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EdWorkingPaper No. 24-999

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We survey undergraduate students at a large public university to understand the pecuniary and non-pecuniary factors driving their college major and career decisions with a focus on K-12 teaching. While the average student reports there is a 6% chance they will pursue teaching, almost 27% report a nonzero chance of working as a teacher in the future. Students, relative to existing statistics, generally believe they would earn substantially more in a non-teaching job (relative to a teaching job). We run a randomized information experiment where we provide students with information on the pecuniary and non-pecuniary job characteristics of teachers and non-teachers. This low-cost informational intervention impacts students' beliefs about their job characteristics if they were to work as a teacher or non-teacher, and increases the reported likelihood they will major or minor in education by 35% and pursue a job as a teacher or in education by 14%. Linking the survey data with administrative transcript records, we find that the intervention had small (and weak) impacts on the decision to minor in education in the subsequent year. Overall, our results indicate that students hold biased beliefs about their career prospects, they update these beliefs when provided with information, and that this information has limited impacts on their choices regarding studying and having a career in teaching.

VERSION: July 2024

Suggested citation: Christian, Alvin, Matthew Ronfeldt, and Basit Zafar. (2024). College Students and Career Aspirations: Nudging Student Interest in Teaching. (EdWorkingPaper: 24-999). Retrieved from Annenberg Institute at Brown University: https://doi.org/10.26300/0rb6-5r94

College Students and Career Aspirations: Nudging Student Interest in Teaching*

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June 24, 2024

Abstract

We survey undergraduate students at a large public university to understand the pecuniary and non-pecuniary factors driving their college major and career decisions with a focus on K-12 teaching. While the average student reports there is a 6% chance they will pursue teaching, almost 27% report a nonzero chance of working as a teacher in the future. Students, relative to existing statistics, generally believe they would earn substantially more in a non-teaching job (relative to a teaching job). We run a randomized information experiment where we provide students with information on the pecuniary and non-pecuniary job characteristics of teachers and non-teachers. This low-cost informational intervention impacts students' beliefs about their job characteristics if they were to work as a teacher or non-teacher, and increases the reported likelihood they will major or minor in education by 35% and pursue a job as a teacher or in education by 14%. Linking the survey data with administrative transcript records, we find that the intervention had small (and weak) impacts on the decision to minor in education in the subsequent year. Overall, our results indicate that students hold biased beliefs about their career prospects, they update these beliefs when provided with information, and that this information has limited impacts on their choices regarding studying and having a career in teaching.

*We thank the University of Michigan's School of Education for their generous support. We thank Alexander Bolves, Zach Weingarten, Marcus Winters, seminar participants at the University of Michigan, and conference participants at AEFP for helpful comments. We are also thankful to Emanuele Bardelli, Matthew Truwit, and Quentin Francis for aiding in survey development and implementation and Xiaomeng Li for data support. This material is based upon work supported by the Institute for Educational Sciences (R305B150012). This study is registered with the the American Economic Association's registry for randomized controlled trials (AEARCTR-0013764).

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1 Introduction

Between 2021 and 2022, in the US, there were *at least* 36,000 vacant teaching positions along with *at least* 163,000 positions held by underqualified teachers (Nguyen et al., 2022). One credible contributor of these labor market shortages is declining interest in the teaching profession. Over the last five decades, the number and share of Americans with a college degree has risen dramatically, but the number and share of new college graduates with a bachelor's degree in education has declined significantly (Schaeffer, 2022). Policymakers are understandably concerned with identifying how to address teacher shortages—typically by shuffling around the existing pool of teachers and teaching candidates—but less attention has been put towards understanding why enrollment rates are declining.

So what explains this declining interest in teaching? We know that college students' beliefs about the pecuniary and non-pecuniary characteristics of potential jobs play a critical role in influencing their careers (Arcidiacono et al., 2020). High school students' interest in working as a teacher is at five-decade low (Kraft and Lyon, 2022), with many students citing low pay as their primary reason for not pursuing teaching (Croft et al., 2018). However, evidence suggests people severely underestimate how much teachers earn (Horton and Kapelner, 2021), and that individuals at the margin of pursuing teaching *may actually earn more as a teacher* than in their next best option (Blazar et al., 2024; Goldhaber et al., 2023). When making college major and career decisions, students tend to prioritize non-pecuniary job characteristics like job satisfaction over expected earnings (Wiswall and Zafar, 2015a). Yet teachers edge out other occupations here—according to the National Survey of College Graduates (2010-19), teachers are more likely to report being satisfied with their job compared to other college-educated workers (National Center for Science and Engineering Statistics, 2019).[1] All this suggests students may be misinformed about the labor market outcomes for teachers relative to non-teachers, and such misconceptions could play a role in students' career choices.

