.116	1.000	2.610	690	0.029	0.103	1.000	2.542
Anticipated loss, female opponent: Verbal task	737	0.163	0.106	1.000	2.578	764	-0.105	0.093	1.000	2.411
Anticipated loss, male opponent: Math task	737	-0.006	0.109	1.000	2.697	764	0.043	0.089	1.000	2.586
Anticipated loss, female opponent: Math task	747	-0.185	0.113	1.000	2.755	690	0.038	0.102	1.000	2.427
Expected score of male opponent: Verbal task	747	-0.025	0.341	1.000	9.721	690	0.360	0.352	1.000	9.500
Expected score of female opponent: Verbal task	737	-0.375	0.336	1.000	9.446	764	-0.222	0.290	1.000	9.455
Expected score of male opponent: Math task	737	-0.482	0.398	1.000	11.520	764	-0.115	0.337	1.000	10.761
Expected score of female opponent: Math task	747	-0.278	0.407	1.000	11.295	690	0.668*	0.381	1.000	10.134
Help female student: Verbal task	719	0.013	0.019	1.000	0.353	734	0.002	0.012	1.000	0.599
Help female student: Math task	765	0.001	0.017	1.000	0.352	720	-0.010	0.012	1.000	0.598
Language confidence	1,484	0.045	0.044	1.000	3.766	1,454	-0.075*	0.044	1.000	3.867
Math confidence	1,484	0.033	0.039	1.000	3.884	1,454	-0.005	0.042	1.000	3.446

Note: This table reports treatment effects on all outcome variables regarding behavioral changes collected immediately after the treatment. *Sabotage male/female student* is the number of tokens (out of five) that a student uses to reduce the opponent's score in the sabotage game. *Score:* Students can achieve a maximum of 30 points in each game. *Misperception of score* is the difference between the believed score minus the student's actual score. *Anticipated sabotage* measures students' beliefs about the sabotaging behavior of their opponent. *Help female student* is the share of five tokens allocated to the female (rather than male) recipient in the dictator (help) game. *Language and math confidence* are measured from 1 (student disagrees that they are good at math/language) to 5 (student agrees fully that they are good at math/language). We control for class-fixed effects, age, Math and German type, plan to pursue academic education, parental education, whether students have pre-treatment interest in commercial clerkship / IT, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications / never have a chance to get an offer in commercial clerk/ IT, the average math requirement of their preferred occupations, high risk tolerance, high preference for competition, and imputed values. For the outcomes "Sabotage female/male students" we additionally control for whether students played the verbal or math task against a female and whether they played against a female first. For the variable "Help female student" we additionally control for the type of game, and the order of display of the female and male student. We report Anderson's sharpened False Discovery Rate (FDR) q-values, calculated by panel and gender. OLS estimates, robust standard errors in parentheses. Significance levels: *p $<$ 0.10, **p $<$ 0.05, ***p $<$ 0.01.

Table A10: Robustness: order of the sabotaging games

	Boys	Girls
	(1)	(2)
First game	-0.197*	-0.524***
	(0.102)	(0.091)
Female opponent	-0.021	-0.070
	(0.108)	(0.100)
First game × Female opponent	-0.025	0.130
	(0.152)	(0.139)
Treatment	0.016	0.069
	(0.113)	(0.098)
First game × Treatment	0.062	-0.023
	(0.155)	(0.130)
Female opponent × treatment=1	0.010	-0.190
	(0.162)	(0.140)
First game × Female opponent × Treatment	-0.016	0.216
	(0.231)	(0.192)
Constant	2.944***	1.721***
	(0.419)	(0.621)
Controls:	Yes	Yes
Observations	2,968	2,908
Mean tokens used	2.479	2.118

Note: The table reports the effect on the number of tokens students used to sabotage their opponent. Each student played two effort games, in each needing to decide how many tokens out of 5 to use to sabotage their opponent. Controls include: class-fixed effects, age, Math and German type, plan to pursue academic education, parental education, whether students have pre-treatment interest in commercial clerkship / IT, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications/ never have a chance to get an offer in commercial clerk / IT, the average math requirement of their preferred occupations, high risk tolerance, high preference for competition, and imputed values. OLS estimates, robust standard errors in parentheses. Significance levels: *p $<$ 0.10, **p $<$ 0.05, ***p $<$ 0.01

Table A11: Robustness: type of task

	Boys	Girls
	(1)	(2)
Math task	0.114	-0.010
	(0.103)	(0.094)
Female opponent	0.013	-0.061
	(0.103)	(0.093)
Math task × Female opponent	-0.111	0.074
	(0.154)	(0.140)
Treatment	0.149	-0.018
	(0.106)	(0.100)
Math task × Treatment	-0.205	0.120
	(0.155)	(0.134)
Female opponent × treatment=1	-0.097	-0.012
	(0.152)	(0.133)
Math task × Female opponent × Treatment	0.203	-0.099
	(0.230)	(0.196)
Constant	2.781***	1.496**
	(0.416)	(0.633)
Controls:	Yes	Yes
Observations	2,968	2,908
Mean tokens used	2.479	2.118

Note: The table reports the effect on the number of tokens students used to sabotage their opponent. Each student played two effort games (math and verbal task), in each needing to decide how many tokens out of 5 to use to sabotage their opponent. Controls include: class-fixed effects, age, Math and German type, plan to pursue academic education, parental education, whether students have pre-treatment interest in commercial clerkship / IT, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications/ never have a chance to get an offer in commercial clerk / IT, the average math requirement of their preferred occupations, high risk tolerance, high preference for competition, and imputed values. OLS estimates, robust standard errors in parentheses. Significance levels: *p $<$ 0.10, **p $<$ 0.05, ***p $<$ 0.01

B Data appendix

B.1 Description of outcome variables

We include one set of outcome variables, measuring i) whether students understood the treatment message, and two sets of variables measuring the treatment effect on ii) students' social interactions, and iii) students' occupational aspirations. We include short-term and medium-term outcomes. All short-term outcomes were collected directly after the treatment during the school visit. All medium-term outcomes were collected during the online follow-up survey, to which students were invited two weeks after the survey in school. Details on the exact question are reported in Appendix B.3 and B.4.

Treatment message: Belief to get an offer as a boy/girl in commercial clerk and IT. To measure whether students understood and internalized the treatment message in the short term, we asked students about their belief to get an offer for a commercial clerk or information technologist apprenticeship (*If you were to apply for the following apprenticeships, how likely do you think that you, as a girl/boy/no gender, would get an offer? very unlikely, unlikely, moderately, likely, very likely*). In the first round of data collection in school year 2023/2024, the question did not prime the students' gender, whereas in the second round of data collection in school year 2024/2025 it explicitly referred to students as girls or boys. In the main text, we report the measure of the second round of data collection in school year 2024/2025, as students did not relate the question to themselves without the gender-priming as intended. When reported as standardized outcomes, the variables are normalized to have mean 0 and standard deviation 1 in the entire control group. Appendix tables also report the corresponding non-standardized effects.

Treatment message: Estimated female hiring ratio in commercial clerk and IT. To measure whether students understood and internalized the treatment message in the medium term, we asked students to estimate the female hiring ratio of companies hiring commercial clerks and information technologists (*Out of 10 FEMALE/MALE students applying to the following apprenticeships, how many do you think receive an offer?*). The variables used in the main text are standardized to have a mean of 0 and a standard deviation of 1 of the entire control group. The appendix tables show the non-standardized effects.

Behavioral measure: Sabotaging female and male students. To measure antisocial behavior against female and male opponents, we use the number of tokens used between 0 and 5 to reduce the score of the female and male opponent. For a detailed description

of the game, see section 2 and Appendix B.5. The variables used in the main text are standardized to have a mean of 0 and a standard deviation of 1 of the control group. The appendix tables show the non-standardized effects.

Behavioral measure: Helping females. To measure prosocial behavior towards females compared to males, we use the share of tokens used to help females. Students had to distribute 5 tokens between a female and male student. For a detailed description of the game, see section 2 and Appendix B.5. The variable used in the main text is standardized to have a mean of 0 and a standard deviation of 1 of the control group. The appendix tables show the non-standardized effects.

Occupational aspiration: Interest in commercial clerk and IT. To measure whether the treatment effect on students' occupational aspiration in the short term, we measure interest in commercial clerk/IT by giving students the option to i) sign-up for a newsletter in commercial clerk/IT among other occupations and, to ii) enter in a lottery to win a trial apprenticeship of a list of occupations or to enter a lottery for an online-store voucher. Students show interest when signing up for either the newsletter and/or the trial apprenticeship.

B.2 Description of control variables

All standardized variables are standardized to have a mean 0 and standard deviation 1 of the control group if not stated otherwise. All control variables are collected during the school visit and before the treatment if not stated otherwise.

Age. Students' age is defined as the student's age in years at the time they participated in the survey during the school visit.

Parental education. Parental education is a categorical variable with three categories: 1) Any parent has tertiary education (either mother, father, or both parents have tertiary education; 2) Any parent has vocational education and no parent has any tertiary education; 3) None of the parents have vocational or university education or students do not know whether their parents have vocational and university education.

Student academic skills. To reflect the different levels at which students can take their classes in math and German, we create a categorical variable by subject which sorts students into 5 groups: 1) High grades and advanced requirement German or math; 2) High grades and intermediate requirement German or math; 3) Low grades/advanced requirement German or math; 4) Low grades/intermediate requirement German or math. 5) Missing German. "High grades" refers to students having at least grade 5

(6 is the best grade) in the respective subject. Some students did not remember their German grade. In case students did not remember their exact math grade, we asked students to state whether their last grade was higher than/equal to, or below 5.

Students plan to pursue general education (baccalaureate school). Students face two alternative pathways after completing compulsory education (see section 2.1), general education (baccalaureate school) and vocational education. We ask students which path they aspire to pursue. The variable used is a dummy variable equal to 1 when students want to pursue the general track (baccalaureate school); 0 otherwise.

Students' pre-treatment perceived chances to get an offer as a commercial clerk and IT. In the second round of data collection in school year 2024/2025, we asked students to assess the likelihood that they would get an offer in commercial clerk and IT on a Likert scale ranging from "Very unlikely", "unlikely" "moderately" "likely" to "very likely". We use two dummy variables, both for commercial clerk and IT, indicating whether students believe they have a high chance of getting an offer. Students believe that they have a "High chance" when choosing at least "moderately". The variables takes the value 0 when students did not answer the question. We do not control separately for whether students have missings, as this will be captured by class-fixed effects.

Students' pre-treatment perceived labor market scarcity in commercial clerk and IT apprenticeships. In the second round of data collection in school year 2024/2025, we asked students to estimate how many applications they need to write to get an offer in the respective occupations. We use two dummy variables, for commercial clerk and IT separately, first indicating whether students believe they would never get an offer despite applying, and second, indicating whether they believe they need to write many applications ("application effort: high") to get an offer. Students are classified as "high effort" when they believe they need to write more applications than the median number of applications. Students who indicate that they would never get an offer are handled as needing to write an infinite amount of applications, in our case 4000. Both variables take the value 0 when students did not answer the question. We do not control separately for whether students have missings, as this will be captured by class-fixed effects.