To investigate this, we survey undergraduate students in early years at the University of Michigan, a large selective public university, to understand pecuniary and non-pecuniary factors driving their college major and career decisions with a focus on teaching. We begin by asking students what

[1] Based on authors' own calculations—see Table 1.

job characteristics they value when making career decisions. Then, we gather data on students' general beliefs about the typical teaching and non-teaching job for college graduates. This includes beliefs about earnings, hours and weeks worked, and non-pecuniary job characteristics such as job satisfaction. We also collect data on students' beliefs about (1) their likelihood of majoring and minoring in education and other fields, (2) their likelihood of working as a teacher and in other fields, and (3) their job characteristics if they were to go into teaching or a non-teaching career at age 30.

We then run a randomized information experiment by embedding an informational intervention in our survey. After documenting students' baseline beliefs, we randomize them into a control group that receives arguably irrelevant information and a treatment group that receives objective information on the pecuniary and non-pecuniary job characteristics described above for teachers and non-teachers from the National Survey of College Graduates (NSCG), a nationally representative sample of working-age college graduates. In a second treatment arm, students receive additional information on the importance of gender and racial diversity in the teaching profession. We then re-elicit students' beliefs to identify how providing information impacted students' beliefs about the job characteristics of teachers and non-teachers, their beliefs about their job characteristics if they were to work as a teacher or non-teacher at age 30, and their beliefs about their intended major and career.

We begin our analyses by describing students' beliefs about the typical teaching and non-teaching job a college graduate will have. Students underestimate the average annual salary of the typical teaching and non-teaching job; however, they are much more likely to underestimate earnings for non-teachers. Students, on average, believe teachers earn \$50K annually (\$51K according to the NSCG; 64% underestimate) and non-teachers earn \$64K annually (\$85K according to the NSCG; 90% underestimate). At the same time, students' beliefs about themselves if they were to work a typical non-teaching job differ widely from their beliefs about the general population. Students believe they would earn about the same annually as the typical teacher if they pursue teaching at age 30, but they believe they would earn substantially more as a non-teacher at age 30 (\$100K). This in itself does not necessarily mean students are wrong: for example, they may believe that teachers have little variation in earnings (regardless of background), and that non-teaching careers are heterogeneous. In addition, note that the NSCG statistics are nationwide, while students in

our sample attend a selective public university.

We next explore some of the predictors of interest in teaching. While the average student reports there is only a 6% chance they will pursue teaching, almost 27% of students report there is a nonzero chance they will work as a teacher in the future. Students of color are less likely to report any interest in working as a teacher or in education. Compared to White students, Asian and Black students are 11 and 18 percentage points, respectively, less likely to report any interest. Almost all students, regardless of interest in teaching, report job enjoyment, job stability, and work-life balance being important for their future career choices. Students uninterested in teaching are much more likely to report earnings (72% vs 52%) and job prestige (48% vs 29%) as important influences in their career choices. Finally, we find students uninterested in teaching believe they would earn substantially more annually ($104K vs $88K; p-value of difference < 0.001) and be more satisfied in their job (75% vs 71%; p-value of difference < 0.001) as a non-teacher compared to students interested in teaching.

Motivated by these findings, we run a randomized field experiment where we provide students with nationally representative information (from the NSCG) on the earnings, hours and weeks worked, and non-pecuniary job characteristics such as job satisfaction for the average teaching and non-teaching job. The goal is to see if such information can nudge student interest in teaching. Students who receive this information revise up how much they believe they would earn annually at age 30 as a teacher by $5K and revise down how much they believe they would earn as a non-teacher by $7K. Students also revise up the percent chance they will be working at a job with benefits, be satisfied in their job, and be satisfied with their job's contribution to society if they were to pursue a teaching or non-teaching job. The informational intervention leads to a statistically significant increase in the average reported percent chance they will major or minor in education (increasing from 5.5% to 8.6%, or 35%) and pursue a job as a teacher or in education (increasing from 5.9% to 6.4%, or 9%). We provide suggestive evidence that information on the importance of having gender and racial diversity in the teacher workforce has a greater effect on female and Black students' likelihood of majoring and minoring in education and pursuing a job as a teacher or in education.

Finally, we link the survey data with anonymized student-level transcript records, and investigate whether the information impacted students' course-taking and major and minor decisions in

the subsequent academic year. We find the intervention had no impact on the probability a student takes an education course in the following year or their probability of majoring in education. However, we do find that treated students were more likely to formally declare a minor in education. These results are driven primarily by students who reported a high likelihood of majoring or minoring in education post-intervention. Thus, the intervention has impacts, albeit small, on revealed behavior as well.

Our work connects to two strands of literature: (1) the study of the role of beliefs in college students' major and occupational choices, and (2) the study of teacher labor markets. Several recent papers explore how beliefs about labor market outcomes for different majors impact students' major and occupational decisions (Arcidiacono et al., 2012; Arcidiacono et al., 2020; Baker et al., 2018; Conlon, 2021; Ersoy and Speer, 2022; Hastings et al., 2015; Wiswall and Zafar, 2015a, 2015b). These studies show students are relatively misinformed about the labor market outcomes of different majors (Baker et al., 2018; Conlon, 2021; Ersoy and Speer, 2022; Wiswall and Zafar, 2015a, 2015b), but providing students with accurate labor market information causes them to update their beliefs and change their intended (Wiswall and Zafar, 2015b) and actual (Conlon, 2021) majors. Our work is unique in that we show students hold biased beliefs about a specific profession and that providing information on a specific profession impacts students' intended major and career choices and actual minor decisions. We are among the first to incorporate information on non-pecuniary job characteristics such as job satisfaction, which students report as highly influential in their career decisions, in an intervention.[2] Indeed, we find that about 90% of students report enjoying their job as an important factor in their career choice and about 28% of students who receive the informational intervention report that the information they found most useful was the statistic on job satisfaction.

Several studies have examined college graduates' decision of pursuing teaching (Lang and Palacios, 2018; Stinebrickner, 2001a, 2001b; Wiswall, 2007). These papers rely on observed choice data and do not examine the role of students' beliefs about the teaching profession. This is limiting because different combinations of preferences and beliefs can rationalize the same observed outcomes. For example, a student may not pursue teaching because they have a strong distaste for the

[2]Zafar (2013) and Boneva and Roth (2018) find that non-pecuniary factors are the driving determinant of major choice and college enrollment, respectively. Ersoy and Speer (2022) run a similar experiment to ours, and provide students with information on non-pecuniary job characteristics like work-life balance and job flexibility.

work (preferences) or because they believe the expected earnings relative to their outside option are lower (beliefs). We overcome this obstacle by directly eliciting students' beliefs and examining their role in students' decision-making process.

This paper also relates more generally to the study of teacher labor markets. A large body of work examines the late teacher pipeline—i.e., how education leaders might best allocate the existing pool of teachers (Bates et al., 2022; Biasi et al., 2021). Papers in this vein explore the role of pay schemes (Biasi, 2021; Clotfelter et al., 2008; Clotfelter et al., 2011), accountability systems (Clotfelter et al., 2004; James and Wyckoff, 2020), student demographics (Boyd et al., 2005b; Clotfelter et al., 2005), working conditions (Feng and Sass, 2017; Kraft et al., 2016), and geography (Boyd et al., 2005a, 2013; Edwards et al., 2022; Krieg et al., 2016; Reininger, 2012) in the allocation and retention of teachers.

However, there is relatively little work studying the early teacher pipeline, and in particular, exploring why there have been declines in enrollment in teacher education programs and in the number of new teachers entering the profession over the past two decades. Most papers examining the early teacher pipeline focus on teaching candidates already enrolled at teacher educator programs (e.g., see Goldhaber et al., 2014, and Goldhaber et al., 2022). Though important, these studies are unable to explain why enrollments in teacher education programs have been steadily declining since the turn of this century. There are two recent exceptions examining student interest in teaching. Bartanen and Kwok (2022) examine applicants to a public university in Texas, where applicants are asked if they plan to become a teacher in their application. The authors document declining interest in the teaching profession over the last decade and—in contrast to our results—they find that Black and Hispanic applicants are more likely to be interested in teaching than White applicants. Kraft and Lyon (2022) describe trends in high schoolers' interest in the teaching profession, and find that in 1976 about 18% of seniors expressed interest in working in a school but this fell to an all-time low of 11% in 2020. They point to multiple potential causes: a drop in relative wages, accountability reforms, perceived loss of job security and professional autonomy, and weakened union power. Our work points to one other possible driver of interest in teaching: students' beliefs.