Math requirement of students aspired occupations. Students indicate prior to treatment which occupations they are interested in. We merge data on skill requirements to each occupation and calculate the average math requirement over all preferred occupations for each student (see section 3). As the skill requirement data does not exist for all occupations, we replace missing values with the average math requirement of the entire

sample. We include a control dummy for imputed values in all regressions.

Personality traits. We measure students' competitiveness, willingness to take risks, and negative reciprocity. To measure competitiveness, we ask students *"How much do you like to compete with others (e.g., in sports, in exams at school, etc.)?"*, with the option to answer "not at all" (0) to "very much" (10). Students are highly competitive when indicating at least a 7. To measure preferences for risk, we ask *How much do you agree with the following statement? I see myself as someone who likes to take risks*. Students have a high tolerance for risk when indicating at least a 4 on a 5-point Likert scale ranging from "I disagree" (1) to "I agree" (5). Unlike competitiveness and risk, we measure negative reciprocity only for students in the second year of data collection during the follow-up survey. We ask *How well does the following statement describe you as a person? If I am treated very unfairly, I will take revenge at the first opportunity, even if it comes at a price*. Students can answer on a scale ranging from "Doesn't describe me at all" (0) to "Describes me perfectly" (10). We follow Falk et al. (2016, 2018) to measure negative reciprocity.

B.3 Surveys

The following two subsections present the in-class survey as well as the follow-up survey that was sent out two weeks after the school visit.

B.3.1 School Visit Survey

Student consent form for participation

— new page —
What is your first name?
What is your last name?

— new page —
We will now tell you what to do.

— new page —
When were you born? (day/month/year)
Please select your school and your class. (school region; school; class)

— new page —

What is your plan after 9th grade?

o Apprenticeship

o 10th grade and then apprenticeship

o Baccalaureate school

o Other, please specify:

If students choose "Apprenticeship" or "10th grade":

Which apprenticeships are you currently considering for an apprenticeship? Please select at least 1 occupation.

(list of occupations as presented in next question) *If students choose "Baccalaureate school" or "Other"*:

If you were to do an apprenticeship, which apprenticeships would you consider? Please select at least 1 occupation.

o Automotive technician (Automobilfachman:frau)

o Dental assistant (Dentalassistent:in)

o Retail specialist (Detailhandelsfachmann:frau)

o Electrician (Elektroinstallateur:in)

o Care specialist (Fachmann:frau Betreuung (FaBe))

o Healthcare specialist (Fachmann:frau Gesundheit (FaGE))

o Information technologist (Informatiker:in)

o Commercial clerk (Kaufmann:frau (KV))

o Cook (Koch/Köchin)

o Logistics specialist (Logistiker:in)

o Medical practice assistant (Medizinischer Praxisassistent:in (MPA))

o Polymechanic (Polymechaniker:in)

o Draughtsman (Zeichner:in)

o Other 1 [open text box to enter desired apprenticeship]

o Other 2 [open text box to enter desired apprenticeship]

— new page —

in second wave only: If you were to apply for the following apprenticeships, how likely do you think you would get an offer?

Very unlikely/unlikely/ moderately /likely/very likely

o List of occupations that students expressed interest in previously
o Information technologist
o Commercial clerk
(randomize order of occupations)

in second wave only: What do you think? How many applications do you need to submit to get at least one offer in...
o List of occupations that students expressed interest in on the previously
o Information technologist
o Commercial clerk
(randomize order, same list as in previous question)

— new page —
if A,B classes without different levels: no question regarding levels

if students attend a BC class
At what level do you attend your lessons?
o B
o C

if students attend a class with mixed or unknown levels
At what level do you attend your lessons in...
Math?
o A/I
o B/II
o C/III

German?
o A/I
o B/II
o C/III

in second wave only: Do you receive support from a special education teacher or classroom assistant, or do you attend DaZ (German as a second language) classes?

o Yes
o No
(If students have special needs, forced to be assigned to the control group)

— new page —
How much do you like to compete with others (e.g. in sports, in exams at school, etc.)?
"Not at all" 0—10 "Very much

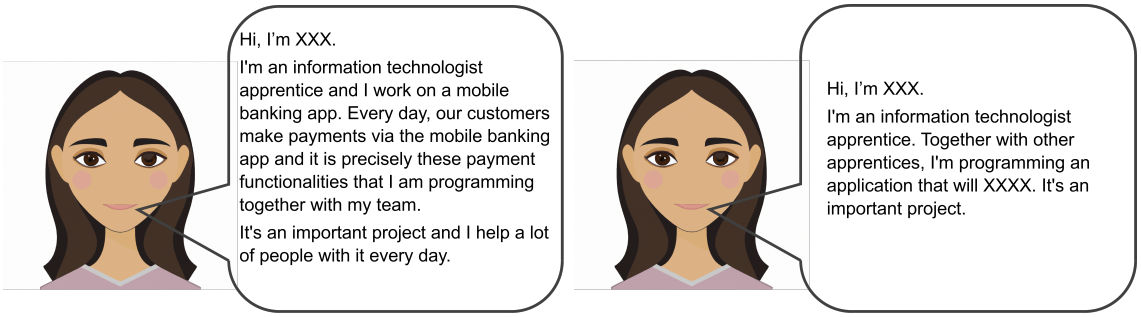
How much do you agree with the following statement? I see myself as someone who likes to take risks.
"I disagree" 1—5 "I agree"

— new page —
Randomization of students into treatment or control group

CONTROL GROUP

randomize order of whether students read about the information technologist or commercial clerk first
Information on the information technologist:
Hi everyone! In our class, we will soon be looking at career choices. On the next page, you will read about the apprenticeship as an information technologist. Which area of the apprenticeship as an information technologist would you like to find out more about?
o Public transport
o Finance
(randomize order)
— new page —

Figure B1: Information that students in the control group receive about the respective occupation and sector.



(a) Finance sector **(b)** Public transport sector

— new page —

Hi everyone! In our class, we will soon be looking at career choices. On the next page, you will read about the apprenticeship as a commercial clerk. Which area of the apprenticeship as a commercial clerk would you like to find out more about?

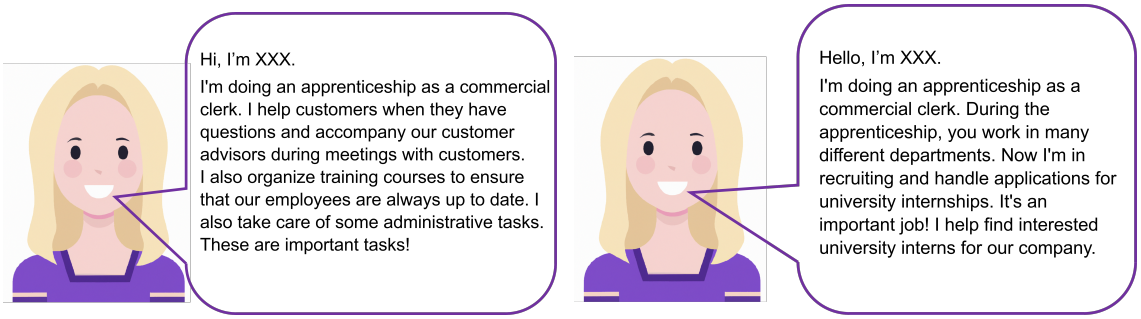
o Public transport

o Finance

(randomize order)

— new page —

Figure B2: Information that students in the control group receive about the respective occupation and sector.



(a) Finance sector **(b)** Public transport sector

— new page —

You will now see three videos with sound that will give you valuable tips on the appli-

cation and the job interview.
We will then ask you one question about the content of each video. For two of the videos, we will enter you into a prize draw to win a Galaxus voucher worth CHF 100 for every question you answer correctly. So pay attention!

— new page —
VIDEO 1: Writing a CV
Text below video: Please start the video and watch it without pausing. Please continue when the video is finished.
(video page is timed such that students need to finish watching the video)

— new page —
If you answer the following question correctly, we include you in a lottery of a voucher to Galaxus worth 100 CHF.
What should you do on a perfect application photo?
o Wear appropriate clothes
o Don't smile
o They don't say
o I do not know
(Randomize options. Keep "I don't know" always last.)

— new page —
VIDEO 2: How to save a PDF
Text below video: Please start the video and watch it without pausing. Please continue when the video is finished.
(video page is timed such that students need to finish watching the video)

— new page —
What is the last step to save a Word file as a PDF?
o They don't say that
o I select "PDF" under file formats and click on "export"
o. A Word file cannot be saved as a PDF
o. I don't know
(Randomize options. Keep "I don't know" always last.)

— new page —
VIDEO 3: Job interview
Text below video: Please start the video and watch it without pausing. Please continue when the video is finished.
(video page is timed such that students need to finish watching the video)

— new page —
If you answer the following question correctly, we include you in a lottery of a voucher to Galaxus worth 100 CHF.

Where can you inform yourself about questions that employers often ask in a job interview?
o They do not say
o It is very difficult to find this information
o On Yousty
o I do not know
(Randomize options. Keep "I don't know" always last.)

TREATMENT
You will now see two videos with sound.

We will then ask you a question about the content of each of the two videos. For each correctly answered question, we will enter you into a prize draw to win a Galaxus voucher worth CHF 100. So pay attention!

— new page —
(randomize the order of commercial clerk vs IT videos)
On the next page you will see a video about the apprenticeship as a commercial clerk. Which area of the apprenticeship as a commercial clerk would you like to see the video on?
o Public transport
o Finance
(randomize order)

— new page —

VIDEO

Text below video: Please start the video and watch it without pausing. Please continue when the video is finished.

(video page is timed such that students need to finish watching the video)

— new page —

If you answer the following question correctly, we include you in a lottery of a voucher to Galaxus worth 100 CHF.

KV financial sector

Does XXX want to continue her education after the apprenticeship?

a) Yes

b) She is not sure

c) No

d) I do not know

(randomize the order of the options, except for "I do not know" which should be last)

KV financial sector

Does XXX want to continue her education after the apprenticeship?

a) Yes

b) She is not sure

c) No

d) I do not know

(randomize the order of the options, except for "I do not know" which should be last)

IT financial sector

Does it motivate XXX that she is supported by her supervisors (Ansprechspersonen)?

a) She does not say

b) Yes

c) No

d) I do not know

(randomize the order of the options, except for "I do not know" which should be last)

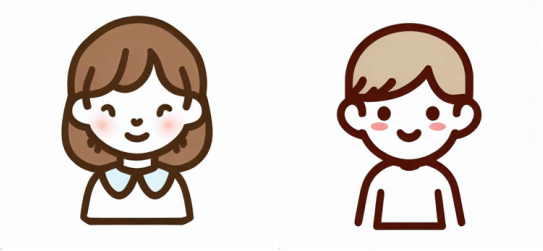
IT public transport sector
Does it motivate XXX that she is supported by her supervisors (Berufsbildern:innen)?
a. She does not say
b. Yes
c. No
d. I do not know
(randomize the order of the options, except for "I do not know" which should be last)

— new page —
Repeat for second video

— new page —
ALL
Did you have any technical issues watching the videos? No/Yes, please specify

— new page —
SABOTAGE AND HELP GAMES
Please choose an avatar. Click on the avatar you want to use for the rest of the survey.

Figure B3: Avatars



(randomize whether male/female avatar is shown on the right/left)

— new page —
We will now explain the first game to you.

— new page —
Let's look at an example together.

For the password game: HthuiL
For the calculation game: 23* 2
(which game is played first is randomized at the classroom level)

— new page —
This is the avatar of your opponent, with whom you have been randomly paired. (picture of avatar)

— new page —
Ready to play? Wait for our signal to start!

— new page —
Students play the first game. They have two minutes.
Instructions above the tasks:
Password game: Copy the passwords. Do not enter any spaces. Otherwise, the field will light up red.

Calculation game: Calculate the tasks. Note: Only enter whole numbers and no spaces, periods, commas, etc. Otherwise, the field will light up red.

— new page —
We will now explain how to proceed.

— new page —
Please select how many points you would like to deduct from your opponent:
0 0
0 1
0 2
0 3
0 4
0 5

— new page —
Do you think your opponent used tokens to reduce your score? If so, how many?

o No, 0
o Yes, 1
o Yes, 2
o Yes, 3
o Yes, 4
o Yes, 5

How many correct passwords do you think you copied? / How many correct calculations do you think you have performed? (which question is shown depends on the game students played)

How many correct passwords do you think your opponent has copied? / How many correct calculations do you think your opponent made? (which question is shown depends on the game students played)

— new page —
We will now explain the second game.

— new page —
Let's look at an example together.
For the password game: HthuiL
For the calculation game: 23* 2

— new page —
This is the avatar of your opponent, with whom you have been randomly paired. (picture of avatar)

— new page —
Ready to play? Wait for our signal to start!

— new page —
Students play the second game. They have two minutes.

Instructions above the tasks:

Password game: Copy the passwords. Do not enter any spaces. Otherwise, the field will light up red.

Calculation game: Calculate the tasks. Note: Only enter whole numbers and no spaces, periods, commas, etc. Otherwise, the field will light up red.

— new page —
We will now explain how to proceed.

— new page —
Please select how many points you would like to deduct from your opponent:
o 0
o 1
o 2
o 3
o 4
o 5

— new page —
Do you think your opponent used tokens to reduce your score? If so, how many?
o No, 0
o Yes, 1
o Yes, 2
o Yes, 3
o Yes, 4
o Yes, 5

How many correct passwords do you think you copied? / How many correct calculations do you think you have performed? (which question is shown depends on the game students played)

How many correct passwords do you think your opponent has copied? / How many correct calculations do you think your opponent made? (which question is shown depends on the game students played)

— new page —
We will now explain the last game.

— new page —
These are the avatars of the students you have been grouped with. (show avatar of a female and a male. Randomize order of female/male avatar)

— new page —
How many tokens would you like to give Student 1 in the SECOND GAME? How many tokens would you like to give Student 2 in the SECOND GAME? The total number of tokens must be 5.

— new page —
Please copy this number. These are your correct answers...
. . . in the calculation game:
. . . in the password game:

— new page —
in second wave only: What do you think: How many applications would you need to write to get an offer in. . .
o IT
o KV
(randomize order)

— new page —
in first wave only If you were to apply for the following apprenticeships, how likely do you think that you would get an offer?
Very unlikely/unlikely/ moderately /likely/very likely
o Information technologist
o Commercial clerk
o One heavily male-dominated math-intense apprenticeship (randomly select one occupation) automotive specialist; electrician; carpenter
o One gender-neutral math-intense apprenticeship (randomly select one occupation):

mediamatician; draftsman; laboratory technician
(randomize order)

— new page —
We exclusively include you in a lottery. You can either sign up for a voucher to Galaxus worth 20 CHF or for a trial apprenticeship without the need to apply in one of the occupations listed below. We ensure that the trial apprenticeship would take place within a reasonable distance from your school.
Infobox (students only see the text if they click on the information symbol): It is common to do trial apprenticeships to explore different occupations. A trial apprenticeship typically takes 2-3 days and gives you the opportunity to experience the real work environment at a specific firm in a specific occupation.
If you win the lottery, what do you prefer? (only one choice is possible)
o a voucher of 20 CHF (randomize whether shown first or last)
o a trial apprenticeship as an automotive specialist (Automobil-fachman/frau)
o a trial apprenticeship as an electrician (Elektroinstallateur/in)
o a trial apprenticeship as an information technologist (Informatiker/in)
o a trial apprenticeship as a commercial clerk (KV)
o a trial apprenticeship as a laboratory technician (Laborant/in)
o a trial apprenticeship as a mediamatician (Mediamatiker/in)
(order alphabetically according to German translation)

— new page —
Your choice of apprenticeship is important!
Would you like to subscribe to a newsletter with information about specific apprenticeships? If yes, please select up to 3 apprenticeships you would like to know more about from this list.
o No, I do not want additional information
o Retail specialist
o Electrician
o Care specialist
o Healthcare specialist
o Information technologist
o Business administrator

o Cook
o Laboratory technician
o Logistics specialist
o Mediamatician
o Medical practice assistant
o Polymechanic
o Restaurant specialist
o Carpenter
(alphabetically shown, according to German translation. Force at least one answer, allow up to three)

— new page —
How much do you disagree or agree with the following statements?
Disagree Strongly/Disagree/neither disagree nor agree /Agree/Agree Strongly
o I am good at math.
o I am good at languages.
(randomize order)

— new page —
in first wave only: Almost done!

What is your gender?
o Male
o Female
o Non-binary
o Prefer not to say

— new page —
in second wave only: If you were to apply for the following apprenticeships, how likely do you think that you as a girl/boy/no gender would get an offer?
Very unlikely/unlikely/ moderately /likely/very likely
o Information technologist
o Commercial clerk
o One heavily male-dominated math-intense apprenticeship (randomly select one occu-

pation) automotive specialist; electrician; carpenter
o One gender-neutral math-intense apprenticeship (randomly select one occupation): mediamatician; draftsman; laboratory technician
(randomize order)

— new page —
in second wave only: Almost done!

Did your mother or father do an apprenticeship?
o No
o Yes, my mother
o Yes, my father
o Yes, both
o I do not know

Does your mother or father have a university degree? (University, technical college, or teacher training college)?
o No, none of them
o Yes, my mother
o Yes, my father
o Yes, both
o I do not know

— new page —
For us to contact you for the next survey, we kindly ask you to give us your contact information. We will only be able to include you in the lotteries if you provide this information. This information will be kept confidential and used only for the purpose of this study.

E-mail address (enter the e-mail you use most often):
Please enter your phone number (no blank spaces):

Remember, your answers throughout the entire survey are anonymous. Your classmates will NOT see your answers.

What were your last grades in . . .
Math?
German?
4.0 or less/4.5/5.0 or more/I do not remember

— new page —
if student does not remember math grade: Please give us your best guess. Was your last math grade. . .
o Less than 5.0?
o 5.0 or more?

— new page —
Do you have any comments for us here at the end? (Voluntary text box)

— new page —
Thank you very much for taking the time to participate in this survey! We are looking forward to your continued participation in the study.

B.4 Follow-Up Survey

Two weeks ago, you took part in the Zurich Career Choice Study during school hours. We are now contacting you again for the first of two follow-up surveys, in which we would like to learn more about your career aspirations.
Today's survey will take about 5 minutes to complete.
All participants who complete the study will be entered into a prize draw to win an iPhone 15.
In addition, the two classes with the highest response rate in this survey will receive CHF 500 for their next class event.

— new page —
During the last 2 weeks, which apprenticeships have you been thinking about?
• List, including "other, please specify" and "none". None is at the top of the list.

— new page —

For phone survey: only use IT and KV, drop the other two occupations
How well do you think you would fit to doing an apprenticeship in...
Not at all/little/moderately/much/very much
o Information technologist
o Commercial clerk
o One heavily male-dominated math-intense apprenticeship (randomly select one from the list; always show this occ for similar questions): automotive specialist; electrician; carpenter
o One gender-neutral math-intense apprenticeship (randomly select one from the list; always show this occ for similar questions): mediamatician; draftsman; laboratory technician
(randomize order)

How much do you think you would like the work environment if you did an apprenticeship in ...
Not at all/little/moderately/much/very much
- List: same 4 apprenticeships as above

— new page —
Out of 100 students applying to the following apprenticeships, how many do you think are girls? 0—100 (5 ppt intervals)
- list (same 4 apprenticeships as above)

Out of 10 FEMALE students applying to the following apprenticeships, how many do you think receive an offer? 0—10
- List? (same 4 apprenticeships as above)

Out of 10 MALE students applying to the following apprenticeships, how many do you think receive an offer? 0—10
- List? (same 4 apprenticeships as above)

— new page —
Think about your future work. How much do you agree with the following statements?
Strongly disagree/disagree/neither nor/agree/strongly agree

a. I would like to do a Berufsmatura.
b. I want to take on more responsibilities fast (e.g., a project lead)
c. I do not want too much responsibility.
(randomize order)

Do you believe the following barriers may be an obstacle for your choice of educational career?
Not at all (1) - Very much (5)
a. Fear that it is not possible to have both career and family
b. Not feeling good enough in math
c. The idea that a specific occupation is not "right" for my gender

in second wave only: How well does the following statement describe you as a person?
If I am treated very unfairly, I will take revenge at the first opportunity, even if it comes at a price.
Doesn't describe me at all (0)/ Describes me perfectly (10)

— new page —
Remember that during the school visit you watched some videos. Did you talk with any of your classmates about these videos?
o No
o Yes, a few of my classmates
o Yes, a lot of my classmates

— new page —
in second wave only:
Almost done!
Do you have a Yousty account?
o Yes
o No

Please enter the email address that you use for your Yousty account.
Email address:
For verification purposes, please re-enter the email address you use for Yousty:

— new page —

Do you have any comments for us here at the end? (Voluntary text box)

— new page —

Thank you very much for taking the time to participate in this survey! We are looking forward to your continued participation in the study.

B.5 Experimental Instructions and Implementation of Games

Experimenter 1 is at the front and explains the games. All remaining experimenters walk constantly around the classroom to ensure kids understand and enforce the rules.

[Experimenter 1 begins:]

Hello. My name is [NAME]. I am from the university. I am here today to conduct a few activities with you. Before we begin, I would like to discuss a few things with you.

1. We have brought some gifts for everyone today. [Show a few nice ones]. How many each person gets depends on your decisions in our games.

2. It is important that you follow a few rules:
   a. It is very important that you do everything on your own, so do not look at what the person next to you is doing and do not talk to the person sitting next to you. It should be quiet, just like during an exam.
   b. If you look at your tablet now and scroll down, you will see a blue arrow. Once you have answered all the questions on a page, you can press this arrow to continue. You can always do this EXCEPT, and this is very important, EXCEPT when you see red text on the tablet. If you see this text, just wait until we give you the OK. In some places, the message "We will now explain what we are doing" will appear on the tablet. Please do not continue at this point and wait for further instructions.
   c. If something is not working, just raise your hand.

Please look at your tablets now. Before we can start, if you want to participate in the survey, please confirm this. [Explain consent form]

STOP (We will now tell you what to do next.)