2 Data

In this section, we describe how we administered the survey, the instrument, and our sample.

2.1 Survey administration

We surveyed students at the University of Michigan over four weeks during the Winter 2022 semester (April-May). The University of Michigan is a large, selective, public university that enrolls over 32,000 undergraduates. We constructed the survey using Qualtrics and distributed it via email to all freshmen and sophomores enrolled in the Winter 2022 semester (9,221 students). We focused on students in earlier years since their course-taking and major choice is more malleable.

Students could complete the survey using either a computer, laptop, tablet, smartphone, or other device. The survey had several sections and once students completed one section they were unable to go back and revise their answers, but they did not have to finish the survey in one sitting. Of the students who fully completed the survey, 96% finished within 24 hours of starting—the median time to complete the survey was 21 minutes for these students. Students were required to answer almost all questions and we employed logical checks (e.g., the percent chance of events could not be negative and had to sum up to 100). We incentivized students to complete the survey by offering respondents a $10 Amazon gift card. We told students that the first 1,400 respondents were guaranteed a gift card and we would randomly assign 100 gift cards amongst everyone else.

2.2 Survey instrument

Our survey consisted of three stages. In the first stage, we asked students about their career aspirations and what job characteristics they value when making career decisions. We also asked students about the percent chance they will major or minor in various disciplines and the percent chance they will be working in various occupations at age 30. We clustered college majors into the following groups: (i) Education, (ii) Science/Technology/Engineering/Mathematics, (iii) Business, (iv) Social Sciences, (v) Arts/Humanities/English/History/Foreign Languages, and (vi) Never Graduate/Drop Out.[3] We grouped occupations into the following categories: (i) Science, (ii) Health, (iii) Business, (iv) Government, (v) Teacher (Pre-K-12th grade), (vi) Education (e.g., administrator,

[3]We provided students a crosswalk between majors available at the university and these broad categories to help them classify their intended major.

curriculum designer, post-secondary teacher), (vii) Law, and (viii) Other (fill in).[4] Students also answered questions about the job characteristics of the typical teaching job and the typical non-teaching job a college graduate would pursue; we asked students to only consider full-time jobs (working more than 30 hours per week). This included the annual and weekly salary, hours and weeks worked, and the percent chance they would be satisfied with their job, have benefits like a pension, and be satisfied with their job's contribution to society. Students answered this for the typical teaching job and non-teaching job as well as if *they themselves* were to go into teaching or another non-teaching job of their choosing at age 30.

In the second stage, students were randomly selected to receive one of three possible sets of information. Treatment group 1 received information on the pecuniary and non-pecuniary job characteristics of teachers and non-teaching college graduates based on a nationally representative sample of working-age college graduates (see Table 1); these statistics were derived from the National Survey of College Graduates (2010-19) for full time workers (working more than 30 hours per week) aged 22 to 50. For these students, we explained that, compared to non-teachers, teachers on average report a lower annual salary, work fewer weeks in the year, but have a comparable weekly salary for reported weeks worked. We also highlighted that teachers are more likely to report having health insurance and a pension, being satisfied with their job, and being satisfied with their job's contribution to society. The second treatment group received the same information as treatment group 1 but received additional information on the importance of diversity in the teacher workforce (see Figure 1). Specifically, we told students that teachers of color and men are underrepresented in the profession and that research shows that students of color benefit when they are taught by teachers of color and boys benefit when they are taught by male teachers. The control group received irrelevant information about college attainment in OECD countries (see Table A1).

In the final stage, we re-asked students about their beliefs. We again asked students the percent chance they will major or minor in various disciplines, the percent chance they will be working in various occupations at age 30, and about the pecuniary and non-pecuniary job characteristics if they were to be a teacher or work in a non-teaching job of their choosing. We also collected demographic characteristics, family background, and college financing information.

[4]Both questions had logical checks such that the percent chance of events could not be negative and had to sum up to 100.