Once you confirm that you want to participate, you will be asked to enter your name,

birthdate, and which school and class you are going to. Please select the class we wrote here at the front. You are region XX, school XX, class XXX.

[give students time to fill it out]

Now you will answer a few more questions, and then you can continue and watch several videos. Please watch them in one go, without pausing. Please give the correct answers, otherwise we will not be able to distribute the gifts. Your information will remain confidential! Please do not continue once you read that we will give you further instructions. After the videos, we will play a few games.

STOP (We will now tell you what to do next.)

Have you all watched the videos and answered some questions? Great. Just like in a video game, you can choose an avatar. Just like in a video game, this avatar is your character. Now choose your avatar on the tablet.

STOP (We will now explain the first game to you.)

Finally, it's time to play two games. They are very simple. But listen carefully. In all games, you can collect tokens. Think of tokens like in a video game, OK? What are these tokens for? With these tokens, you can redeem gifts. The more tokens you collect, the more gifts you get. We have different gifts. Some you can get with 1 token, for others you have to pay 2, 3, or 4 tokens. They are more valuable. Is that clear so far? Pay close attention. At the end of our visit, we will randomly select one of the two games, and then only that one counts; the other one doesn't count at all. Everyone in the class can only redeem the tokens from that one game for gifts. Why are we doing this? Well, we don't want you to think: I played game 1, I don't need to play game 2. Maybe game 2 will be chosen, and you will only get gifts for that game. So remember that you can only exchange tokens from one game for a gift, and you don't know which game that will be!!! So pay attention to both games.

Now I will explain Game 1 to you. It is very simple.

SABOTAGE GAME: calculations/password In this game, we will ask you to perform some math problems/copy passwords.

STOP (Let's look at an example together) (incl. example)
For the calculation game: For example, 23 x 2=? What is the correct answer? [let them tell you what the correct answer is]

For the password game: In front of you, you see a combination of letters and numbers. Please copy it one to one. Copy-paste will not work. You need to type.

There will be many problems like this. Calculate the problem and enter the solution.

Then move on to the next problem. / Copy one password and move to the next. For each correct answer, you will receive 1 game token. You only have 2 minutes, so do your best and do as many calculations/passwords as possible.
But you are playing this game against an opponent from this class. But you don't know which of your classmates it is, you only know which avatar that person has chosen. So you don't know the exact identity of your opponent, only the avatar he or she chose at the beginning. Now click on "Next" and you will see your opponent's avatar.

STOP (We will explain the final rules of the game to you.)

We will end the game after 2 minutes. Then the following will happen. If you have more correct answers than your opponent, you will receive as many game tokens as the number of correctly calculated tasks. However, if your opponent has more correct answers, you will receive ZERO points. Let's look at some examples: Let's say

Example 1 (insert name EXP 1) Player 1 has 8 correct answers (insert name EXP 2) Player 2 has 7 correct answers. Who won? That's right, player 1. Player 1 gets 8 tokens because they answered 8 questions correctly. But player 2 gets ZERO tokens. Player 2 does not get 7 tokens because they lost the game. Their tokens are lost.

Example 2 Let's say Player 1 has 10 correct answers and Player 2 also has 10 correct answers. Then we will flip a coin and randomly select the winner. The winner gets 10 tokens, the loser gets 0 tokens.

In this game, there is always a winner and a loser. Is that clear so far? OK. Are you ready? Remember not to enter any spaces, commas, or periods. Go! [2 minutes]

STOP (We will now explain how to continue.)
Now you are all done. But you don't know whether you won or lost, do you? You don't even know exactly how many questions you answered correctly. Now we are going to do something about that. We will give each of you 5 extra tokens!!! Yes. Even if you lost, you have 5 tokens!!! Guaranteed in your pocket. NO MATTER WHAT HAPPENS. But you can also do something else with these 5 extra tokens. If you think it's right, you can delete correct answers from your opponent and thus increase your own chances of winning this game. How does that work? Here's how:

Example 1: You can delete your opponent's correct answers with the 5 additional tokens we gave you. Deleting your opponent's answers comes at a price. For each correct answer you delete, you pay one token from the 5 additional tokens we gave you. Let's look at the example again:

Table B12: Example 1

	Correct answers	Additional tokens	Delete answers	Final score
Player 1	13	5	2	13 - 0 = 13 13 + 3 = 16
Player 2	14	5	0	14 - 2 =12 0 + 5 = 5

In this game, I play against X and win. I have 13 correct answers and X has 14. Now we both get 5 additional tokens. I delete 2 correct answers from X, X deletes 0. So I have 13, X has 12. Now I have won. X has lost. Let's look at the final score. X lost, so X keeps zero of the correct answers. But X as still all of the 5 extra tokens, X didn't cancel any correct answers. I end up with 16. Why do I only have 16? Remember: for every correct answer you delete, you have to return one token from the 5 extra tokens. To delete 2, you have to return 2 tokens to us. So I have 5-2 = 3 tokens left from the extra tokens. X didn't delete any answers, so he/she keeps all 5. Don't forget that your opponent can also delete your answers. You don't know exactly who you're playing against or what they're going to do.
Let's look at another example:

Table B13: Example 2

	Correct answers	Additional tokens	Delete answers	Final score
Player 1	9	5	0	9 - 4 = 5 0 + 5 = 5
Player 2	14	5	4	14 - 0 =14 14 + 1 = 15

Now I'm playing against Player 2. Neither of us knows the score again. Player 2 wins this round. Why? Player 2 has 14 correct answers. I have 9 correct answers. We both get 5 additional tokens again. I decide not to delete any correct answers. That means X still has 14 correct answers. I have 9 correct answers and X deletes 4 of them. So I have a total of 5 correct answers. X wins because he/she has 14 correct answers and I only have 5 correct answers. I lose because I only have 5 answers. I originally had 9 correct answers, but X deleted 4 of them. Let's calculate the total score. X has a total of

15 tokens. Why? He/she won 14, and because he/she used 4 of his 5 tokens, he/she has a total of 15 tokens. I lost. So I keep zero. But because I didn't use any of the extra tokens to reduce X's score, I have a total of 5 tokens.

You have to decide how many answers you want to delete: you can use as many tokens as you want, i.e. 0, 1, 2, 3, 4, or 5. For each answer you delete, you have to return one token. You don't know what your opponents will do. If you think it's right, then you can delete answers.

Is everything clear? [Give students another example if they didn't understand]

Now look at your tablets. Decide how many answers you want to delete. This stays SECRET [Kids make decisions.] Copy your decision onto the paper. Now you will find three more questions on the tablets. Read them carefully and answer them. After that, we will explain the second game to you.

STOP (We will now explain the second game to you)

SABOTAGE GAME 2: Now it's very simple. We will play the same game again, with only two differences.

First: In this game, you copy passwords instead of calculating sums. / You calculate sums instead of copying passwords. Do not enter any spaces!

STOP (let's look at an example together)

Second: We will form new teams. This time, you will play against someone else from your class. Now click on to the next side. You will see his/her avatar on the tablet.

Otherwise, all the rules are the same as before! Ready? Go! [proceed as in the previous game – just make sure they understand the rules are the same]

You will now receive 5 NEW additional tokens for this game. Decide, as before, how many answers you want to delete.

STOP (We will now explain the last game.)

DICTATOR GAME

Now we're going to play our last game. We'll give you 5 additional tokens. These have nothing to do with our previous game. There are many students from other schools whom you don't know. You can see their two avatars on the tablet. Like you, they have played the CALCULATION GAME/PASSWORD GAME. You can decide how many tokens you want to give to student 1 and student 2 to increase their scores. For example, you could give 1 token to student 1 and 4 tokens to student 2. Or you could give 2 tokens to student 1 and 3 tokens to student 2. Now look at your tablet again. Click on and read the question. Make your decision and write it down on the paper. Everything

remains secret!

[Please collect the small slips of paper immediately. Don't wait. Make sure that the names and answers are written on the slips of paper.

One of the games is picked to calculate the payoffs.]

C Treatment videos

The following appendix includes the script of each treatment video described in section 2.2. Students were instructed not to pause the video; the team constantly walked around the classroom to ensure that students followed the instructions and addressed any technical difficulties. Using a timer function in Qualtrics, we ensured that students could only move on to the next page after the video had ended.

The figures below provide some screenshots of the videos.

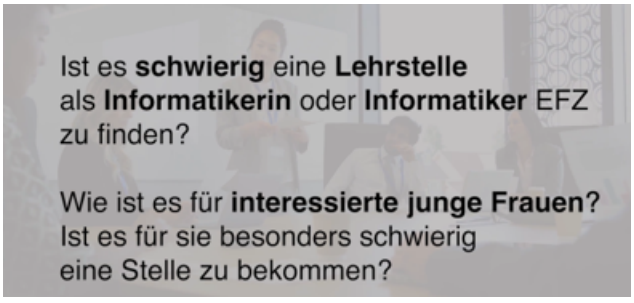
Figure C4: Introductory statement



(a) **(b)**

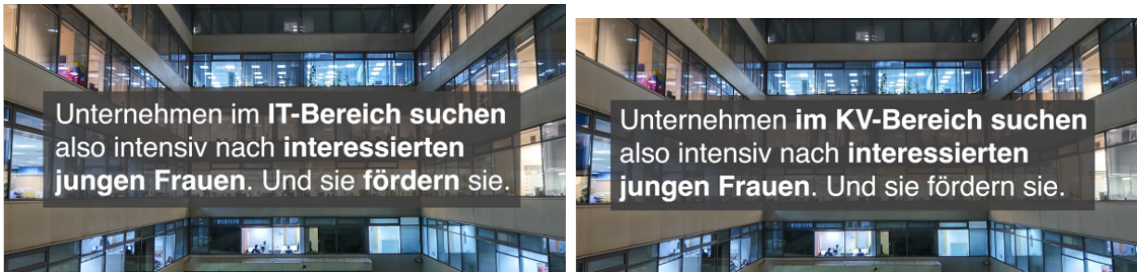
English translation:
(a) Hey everyone! In our class, we will soon be discussing career choices.
(b) Information technologists are in demand across many sectors, for example, in healthcare or public transport. Let's find out what the tasks of an information technologist are in the finance sector.

Figure C5: Example of a question asked by the apprentice



English translation: Is it difficult to find an apprenticeship position as an information technologist? Is it particularly difficult for interested young women to get a position?

Figure C6: Concluding gender diversity statement



(a) **(b)**

English translation:
(a) Companies in the IT sector are intensively looking for interested young women. And they promote them.
(b) Companies are intensively looking for interested young women as commercial clerks. And they promote them.

Figure C7: A statement from the commercial clerk apprentice in the finance sector



Is it difficult to find an apprenticeship position as a commercial clerk?
"No. I was surprised at how many companies were interested in me. Interested young women are in demand! Interested young women have a good chance of finding a commercial apprenticeship. Our HR manager can tell you more!"

Note: We created the picture using ChatGPT and Photoshop, as we cannot provide the actual pictures of the apprentice due to data confidentiality.