2.3 University administrative data

To identify the impact of treatment on student course-taking and major/minor declarations, we linked the survey data to student-level transcript data through the end of the Winter 2023 semester (that is, the subsequent academic year). This data contains all the courses students in our sample took prior to and post-treatment, as well as when and if they declared a major or minor. The university has two undergraduate education majors for prospective teachers—the elementary teacher education program and the secondary teacher education program. These majors typically take 3-4 semesters to complete (excluding general education requirements for the university) and students can also work towards teacher certification through the state of Michigan. The university also offers the "Education for Empowerment minor" for students interested in examining the relationship between education, justice, and democracy. This minor requires three education courses, an internship credit, and a capstone project. From 2021-22, 70 undergraduate education degrees were conferred (0.8% of all undergraduate degrees).

2.4 Sample selection and descriptive statistics

In total, 1,301 students (out of 9,221 invitees) completed the survey. We dropped students who indicated they were juniors or seniors, as well as students who did not answer all questions related to beliefs.[5] Our analytic sample consists of 1,269 students (14% survey response rate).

In Table A2, we present demographic descriptives of our sample.[6] Column 1 shows that a large share of our analytic sample is comprised of freshmen (80%).[7] Students in our sample also come from high SES and academic achieving backgrounds. Thirty percent of students reported having a household income of greater than $200K. Students had on average a Scholastic Aptitude Test (SAT) math score of 706 and verbal score of 722 (maximum score of 800), corresponding to the 93rd and 96th percentiles of the national distribution, respectively.

In column 3, we present the same descriptives from the broader university sample of freshmen

[5]Students could self-identify as juniors or seniors, but are technically considered freshmen or sophomores if they have under 55 credits. We drop 30 students who reported being a junior or senior.

[6]We were able to match 8,901 out of our 9,221 survey invitees to university administrative data (97% match rate). We matched students based on emails, some of which were unavailable in the administrative data.

[7]This is because freshmen and sophomore status is determined by credits earned (<55) and the survey was conducted in the winter semester. This resulted in some students who were sophomores in Fall 2021 "crediting-out" of sophomore status by the winter semester.

and sophomores in Winter 2022. Compared to the broader university, our sample consists of more students who identify as Asian (26% vs 17%) and Hispanic (5% vs 2%) and has less students who identify as Black (3% vs 5%). Students in our sample are more likely to have attended high school in Michigan (62% vs 52%). They are also higher achieving relative to the broader population of freshmen and sophomores at the university. They reported having, on average, a Fall 2021 GPA of 3.65 compared to the broader university average of 3.57. They also had higher SAT verbal scores but similar SAT math scores. Thus, our results should be interpreted as generalizable to this select group of survey-takers.

2.5 Baseline equivalence and attrition

We next examine two potential threats to our analyses: lack of baseline equivalence and differential attrition across treatment assignment groups.

If students in the control condition are systematically different from students in the treatment conditions, this could threaten the internal validity of our results.[8] Table A3 shows there are few systematic differences in demographic characteristics between treatment group and control group members. There are a couple of exceptions: treatment group members report being ranked higher (i.e., better) in their HS graduating class compared to control group members, and control group members are likely to finance more of their education through their own savings and loans compared to treatment group members. Likewise, Table 2 shows there are few systematic differences between treatment group and control group members along baseline beliefs with the exception that control group members are slightly more likely to report majoring or minoring in education and working as a teacher in the future.

These differences in baseline interest in education and teaching are concerning considering our intervention nudges students along those dimensions. We conduct a more formal baseline equivalence test where we regress an indicator for being randomized into treatment vs control on students' baseline beliefs and demographics in Table A4. In column 1, we regress an indicator for a student receiving treatment 1 on students' baseline beliefs and expectations (that we describe below in Table 2). There is little evidence that students' beliefs systematically differed across treatment

[8] Because most of our analysis uses within-individual variation, this is of limited concern. Our results should still be internally valid unless how students update beliefs varies across treatment status.

status (F-test p-value = 0.67). We find similar results when comparing treatment 2 to control in column 3 (F-test p-value = 0.23). In columns 2 and 4, we add additional demographic controls such as student race, gender, college year, household income, parental education, and SAT/ACT scores. These are questions students answered after receiving information, so differences along such characteristics are suggestive of treatment impacting how students answer such questions or differential attrition. We again find no systematic difference between treatment 1 and control group students (F-test p-value = 0.13) but do find evidence that treatment 2 students differed from control students (F-test p-value < 0.01).

Attrition is a concern if students did not complete the survey after receiving information, and this attrition is correlated with treatment status and students' propensity to pursue an education major/minor or teaching. While over 2,500 students started the survey, only half completed it. Table A3 shows that the attrition rate was lower in the control condition (13%) than in treatments 1 and 2 (17% and 16%, respectively). This could be potentially concerning. Table 2 shows that students in the treatment groups had lower baseline beliefs of majoring/minoring or working in education and our baseline equivalence test above is suggestive of some systematic difference between treatment 2 group members and control group members. This suggests that students who were relatively more predisposed to education in the treatment groups perhaps dropped out at higher rates. We explore this more formally in Appendix Table A5, where we regress an indicator on having an incomplete survey *after receiving information* on baseline beliefs and student characteristics. We find that baseline probability of studying/working in education is predictive of an incomplete survey in the group that received treatment 2 but not the control or treatment 1 group. In treatment group 2, a 10 percentage point (pp) increase students' baseline beliefs of majoring or minoring in education is associated with a 2pp higher probability of not finishing the survey.

Regardless of whether these differences are a result of chance, improper randomization, or differential attrition—the chief concern is what bias this may introduce. One may argue that since the control group shows more interest in the teaching profession, our results likely underestimate the impact of treatment if it is the case that students with a predisposition for teaching are more responsive to information that is favorable to the teaching profession. If the converse is true, however, we may be overestimating the impact of treatment. We handle this issue in three ways. First, in our analyses below we will show raw differences in means across treatment status as well as

conduct more formal regression models where we control for a range of observable characteristics to account for differences along treatment status.[9] When examining our main outcomes—propensity to major/minor in education or work as a teacher or in education—we run models separately by students who reported no baseline interest in teaching vs a positive baseline interest in teaching. Finally, we run a specification where we control for baseline probabilities of majoring or minoring in education and working as a teacher. Our estimates remain qualitatively similar across all these specifications. Thus, we do not believe attrition or baseline inequivalence are major threats to our findings.

3 Descriptive patterns

Before moving to the experimental analysis, we first describe the baseline data on beliefs and intended occupation choice, and predictors of intended occupational choice.

3.1 Subjective data on beliefs about major/minor and occupation choice

We present information on students' baseline beliefs about their intended major, minor, and occupation choices in Table 2. The average student reports that there is a 67 percent chance they will major in either a STEM subject or business and only a 3 percent chance that they will major in education. For comparison, in the 2018-19 academic year, education majors accounted for about 4% of BA degrees conferred in the U.S. and less than 1% of degrees conferred by the University of Michigan (National Center for Education Statistics, 2022; U.S. Department of Education, 2022).

Students indicate that there is a high chance that they will not get a second major (71%) but a high chance they will get a minor (66%). If a student indicates they are likely to pursue a second major or minor, they are likely to choose either STEM/business or social sciences/art. Students, on average, only report a 2.5 percent chance that they will have a second major or minor in education. We see similar results for occupation choice—students, on average, report that there is a 50% chance they will work in a science or health related field by age 30 vs 7% as a teacher or in education.[10]

[9] This includes student race, gender, age, GPA, college year, household income, parental education, and SAT/ACT scores.

[10] This includes pre-K-12th grade teachers as well as administrators, curriculum designers, and post-secondary teachers.

Panel A of Table 3 presents data on students' baseline beliefs about teachers and non-teaching college graduates compared to estimates from the NSCG. Panel A shows students tend to underestimate the salary, weeks worked, and hours worked in a week for both teachers and non-teachers; however, they are much more likely to underestimate these statistics for non-teachers.[11] Students, for example, on average believe teachers earn $50K annually ($51K according to the NSCG; 64% underestimate) and non-teachers earn $64K annually ($85K according to the NSCG; 90% underestimate). Almost all students underestimate the non-pecuniary job characteristics of both teachers and non-teachers. For example, students believe only 59% of teachers and 55% of non-teachers report being satisfied with their job, with 99% of students underestimating.

In panel B, we present results on students' beliefs about themselves if they were to work as a teacher or another non-teaching job of their choosing. Students' beliefs about their pecuniary job characteristics if they were to go into teaching do not differ much from their beliefs about the typical teacher in panel A. For example, students believe that teachers, on average, would earn a weekly salary of $1.1K and that they themselves would earn a weekly salary of $1.2K. Students, however, believe they will earn substantially more as a non-teacher than what they believe the typical non-teaching college graduate earns. While students believe the typical non-teacher earns $64K annually, they believe they would earn $100K annually as a non-teacher. Students also believe that they themselves would be more satisfied with their job as a non-teacher compared to a teacher (74% vs 50%).