Figure C8: A statement from the IT apprentice in the public transport sector



Is it difficult to find an apprenticeship position as an information technologist? Is it particularly difficult for interested young women to get a position?
"No, when I was looking for an IT apprenticeship, everyone encouraged me to apply. Companies are looking for young women interested in the IT sector. This means that qualified, interested young women have a very good chance of finding an apprenticeship. Our HR manager can tell you more about this."

Note: We created the picture using ChatGPT and Photoshop, as we cannot provide the actual pictures of the apprentice due to data confidentiality.

Figure C9: A statement from HR manager in the public transport sector regarding the IT apprenticeship



Do interested young women have a particularly good chance of getting an interview – perhaps even an apprenticeship position?
"Yes. There are currently fewer women than men in IT. We want to have teams that are as balanced as possible. In concrete terms, this means that if we receive two equally qualified applications and there are still few women, we would choose the woman. We encourage young women to apply for an IT apprenticeship!"

Note: We created the picture using ChatGPT and Photoshop, as we cannot provide the actual pictures of the HR manager due to data confidentiality.

Figure C10: A statement from HR manager in the finance sector regarding the commercial clerk apprenticeship



For which positions are companies seeking women in commercial clerk jobs?
"In principle, we want to attract more committed women to our company. And at all management levels, from apprentice to manager. Gender diversity is an important topic at all management levels in the commercial professions. However it's not just our company that is committed to this, but also my colleagues in other companies."

Note: We created the picture using ChatGPT and Photoshop, as we cannot provide the actual pictures of the HR manager due to data confidentiality.

C.1 Public Transport Sector

C.1.1 Information technologist

Pupil: Hello everyone! In our class, we will soon be exploring career choices. Information technologists are in demand across many sectors, for example in healthcare or public transport. Let's find out what the tasks of an information technologist are in the public transport sector.

Scene 1:

Apprentice: Hi, I'm XXX. I'm an information technologist apprentice. Together with other apprentices, I am programming an application in which [...]. It's an important project.

Pupil: Do you have to have a lot of prior knowledge to start an apprenticeship as an information technologist?

Apprentice: We are taught everything we need to know. A lot of it was new to me too. It motivates me to learn more and more so that I can carry out tasks independently at some point.

Pupil: Is it difficult to find an apprenticeship position as an information technologist? Is it particularly difficult for interested young women to get a position?

Apprentice: No, when I was looking for an IT apprenticeship, everyone encouraged me to apply. Companies are looking for young women interested in the IT sector. This means that qualified, interested young women have a very good chance of finding an apprenticeship. Our HR manager can tell you more about this.

Scene 2:

HR: Hello, my name is XXX, and I am Head of XXX, and I am working hard to improve the ICT vocational training. We are happy when young women apply for IT jobs.

Pupil: Is it true that companies in IT are committed to gender diversity? What exactly does gender diversity mean?

HR: That is true. Gender diversity means that we in IT attach great importance to hiring young women. We want to create a culture where all women feel welcome and respected. We are always on the lookout for interested young women.

Pupil: Do interested young women have a particularly good chance of getting an interview – perhaps even an apprenticeship position?

HR: Yes. There are currently fewer women than men in IT. We want to have teams that

are as balanced as possible. In concrete terms, this means that if we receive two equally qualified applications and there are still few women, we would choose the woman. We encourage young women to apply for an IT apprenticeship!

Pupil: How are your apprentices supported during the apprenticeship?

HR: [...]

Scene 3:

Apprentice: The vocational trainers encourage and support me in many tasks. It is motivating that successful vocational trainers accompany us during the IT apprenticeship.

Pupil: Companies in the IT sector are intensively looking for interested young women. And they promote them.

C.1.2 Commercial clerk

Pupil: Hello everyone! In our class, we will soon be exploring career choices. Commercial clerks are in demand across many sectors, for example in healthcare or public transport. Let's find out what the tasks of a commercial clerk are in the public transport sector.

Scene 1:

Apprentice: Hi I'm XXX. I'm doing an apprenticeship as a commercial clerk. During the apprenticeship, you go through many departments. Now I'm in Recruiting and look after applications for university internships. That's an important job! I help to find interested university interns for our company.

Pupil: Were you able to independently supervise university internship applicants right from the start?

Apprentice: I was particularly unsure at the beginning. Then I asked my supervisor or my colleagues. Now I know my way around quite well and can independently supervise many applicants for university internships. That's very motivating!

Pupil: Is it difficult to find an apprenticeship position as a commercial clerk?

Apprentice: No. I was surprised at how many companies were interested in me. Interested young women with good grades are in demand! We have a good chance of finding a commercial apprenticeship. Our HR manager can tell you more.

Scene 2:

HR: Hello, my name is XXX and I have been in a management position in HR for more than XXX years. I am currently responsible for Sourcing, Recruiting, and Talent,

and of course, I am also looking at how we can attract more women to our company.

Pupil: For which positions are companies seeking women in commercial clerk jobs?

HR: Basically, we want to attract more committed women to our company. And at all management levels, from apprentice to manager. Diversity and, of course, gender diversity is an important topic in the commercial professions at all management levels. For example, we have set ourselves the ambition of having at least three women in every management team. But gender diversity in not only important for our company; my colleagues in other companies are also committed to it.

Pupil: How do you support your apprentices' careers during and after their apprenticeship?

HR: We want our apprentices to be successful not only during their apprenticeship, but also afterwards. We would be delighted if we could inspire more women to pursue a career. They receive first-class basic training, are professionally supported by motivated vocational trainers, are fully integrated into the teams, and together we consider what further qualifications they need for the future. For example, we support our apprentices in successfully completing the vocational matura/baccalaureate or we offer programs for part-time study after the apprenticeship.

Pupil: What career opportunities are there for women?

HR: Apprentices start with an apprenticeship and as they gain more knowledge and experience, they are given more and more responsibility. More responsibility can mean that they take on projects, responsibility for various specialist topics or even a management position. Our apprentice, XXX, would like to take on more responsibility in the future.

Scene 3: Apprentice: Exactly, I would like to continue my training so that I can take on other tasks and functions. I'm discussing the best way to do this with my supervisor. The fact that they are encouraging me is very motivating!

Pupil: Companies are intensively looking for interested young women as commercial clerks. And they promote them.

C.2 Finance Sector

C.2.1 Information technologist

Pupil: Hello everyone! In our class, we will soon be exploring career choices. Information technologists are in demand across many sectors, for example in healthcare or

finance. Let's find out what the tasks of an information technologist are in the financial sector.

Scene 1:

Apprentice: Hi, I'm XXX. I'm an information technologist apprentice and I work on a mobile banking app. Every day, our customers make payments via the mobile banking app, and it is precisely these payment functionalities that I am programming together with my team.

Pupil: Do you have to have a lot of prior knowledge to start an apprenticeship as an information technologist?

Apprentice: We are taught everything we need to know. A lot was new to me too. It motivates me to learn more and more so that I can carry out tasks independently at some point.

Pupil: Is it difficult to find an apprenticeship position as an information technologist? Is it particularly difficult for interested young women to get a position?

Apprentice: No, when I was looking for an IT apprenticeship, everyone encouraged me to apply. Companies are looking for young women interested in the IT sector. This means that qualified, interested young women have a very good chance of finding an apprenticeship. Our HR manager can tell you more about this.

Scene 2:

HR: Hello, my name is XXX and I have been working in Junior Talent Recruiting for over XXX years. We are happy when young candidates, especially women, apply for IT jobs.

Pupil: Is it true that companies in IT are committed to gender diversity? What exactly does gender diversity mean?

HR: That is true. Gender diversity means that we in IT attach great importance to hiring young women. We want to create a culture where all women feel welcome and respected. We are always on the lookout for interested young women.

Pupil: Do interested young women have a particularly good chance of getting an interview – perhaps even an apprenticeship position?

HR: Yes, there are currently fewer women than men in IT. We want just as many women as men in our team. Since we usually receive a lot of male applicants and fewer female applicants and we strive for a balance in the positions, we do everything we can to encourage young women to apply for an IT apprenticeship!

Pupil: How are your apprentices supported during the apprenticeship?

HR: Apprentices receive a lot of support in the IT sector. Our apprentices receive individual support from a vocational trainer as well as on-the-job coaches. We want even more women to be successful!

Pupil: How do vocational trainers and on-the-job coaches support the apprentices?

HR: The vocational trainers support the apprentices throughout their training in personal matters and, above all, in career planning after their apprenticeship. The on-the-job coaches support our apprentices with the daily tasks that arise in their team. Our apprentice can tell you more about this.

Scene 3:

Apprentice: The vocational trainers and on-the-job coaches encourage and support me in many tasks. It is motivating that we have two successful contact persons who accompany us during the IT apprenticeship.

Pupil: Companies in the IT sector are intensively looking for interested young women. And they promote them.

C.2.2 Commercial clerk

Pupil: Hello everyone! In our class, we will soon be exploring career choices. Commercial clerks are in demand across many sectors, for example in healthcare or finance. Let's find out what the tasks of a commercial clerk are in the financial sector.

Scene 1:

Apprentice Hi, I'm XXX. I'm doing an apprenticeship as a commercial clerk. I help customers if they have questions and accompany our customer advisors during meetings with customers. I also organize training courses so that our employees are always up to date, and I do some administrative work. These are important tasks!

Pupil: Can you always help customers?

Apprentice: Sometimes I can't help customers directly. If that's the case, I ask my supervisor or my colleagues. Then I can help the customer on my own the next time. That's very motivating!

Pupil: Is it difficult to find an apprenticeship position as a commercial clerk?

Apprentice: No. I was surprised at how many companies were interested in me. Interested young women are in demand! Interested young women have a good chance of finding a commercial apprenticeship. Our HR manager can tell you more!

Scene 2 :

HR: Hello, I am XXX and I have been working as a Junior Talent Manager in Human Resources for many years. We are always looking for young interested candidates and especially women.

Pupil: For which positions are companies seeking women in commercial clerk jobs?

HR: In principle, we want to attract more committed women to or company. And at all management levels, from apprentice to manager. Gender diversity is an important topic at all management levels in the commercial professions. However it's not just our company that is committed to this, but also my colleagues in other companies.

Pupil: How do you support your apprentices' careers during and after their apprenticeship?

HR: We want our apprentices to be successful not only during their apprenticeship, but also afterwards. We would be delighted if we could inspire more women to pursue a career. That's why they receive first-class basic training and we consider together what further qualifications they need for the future. For example, we support our apprentices in successfully completing the vocational matura/baccalaureate.

Pupil: What career opportunities are there for women?

HR: Apprentices start with an apprenticeship and as their knowledge and experience grows, they take on more and more responsibility. More responsibility can mean that they take on projects or even a management position. Our apprentice XXX, would like to take on more responsibility in the future.

Scene 3: Apprentice: Exactly, I would like to continue my training so that I can take on other tasks and functions. I'm discussing the best way to do this with my supervisor. The fact that they support me motivates me a lot!

Pupil: Companies are intensively looking for interested young women as commercial clerks. And they promote them.