3.2 Predictors of teaching versus non-Teaching

To motivate our informational intervention, we begin by describing the predictors of interest in teaching. The average student reports there is only a 6% chance they will pursue a job as a teacher or in education, but 27% of students report there is a nonzero chance they will work as a teacher or in education in the future. Students who have some interest in teaching—those that report there is a non-zero chance of working as a teacher or in education—report on average a one-in-four chance of working in education at age 30. This suggests that while the average student believes that there is a small likelihood they will work as a teacher in the future, a sizable number of students are

[11] Approximately 25% students expect an annual salary for teachers that is within $5K of the typical teachers' salary compared to 3% for non-teachers.

considering working in the education sector.

We assess which demographic characteristics are predictive of interest in teaching/education in Table 4. In column 1, we regress a binary indicator for having interest in teaching (i.e., the student reports the likelihood of working as a teacher or in education at age 30 is greater than zero at baseline) on a host of student demographic characteristics. We find that race, parental marital status, and high school location are the only significant predictors of interest in teaching. Compared to White students, Asian and Black students are 10 and 18 percentage points, respectively, less likely to report any interest in working as a teacher or in education. Students who attended HS in Michigan (relative to outside of MI) are 5pp more likely to be interested in teaching. It is interesting to note that other indicators of socioeconomic class, such as household income or first-generation status, are not significant predictors of interest in teaching/education. Overall, we see that the rich set of controls explains only a small amount of variation in the dependent variable, as shown by the low R-squared in the last row of the table.

We replace our outcome with the percent chance a student will pursue teaching at age 30 in column 2. We find similar results regarding student race but no significant relationship for marital status of parents or HS location. Finally, in column 3, we rerun the analysis from column 2 but restrict our sample to students who say there is a non-zero chance they will pursue teaching to study the predictors of interest in teaching among "potential" educators. The results here are the same—students of color report less interest in teaching.

In addition to varying along observable characteristics, students interested in teaching and students uninterested in teaching value different job characteristics for their future careers. In Figure 2, we show the percentage of students who report valuing eleven different job characteristics by interest in teaching.[12] Almost all students, regardless of interest in teaching, report job enjoyment, job stability, and work-life balance as being the most important for their future career choices. Students uninterested in teaching, however, are much more likely to report earnings (72% vs 52%) and job prestige (48% vs 29%) as important influences in their career choices.

We examine how students' beliefs about teachers and non-teachers at baseline differs along interest in teaching in Table 5. In panel A, we show that students interested in teaching and

[12]We asked students, using a five-point Likert scale, how much they valued these job characteristics (answers ranged from "not at all important" to "extremely important"). Student reporting a value of 4 or 5 are coded as finding the characteristic important.

students uninterested in teaching (that is, those who assign a zero percent chance of working as a teacher or in education) generally have similar beliefs about the typical teaching and non-teaching job.[13] In panel B, we examine students' beliefs about themselves if they were to work as a teacher or non-teacher along interest in teaching. As we described above, students at the University of Michigan are markedly different than the general population of college students, so it is likely their beliefs about their own labor market outcomes are different than their beliefs about the labor market outcomes of the general population. These questions about students' self-beliefs, therefore, are more relevant for describing students' decision-making process. Compared to students interested in teaching, students uninterested in teaching believe they are less likely to be satisfied working as a teacher (45% vs 63%); however, they do not have very different beliefs when it comes to pecuniary job characteristics associated with teaching (like annual and weekly salary). We find that students uninterested in teaching believe they would earn substantially more annually as a non-teacher compared to students interested in teaching ($104K vs $88K) and also be more likely to be satisfied working as a non-teacher (75% vs 71%). To put this into perspective, the median earnings of University of Michigan undergraduates 10 years after enrolling is $76K according to the College Scorecard (U.S. Department of Education, 2022), suggesting that even conditional on being from a high-achieving and high-SES school, the students in our sample are optimistic about their own earning potential.