D Heterogeneities

Table D14: Girls interest in commercial clerk (short-term outcome)

	Girls					
	Advanced-level student	Parental edu.	Interest in commercial clerk	Interest in IT	High tolerance for risk	High competitiveness
Treatment	0.027	0.026	0.052*	0.029	0.011	0.016
	(0.028)	(0.039)	(0.029)	(0.025)	(0.032)	(0.028)
Advanced-level student	-0.048	-0.033	-0.034	-0.031	-0.033	-0.034
	(0.039)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)
Any parent has vocational education	0.034	0.033	0.035	0.035	0.034	0.033
	(0.029)	(0.039)	(0.029)	(0.029)	(0.029)	(0.029)
Education missing or neither uni nor VET education	0.049	0.034	0.049	0.048	0.048	0.049
	(0.032)	(0.043)	(0.032)	(0.032)	(0.032)	(0.032)
Has baseline interest in commercial clerk	0.507***	0.508***	0.533***	0.507***	0.507***	0.508***
	(0.028)	(0.028)	(0.037)	(0.028)	(0.028)	(0.028)
Has baseline interest in IT	-0.044	-0.046	-0.046	-0.086	-0.045	-0.047
	(0.045)	(0.045)	(0.044)	(0.062)	(0.045)	(0.045)
High tolerance for risk	-0.006	-0.006	-0.006	-0.006	-0.032	-0.006
	(0.024)	(0.024)	(0.024)	(0.024)	(0.033)	(0.024)
High competitiveness	0.036	0.036	0.036	0.035	0.036	0.008
	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.034)
Treatment × Advanced-level student	0.029					
	(0.050)					
Treatment × Any parent has vocational education		0.003				
		(0.053)				
Treatment × Education missing or neither uni nor VET education		0.032				
		(0.061)				
Treatment × Has baseline interest in commercial clerk			-0.053			
			(0.049)			
Treatment × Has baseline interest in IT				0.081		
				(0.086)		
Treatment × High tolerance for risk					0.053	
					(0.048)	
Treatment × High competitiveness						0.057
						(0.049)
Mean Control group:	0.41	0.41	0.41	0.41	0.41	0.41
Observations	1,454	1,454	1,454	1,454	1,454	1,454

Note: The table reports heterogeneous treatment effects on girls' interest in commercial clerkship measured directly after the treatment. Girls have an interest in a commercial clerk when signing up for either the trial apprenticeship or newsletter. Students are *highly competitive* when choosing at least 7 on a scale from 0 to 10. Students have a *high tolerance for risk* when choosing at least 4 on a scale from 0 to 5. The reference category of the parental education is "Any parents have a university education". Advanced-level students take both German and math classes at advanced levels. Controls include class-fixed effects, age, plan to pursue academic education, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications / never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, and imputed values. OLS estimates, robust standard errors in parentheses.
Significance levels: *p < 0.10, **p < 0.05, ***p < 0.01

Table D15: Boys interest in commercial clerk (short-term outcome)

	Boys					
	Advanced-level student	Parental edu.	Interest in commercial clerk	Interest in IT	High tolerance for risk	High competitiveness
Treatment	-0.004	-0.061*	0.002	-0.020	-0.020	-0.008
	(0.024)	(0.034)	(0.024)	(0.025)	(0.032)	(0.031)
Advanced-level student	0.008	-0.019	-0.021	-0.021	-0.021	-0.021
	(0.034)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)
Any parent has vocational education	0.030	-0.011	0.028	0.029	0.029	0.030
	(0.024)	(0.032)	(0.024)	(0.024)	(0.024)	(0.024)
Education missing or neither uni nor VET education	0.011	-0.001	0.011	0.011	0.011	0.011
	(0.030)	(0.042)	(0.030)	(0.030)	(0.030)	(0.030)
Has baseline interest in commercial clerk	0.604***	0.608***	0.639***	0.604***	0.605***	0.604***
	(0.027)	(0.027)	(0.034)	(0.027)	(0.027)	(0.027)
Has baseline interest in IT	0.049**	0.047**	0.049**	0.047	0.048**	0.048**
	(0.024)	(0.024)	(0.024)	(0.033)	(0.024)	(0.024)
High tolerance for risk	0.040*	0.040*	0.041*	0.041*	0.039	0.040*
	(0.022)	(0.022)	(0.022)	(0.022)	(0.030)	(0.022)
High competitiveness	0.038*	0.038*	0.039*	0.039*	0.039*	0.048
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.030)
Treatment × Advanced-level student	-0.058					
	(0.046)					
Treatment × Any parent has vocational education		0.083*				
		(0.046)				
Treatment × Education missing or neither uni nor VET education		0.026				
		(0.056)				
Treatment × Has baseline interest in commercial clerk			-0.071			
			(0.046)			
Treatment × Has baseline interest in IT				0.002		
				(0.045)		
Treatment × High tolerance for risk					0.003	
					(0.042)	
Treatment × High competitiveness						-0.018
						(0.041)
Mean Control group:	0.36	0.36	0.36	0.36	0.36	0.36
Observations	1,484	1,484	1,484	1,484	1,484	1,484

Note: The table reports heterogeneous treatment effects on boys' interest in commercial clerkship measured directly after the treatment. Boys have an interest in a commercial clerk when signing up for either the trial apprenticeship or newsletter. Students are *highly competitive* when choosing at least 7 on a scale from 0 to 10. Students have a *high tolerance for risk* when choosing at least 4 on a scale from 0 to 5. The reference category of the parental education is "Any parents have a university education". Advanced-level students take both German and math classes at advanced levels. Controls include class-fixed effects, age, plan to pursue academic education, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications / never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, and imputed values. OLS estimates, robust standard errors in parentheses.
Significance levels: *p $<$ 0.10, **p $<$ 0.05, ***p $<$ 0.01

Table D16: Girls interest in IT (short-term outcome)

	Girls					
	Advanced-level student	Parental edu.	Interest in commercial clerk	Interest in IT	High tolerance for risk	High competitiveness
Treatment	-0.008	0.037	0.008	-0.007	-0.009	0.005
	(0.021)	(0.031)	(0.020)	(0.018)	(0.023)	(0.021)
Advanced-level student	-0.061**	-0.051**	-0.052**	-0.050**	-0.051**	-0.051**
	(0.029)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
Any parent has vocational education	0.012	0.029	0.013	0.013	0.012	0.013
	(0.020)	(0.028)	(0.020)	(0.020)	(0.020)	(0.020)
Education missing or neither uni nor VET education	0.048*	0.096***	0.048*	0.048*	0.048*	0.048*
	(0.025)	(0.034)	(0.025)	(0.025)	(0.025)	(0.025)
Has baseline interest in commercial clerk	-0.010	-0.011	0.006	-0.010	-0.010	-0.010
	(0.022)	(0.022)	(0.030)	(0.022)	(0.022)	(0.022)
Has baseline interest in IT	0.592***	0.594***	0.591***	0.559***	0.592***	0.593***
	(0.042)	(0.042)	(0.042)	(0.059)	(0.042)	(0.042)
High tolerance for risk	0.002	0.003	0.002	0.002	-0.006	0.002
	(0.018)	(0.018)	(0.018)	(0.018)	(0.024)	(0.018)
High competitiveness	0.004	0.004	0.004	0.003	0.004	0.014
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.027)
Treatment × Advanced-level student	0.020					
	(0.037)					
Treatment × Any parent has vocational education		-0.036				
		(0.039)				
Treatment × Education missing or neither uni nor VET education		-0.099**				
		(0.051)				
Treatment × Has baseline interest in commercial clerk			-0.032			
			(0.042)			
Treatment × Has baseline interest in IT				0.065		
				(0.075)		
Treatment × High tolerance for risk					0.016	
					(0.035)	
Treatment × High competitiveness						-0.021
						(0.037)
Mean Control group:	0.16	0.16	0.16	0.16	0.16	0.16
Observations	1,454	1,454	1,454	1,454	1,454	1,454

Note: The table reports heterogeneous treatment effects on girls' interest in IT measured directly after the treatment. Girls have an interest in IT when signing up for either the trial apprenticeship or newsletter. Students are *highly competitive* when choosing at least 7 on a scale from 0 to 10. Students have a *high tolerance for risk* when choosing at least 4 on a scale from 0 to 5. The reference category of the parental education is "Any parents have a university education". Advanced-level students take both German and math classes at advanced levels. Controls include class-fixed effects, age, plan to pursue academic education, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications / never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, and imputed values. OLS estimates, robust standard errors in parentheses.
Significance levels: *p $<$ 0.10, **p $<$ 0.05, ***p $<$ 0.01

Table D17: Boys interest in IT (short-term outcome)

	Boys					
	Advanced-level student	Parental edu.	Interest in commercial clerk	Interest in IT	High tolerance for risk	High competitiveness
Treatment	0.035	0.054	-0.002	0.056*	-0.020	0.029
	(0.027)	(0.038)	(0.028)	(0.029)	(0.038)	(0.035)
Advanced-level student	0.022	-0.005	-0.003	-0.000	-0.002	-0.003
	(0.042)	(0.033)	(0.033)	(0.033)	(0.033)	(0.033)
Any parent has vocational education	0.018	0.025	0.019	0.018	0.017	0.018
	(0.027)	(0.036)	(0.027)	(0.027)	(0.027)	(0.027)
Education missing or neither uni nor VET education	0.049	0.110**	0.049	0.050	0.047	0.049
	(0.033)	(0.046)	(0.033)	(0.033)	(0.033)	(0.033)
Has baseline interest in commercial clerk	0.045	0.045	0.005	0.046	0.046	0.045
	(0.028)	(0.028)	(0.036)	(0.028)	(0.028)	(0.028)
Has baseline interest in IT	0.507***	0.507***	0.505***	0.556***	0.506***	0.506***
	(0.027)	(0.027)	(0.027)	(0.035)	(0.027)	(0.027)
High tolerance for risk	-0.014	-0.012	-0.014	-0.013	-0.048	-0.014
	(0.025)	(0.025)	(0.025)	(0.025)	(0.034)	(0.025)
High competitiveness	0.051**	0.052**	0.052**	0.051**	0.052**	0.057*
	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.033)
Treatment× Advanced-level student	-0.050					
	(0.056)					
Treatment× Any parent has vocational education		-0.016				
		(0.052)				
Treatment× Education missing or neither uni nor VET education		-0.122*				
		(0.064)				
Treatment× Has baseline interest in commercial clerk			0.083*			
			(0.050)			
Treatment× Has baseline interest in IT				-0.097**		
				(0.047)		
Treatment× High tolerance for risk					0.069	
					(0.048)	
Treatment× High competitiveness						-0.012
						(0.047)
Mean Control group:	0.42	0.42	0.42	0.42	0.42	0.42
Observations	1,484	1,484	1,484	1,484	1,484	1,484

Note: The table reports heterogeneous treatment effects on boys' interest in IT measured directly after the treatment. Boys have an interest in IT when signing up for either the trial apprenticeship or newsletter.Students are *highly competitive* when choosing at least 7 on a scale from 0 to 10. Students have a *high tolerance for risk* when choosing at least 4 on a scale from 0 to 5. The reference category of the parental education is "Any parents have a university education". Advanced-level students take both German and math classes at advanced levels. Controls include class-fixed effects, age, plan to pursue academic education, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications / never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, and imputed values. OLS estimates, robust standard errors in parentheses.
Significance levels: *p < 0.10, **p < 0.05, ***p < 0.01

Table D18: Girls interest in commercial clerk (medium-term outcome)

	Girls					
	Advanced-level student	Parental edu.	Interest in commercial clerk	Interest in IT	High tolerance for risk	High competitiveness
Treatment	0.006	-0.016	-0.027	-0.005	0.006	0.007
	(0.035)	(0.046)	(0.032)	(0.029)	(0.039)	(0.034)
Advanced-level student	-0.045	-0.053	-0.052	-0.052	-0.053	-0.053
	(0.046)	(0.033)	(0.032)	(0.033)	(0.033)	(0.033)
Any parent has vocational education	-0.002	-0.015	-0.003	-0.004	-0.002	-0.002
	(0.031)	(0.047)	(0.031)	(0.031)	(0.032)	(0.031)
Education missing or neither uni nor VET education	0.038	0.029	0.038	0.035	0.038	0.037
	(0.040)	(0.055)	(0.040)	(0.040)	(0.040)	(0.040)
Has baseline interest in commercial clerk	0.526***	0.526***	0.483***	0.527***	0.526***	0.525***
	(0.037)	(0.037)	(0.052)	(0.037)	(0.037)	(0.037)
Has baseline interest in IT	-0.069	-0.069	-0.067	-0.107	-0.069	-0.067
	(0.057)	(0.057)	(0.056)	(0.089)	(0.057)	(0.057)
High tolerance for risk	-0.002	-0.003	-0.002	-0.001	0.004	-0.003
	(0.030)	(0.030)	(0.030)	(0.030)	(0.042)	(0.030)
High competitiveness	0.004	0.003	0.004	0.002	0.003	0.013
	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)	(0.044)
Treatment× Advanced-level student	-0.019					
	(0.058)					
Treatment× Any parent has vocational education		0.027				
		(0.063)				
Treatment× Education missing or neither uni nor VET education		0.017				
		(0.076)				
Treatment× Has baseline interest in commercial clerk			0.087			
			(0.067)			
Treatment× Has baseline interest in IT				0.074		
				(0.110)		
Treatment× High tolerance for risk					-0.014	
					(0.059)	
Treatment× High competitiveness						-0.020
						(0.058)
Mean Control group:	0.29	0.29	0.29	0.29	0.29	0.29
Observations	912	912	912	912	912	912

Note: The table reports heterogeneous treatment effects on girls' interest in commercial clerkship measured during the follow-up survey. Girls have an interest in a commercial clerk when stating that they are interested in the respective occupation. Students are *highly competitive* when choosing at least 7 on a scale from 0 to 10. Students have a *high tolerance for risk* when choosing at least 4 on a scale from 0 to 5. The reference category of the parental education is "Any parents have a university education". Advanced-level students take both German and math classes at advanced levels. Controls include class-fixed effects, age, plan to attend academic education, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications / never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, and imputed values. OLS estimates, robust standard errors in parentheses.
Significance levels: *p < 0.10, **p < 0.05, ***p < 0.01

Table D19: Boys interest in commercial clerk (medium-term outcome)

	Boys					
	Advanced-level student	Parental edu.	Interest in commercial clerk	Interest in IT	High tolerance for risk	High competitiveness
Treatment	0.006	-0.018	-0.054	-0.010	-0.071	-0.061
	(0.036)	(0.046)	(0.035)	(0.037)	(0.052)	(0.045)
Advanced-level student	0.068	0.004	0.007	0.007	0.007	0.007
	(0.052)	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)
Any parent has vocational education	-0.024	-0.025	-0.021	-0.024	-0.026	-0.024
	(0.033)	(0.044)	(0.034)	(0.034)	(0.033)	(0.034)
Education missing or neither uni nor VET education	-0.025	0.021	-0.018	-0.019	-0.024	-0.020
	(0.046)	(0.070)	(0.046)	(0.046)	(0.046)	(0.046)
Has baseline interest in commercial clerk	0.567***	0.569***	0.535***	0.571***	0.570***	0.571***
	(0.040)	(0.040)	(0.053)	(0.040)	(0.040)	(0.040)
Has baseline interest in IT	0.062*	0.061*	0.060*	0.093*	0.061*	0.061*
	(0.034)	(0.034)	(0.034)	(0.051)	(0.034)	(0.034)
High tolerance for risk	0.023	0.026	0.023	0.025	-0.006	0.024
	(0.033)	(0.033)	(0.033)	(0.033)	(0.047)	(0.033)
High competitiveness	0.018	0.020	0.021	0.020	0.020	-0.004
	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)	(0.047)
Treatment × Advanced-level student	-0.126*					
	(0.066)					
Treatment × Any parent has vocational education		0.001				
		(0.060)				
Treatment × Education missing or neither uni nor VET education		-0.080				
		(0.092)				
Treatment × Has baseline interest in commercial clerk			0.071			
			(0.070)			
Treatment × Has baseline interest in IT				-0.063		
				(0.063)		
Treatment × High tolerance for risk					0.061	
					(0.062)	
Treatment × High competitiveness						0.050
						(0.060)
Mean Control group:	0.3	0.3	0.3	0.3	0.3	0.3
Observations	842	842	842	842	842	842

Note: The table reports heterogeneous treatment effects on boys' interest in commercial clerkship measured during the follow-up survey. Boys have an interest in a commercial clerk when stating that they are interested in the respective occupation. A student is an "advanced-level student" when attending advanced requirements math and German classes. Controls include class-fixed effects, age, plan to attend academic education, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications / never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, and imputed values. OLS estimates, robust standard errors in parentheses.
Significance levels: *p $<$ 0.10, **p $<$ 0.05, ***p $<$ 0.01

Table D20: Girls interest in IT (medium-term outcome)

	Girls					
	Advanced-level student	Parental edu.	Interest in commercial clerk	Interest in IT	High tolerance for risk	High competitiveness
Treatment	0.009	0.012	0.004	-0.007	0.009	-0.020
	(0.022)	(0.027)	(0.020)	(0.018)	(0.024)	(0.023)
Advanced-level student	0.018	0.003	0.004	0.006	0.005	0.004
	(0.030)	(0.022)	(0.022)	(0.022)	(0.023)	(0.023)
Any parent has vocational education	-0.018	-0.002	-0.018	-0.020	-0.018	-0.019
	(0.023)	(0.032)	(0.023)	(0.023)	(0.023)	(0.023)
Education missing or neither uni nor VET education	0.030	0.027	0.029	0.027	0.030	0.030
	(0.030)	(0.038)	(0.030)	(0.030)	(0.030)	(0.030)
Has baseline interest in commercial clerk	0.004	0.005	0.013	0.005	0.004	0.006
	(0.024)	(0.024)	(0.033)	(0.024)	(0.024)	(0.024)
Has baseline interest in IT	0.574***	0.575***	0.575***	0.533***	0.575***	0.573***
	(0.062)	(0.062)	(0.062)	(0.090)	(0.062)	(0.063)
High tolerance for risk	-0.027	-0.028	-0.028	-0.026	-0.018	-0.027
	(0.019)	(0.019)	(0.019)	(0.019)	(0.026)	(0.019)
High competitiveness	0.021	0.022	0.020	0.019	0.020	-0.006
	(0.022)	(0.023)	(0.022)	(0.023)	(0.022)	(0.030)
Treatment× Advanced-level student	-0.029					
	(0.038)					
Treatment× Any parent has vocational education		-0.033				
		(0.038)				
Treatment× Education missing or neither uni nor VET education		0.005				
		(0.051)				
Treatment× Has baseline interest in commercial clerk			-0.018			
			(0.043)			
Treatment× Has baseline interest in IT				0.083		
				(0.115)		
Treatment× High tolerance for risk					-0.021	
					(0.036)	
Treatment× High competitiveness						0.055
						(0.041)
Mean Control group:	0.09	0.09	0.09	0.09	0.09	0.09
Observations	912	912	912	912	912	912

Note: The table reports heterogeneous treatment effects on girls' interest in IT measured during the follow-up survey. Girls have an interest in IT when stating that they are interested in the respective occupation. A student is an "advanced-level student" when attending advanced requirements math and German classes. Controls include class-fixed effects, age, plan to attend academic education, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications / never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, and imputed values. OLS estimates, robust standard errors in parentheses.

Significance levels: *p < 0.10, **p < 0.05, ***p < 0.01

Table D21: Boys interest in IT (medium-term outcome)

	Boys					
	Advanced-level student	Parental edu.	Interest in commercial clerk	Interest in IT	High tolerance for risk	High competitiveness
Treatment	-0.056	0.026	-0.036	-0.022	0.028	0.008
	(0.036)	(0.050)	(0.036)	(0.033)	(0.048)	(0.047)
Advanced-level student	-0.026	0.009	0.012	0.012	0.010	0.010
	(0.050)	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)
Any parent has vocational education	0.020	0.052	0.020	0.019	0.023	0.020
	(0.037)	(0.049)	(0.037)	(0.037)	(0.037)	(0.037)
Education missing or neither uni nor VET education	0.031	0.085	0.028	0.028	0.035	0.028
	(0.043)	(0.058)	(0.043)	(0.043)	(0.044)	(0.043)
Has baseline interest in commercial clerk	0.128***	0.122***	0.119**	0.126***	0.127***	0.125***
	(0.037)	(0.037)	(0.051)	(0.037)	(0.037)	(0.037)
Has baseline interest in IT	0.543***	0.545***	0.543***	0.558***	0.543***	0.543***
	(0.036)	(0.036)	(0.036)	(0.051)	(0.036)	(0.036)
High tolerance for risk	0.022	0.028	0.021	0.022	0.068	0.021
	(0.032)	(0.033)	(0.032)	(0.032)	(0.042)	(0.032)
High competitiveness	-0.009	-0.012	-0.010	-0.011	-0.009	0.025
	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)	(0.047)
Treatment × Advanced-level student	0.077					
	(0.066)					
Treatment × Any parent has vocational education		-0.076				
		(0.068)				
Treatment × Education missing or neither uni nor VET education		-0.120				
		(0.082)				
Treatment × Has baseline interest in commercial clerk			0.013			
			(0.067)			
Treatment × Has baseline interest in IT				-0.028		
				(0.067)		
Treatment × High tolerance for risk					-0.096	
					(0.060)	
Treatment × High competitiveness						-0.071
						(0.062)
Mean Control group:	0.3	0.3	0.3	0.3	0.3	0.3
Observations	842	842	842	842	842	842

Note: The table reports heterogeneous treatment effects on boys' interest in IT measured during the follow-up survey. Boys have an interest in IT when stating that they are interested in the respective occupation. A student is an "advanced-level student" when attending advanced requirements math and German classes. Controls include class-fixed effects, age, plan to attend academic education, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications / never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, and imputed values. OLS estimates, robust standard errors in parentheses.
Significance levels: *p < 0.10, **p < 0.05, ***p < 0.01

Table D22: Boys sabotaging a female student

	Boys					
	Advanced-level student	Parental edu.	Interest in commercial clerk	Interest in IT	High tolerance for risk	High competitiveness
Treatment	0.063	0.061	0.040	0.072	-0.047	0.047
	(0.067)	(0.095)	(0.070)	(0.072)	(0.092)	(0.089)
Advanced-level student	0.064	0.023	0.024	0.026	0.026	0.024
	(0.098)	(0.075)	(0.075)	(0.075)	(0.075)	(0.075)
Any parent has vocational education	-0.032	-0.009	-0.032	-0.032	-0.035	-0.032
	(0.069)	(0.091)	(0.070)	(0.070)	(0.069)	(0.070)
Missing or uni and VET education	-0.053	-0.060	-0.054	-0.052	-0.057	-0.054
	(0.086)	(0.119)	(0.086)	(0.086)	(0.086)	(0.086)
Has baseline interest in commercial clerk	0.067	0.066	0.063	0.068	0.068	0.068
	(0.070)	(0.070)	(0.091)	(0.070)	(0.070)	(0.070)
Has baseline interest in IT	-0.071	-0.072	-0.073	-0.028	-0.073	-0.072
	(0.066)	(0.066)	(0.066)	(0.090)	(0.066)	(0.066)
High tolerance for risk	-0.008	-0.008	-0.008	-0.007	-0.081	-0.008
	(0.060)	(0.060)	(0.060)	(0.060)	(0.083)	(0.060)
High competitiveness	0.152**	0.154**	0.153**	0.153**	0.153**	0.157*
	(0.063)	(0.063)	(0.063)	(0.063)	(0.063)	(0.086)
Treatment × Advanced-level student	-0.080					
	(0.129)					
Treatment × Any parent has vocational education		-0.048				
		(0.128)				
Treatment × Missing or uni and VET education		0.011				
		(0.160)				
Treatment × Has baseline interest in commercial clerk			0.010			
			(0.120)			
Treatment × Has baseline interest in IT				-0.087		
				(0.120)		
Treatment × High tolerance for risk					0.148	
					(0.117)	
Treatment × High competitiveness						-0.008
						(0.115)
Mean Control group:	.13	.13	.13	.13	.13	.13
Observations	1,484	1,484	1,484	1,484	1,484	1,484

Note: The table reports heterogeneous treatment effects on boys' sabotaging behavior towards girls. The outcome variable measures the number of tokens used to sabotage a female student and is standardized to have a mean of 0 and a standard deviation of 1 of the entire control sample. A student is an "advanced-level student" when attending advanced requirements math and German classes. Controls include class-fixed effects, age, plan to attend academic education, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications / never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, imputed values, whether students played the verbal or math task against a female, and whether they played against a female first. OLS estimates, robust standard errors in parentheses.

Significance levels: *p $<$ 0.10, **p $<$ 0.05, ***p $<$ 0.01

Table D23: Girls sabotaging a female student

	Boys					
	Advanced-level student	Parental edu.	Interest in commercial clerk	Interest in IT	High tolerance for risk	High competitiveness
Treatment	0.014	-0.006	0.022	-0.039	-0.036	-0.046
	(0.061)	(0.083)	(0.062)	(0.054)	(0.068)	(0.062)
Advanced-level student	0.071	0.013	0.010	0.018	0.012	0.012
	(0.087)	(0.065)	(0.065)	(0.065)	(0.065)	(0.065)
Any parent has vocational education	0.098	0.135	0.098	0.097	0.096	0.095
	(0.061)	(0.084)	(0.061)	(0.061)	(0.061)	(0.061)
Missing or uni and VET education	-0.098	-0.134	-0.100	-0.100	-0.099	-0.099
	(0.068)	(0.096)	(0.068)	(0.069)	(0.069)	(0.069)
Has baseline interest in commercial clerk	-0.020	-0.018	0.048	-0.020	-0.020	-0.019
	(0.059)	(0.059)	(0.082)	(0.059)	(0.059)	(0.059)
Has baseline interest in IT	-0.070	-0.071	-0.068	-0.187	-0.066	-0.069
	(0.098)	(0.098)	(0.098)	(0.122)	(0.098)	(0.098)
High tolerance for risk	0.076	0.073	0.075	0.076	0.058	0.075
	(0.052)	(0.052)	(0.052)	(0.052)	(0.073)	(0.052)
High competitiveness	0.029	0.031	0.027	0.025	0.027	-0.009
	(0.057)	(0.057)	(0.056)	(0.056)	(0.056)	(0.078)
Treatment × Advanced-level student	-0.120					
	(0.111)					
Treatment × Any parent has vocational education		-0.076				
		(0.114)				
Treatment × Missing or uni and VET education		0.074				
		(0.132)				
Treatment × Has baseline interest in commercial clerk			-0.138			
			(0.110)			
Treatment × Has baseline interest in IT				0.238		
				(0.181)		
Treatment × High tolerance for risk					0.035	
					(0.102)	
Treatment × High competitiveness						0.075
						(0.108)
Mean Control group:	-.13	-.13	-.13	-.13	-.13	-.13
Observations	1,454	1,454	1,454	1,454	1,454	1,454

Note: The table reports heterogeneous treatment effects on girls' sabotaging behavior towards girls. The outcome variable measures the number of tokens used to sabotage a female student and is standardized to have a mean of 0 and a standard deviation of 1 of the entire control sample. A student is an "advanced-level student" when attending advanced requirements math and German classes. Controls include class-fixed effects, age, plan to attend academic education, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications / never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, imputed values, whether students played the verbal or math task against a female, and whether they played against a female first. OLS estimates, robust standard errors in parentheses.

Significance levels: *p < 0.10, **p < 0.05, ***p < 0.01

Table D24: Boys helping a female student

	Boys					
	Advanced-level student	Parental edu.	Interest in commercial clerk	Interest in IT	High tolerance for risk	High competitiveness
Treatment	-0.032	-0.033	0.034	0.051	-0.039	-0.087
	(0.062)	(0.090)	(0.066)	(0.068)	(0.084)	(0.080)
Advanced-level student	-0.060	0.039	0.037	0.039	0.039	0.036
	(0.096)	(0.077)	(0.077)	(0.077)	(0.077)	(0.077)
Any parent has vocational education	-0.056	-0.092	-0.056	-0.055	-0.057	-0.061
	(0.066)	(0.088)	(0.066)	(0.066)	(0.066)	(0.066)
Missing or uni and VET education	-0.015	-0.056	-0.015	-0.013	-0.017	-0.017
	(0.079)	(0.109)	(0.079)	(0.079)	(0.079)	(0.078)
Has baseline interest in commercial clerk	0.015	0.015	0.039	0.013	0.013	0.016
	(0.067)	(0.068)	(0.088)	(0.068)	(0.068)	(0.067)
Has baseline interest in IT	0.100	0.102	0.103*	0.151*	0.102	0.100
	(0.062)	(0.062)	(0.062)	(0.086)	(0.062)	(0.062)
High tolerance for risk	-0.201***	-0.203***	-0.202***	-0.201***	-0.248***	-0.200***
	(0.056)	(0.057)	(0.056)	(0.056)	(0.078)	(0.056)
High competitiveness	-0.038	-0.041	-0.040	-0.040	-0.040	-0.130*
	(0.058)	(0.058)	(0.058)	(0.058)	(0.058)	(0.077)
Treatment × Advanced-level student	0.193					
	(0.126)					
Treatment × Any parent has vocational education		0.076				
		(0.121)				
Treatment × Missing or uni and VET education		0.085				
		(0.148)				
Treatment × Has baseline interest in commercial clerk			-0.054			
			(0.120)			
Treatment × Has baseline interest in IT				-0.095		
				(0.117)		
Treatment × High tolerance for risk					0.094	
					(0.110)	
Treatment × High competitiveness						0.182*
						(0.108)
Mean Control group:	-.53	-.53	-.53	-.53	-.53	-.53
Observations	1,484	1,484	1,484	1,484	1,484	1,484

Note: The table reports heterogeneous treatment effects on boys' helping behavior towards girls. The outcome variable measures the share of tokens used to help a female student and is standardized to have a mean of 0 and a standard deviation of 1 of the entire control sample. A student is an "advanced-level student" when attending advanced requirements math and German classes. Controls include class-fixed effects, age, plan to attend academic education, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications / never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, imputed values, the type of game, and the order of display of the female and male student. OLS estimates, robust standard errors in parentheses.

Significance levels: *p < 0.10, **p < 0.05, ***p < 0.01

Table D25: Girls helping a female student

	Boys					
	Advanced-level student	Parental edu.	Interest in commercial clerk	Interest in IT	High tolerance for risk	High competitiveness
Treatment	-0.053	-0.021	0.026	-0.021	-0.034	-0.002
	(0.044)	(0.065)	(0.044)	(0.039)	(0.048)	(0.044)
Advanced-level student	-0.081	-0.027	-0.029	-0.027	-0.027	-0.026
	(0.064)	(0.049)	(0.049)	(0.049)	(0.049)	(0.049)
Any parent has vocational education	0.015	-0.021	0.017	0.016	0.015	0.017
	(0.044)	(0.060)	(0.044)	(0.044)	(0.044)	(0.044)
Missing or uni and VET education	0.042	0.104	0.041	0.042	0.042	0.043
	(0.050)	(0.068)	(0.050)	(0.050)	(0.050)	(0.050)
Has baseline interest in commercial clerk	-0.025	-0.028	0.050	-0.025	-0.025	-0.026
	(0.044)	(0.044)	(0.057)	(0.044)	(0.044)	(0.044)
Has baseline interest in IT	0.033	0.038	0.028	0.032	0.030	0.032
	(0.068)	(0.068)	(0.068)	(0.100)	(0.068)	(0.068)
High tolerance for risk	-0.006	-0.002	-0.004	-0.004	-0.017	-0.004
	(0.037)	(0.037)	(0.037)	(0.037)	(0.051)	(0.037)
High competitiveness	0.046	0.044	0.047	0.047	0.047	0.074
	(0.043)	(0.044)	(0.043)	(0.044)	(0.044)	(0.056)
Treatment × Advanced-level student	0.110					
	(0.083)					
Treatment × Any parent has vocational education		0.073				
		(0.086)				
Treatment × Missing or uni and VET education		-0.129				
		(0.101)				
Treatment × Has baseline interest in commercial clerk			-0.153*			
			(0.083)			
Treatment × Has baseline interest in IT				-0.004		
				(0.124)		
Treatment × High tolerance for risk					0.027	
					(0.073)	
Treatment × High competitiveness						-0.055
						(0.079)
Mean Control group:	.54	.54	.54	.54	.54	.54
Observations	1,454	1,454	1,454	1,454	1,454	1,454

Note: The table reports heterogeneous treatment effects on girls' helping behavior towards girls. The outcome variable measures the share of tokens used to help a female student and is standardized to have a mean of 0 and a standard deviation of 1 of the entire control sample. A student is an "advanced-level student" when attending advanced requirements math and German classes. Controls include class-fixed effects, age, plan to attend academic education, whether students have a high perceived chance to get hired as a commercial clerk / IT, whether they believe they need to write many applications / never have a chance to get an offer as a commercial clerk / IT, the average math requirement of their preferred occupations, imputed values, the type of game, and the order of display of the female and male student. OLS estimates, robust standard errors in parentheses.

Significance levels: *p $<$ 0.10, **p $<$ 0.05, ***p $<$ 0.01