Our findings here substantiate three important facts that motivate our informational intervention and subsequent analyses. First, students of color are less likely to report interest in teaching, even conditional on a host of demographic characteristics such as household income and academic achievement. Second, all students report valuing non-pecuniary characteristics in their future career, but students uninterested in teaching are more likely to report valuing earnings. Finally, students' subjective beliefs about themselves if they were to work as a teacher or non-teacher differ along interest in teaching—students uninterested in teaching believe they will earn substantially more annually and be more satisfied in their job as a non-teacher compared to students interested in teaching. Given the differences in beliefs about *relative* earnings between teachers and non-teachers—especially among students uninterested in teaching—we examine if providing students

[13]Students uninterested in teaching have slightly more favorable beliefs about the typical teaching job compared to uninterested students: they believe the typical teacher has a higher annual salary ($50K vs $49K), works fewer weeks in the year (38 vs 39), and works fewer hours per week (47 vs 48).

with information on these factors impacts their beliefs and interest in the profession. Given the lack of teaching interest among students of color, we also investigate if providing them with information on the importance of teacher diversity impacts their career intentions.

4 Experimental Results

4.1 Empirical specification

We assess the effect of providing students with information about the teaching and non-teaching profession on their beliefs and their interest in teaching. Our main outcomes are *revisions* in beliefs—the difference in beliefs before and after receiving information. We run the following kinds of analyses, using ordinary least squares (OLS):

$$Y_{post} - Y_{pre} = \alpha + \beta_1 Treat_{1or2} + \beta_2 Treat_{2only} + \gamma X + \epsilon. \quad (1)$$

Here, $Y_{post} - Y_{pre}$ represents the change in beliefs about the pecuniary and non-pecuniary characteristics if one was pursuing a teaching or non-teaching job (e.g., annual earnings at age 30), the percent chance the student will major or minor in education, or the percent chance a student expects to be working as a pre-K-12 teacher or in education. We include two binary treatment indicators in our model: $Treat_{1or2}$ is a binary indicator that is equal to 1 if the student was randomized into treatment 1 or 2 and 0 if the student was randomized into control, and $Treat_{2only}$ is a binary indicator that is equal to 1 if the student is randomized into treatment 2 and 0 if the student was randomized into treatment 1 or control. α reflects the average revision of the students in the Control group, and is meant to capture any effects attributable to taking the survey. Our primary parameters of interest are β_1 (the impact of receiving information about the typical teaching and non-teaching job) and β_2 (the *additional* impact of receiving information on the importance of diversity in the teacher workforce). X includes a vector of covariates to increase the precision of our estimates and adjust for observable differences in baseline characteristics by treatment status: age, gender, race, current GPA, grade level (dummy for freshmen), household income, first-gen status

(no parent has a BA or higher), and SAT/ACT scores.[14] We use robust standard errors.

4.2 Impact on beliefs

In Figure 3, we present simple differences in means for revisions in beliefs (post-information belief - baseline belief) about their annual and weekly salary, hours and weeks worked, and non-pecuniary job characteristics if they were to work as a teacher or non-teacher at age 30. The black bars represent revisions for the the control group, the dark gray bars represents revisions for treatment 1 (information on job characteristics), and the light gray bars represent revisions for treatment 2 (information on job characteristics + importance of racial/gender diversity). Revisions in the Control group are all (statistically and economically) small, suggesting that students did not alter their beliefs systematically after receiving irrelevant information unrelated to teachers and non-teachers. Students in T1, on average, revise up how much they believe they would earn annually as a teacher by $5K and revise down how much they believe they would earn as a non-teacher by $7K. We see a similar pattern for weekly salary—students revise up how much they believe they would earn as a teacher by $360 and revise down how much they believe they would earn as a non-teacher by $130 (this latter difference is not statistically different from the control group). Students also revise up how many weeks they believe they would work annually as a teacher (1.4) and revise down how many hours per week they believe they would work (1.5). The impacts are qualitatively similar for both treatment groups.

Figure 3e shows that students revise up their beliefs about the non-pecuniary job characteristics if they were to work as a teacher and as a non-teacher. After receiving information on just job characteristics (T1), students revise up the percent chance they would have benefits as a teacher by 13pp, be satisfied working as a teacher by 19pp, and be satisfied with their job's contribution to society as a teacher by 10pp. We see a similar but much smaller and weaker pattern for impacts on students' beliefs about working as a non-teacher—students revise up the percent chance they would work at a job with benefits by 2pp, be satisfied with their job by 2pp, and be satisfied with their job's contribution to society by 4pp. Again, the impacts are similar for both treatment groups.

We present more formal results on the impact of information on beliefs from our regression analysis in Table 6; specifically, the table shows estimates based on equation (1). In this analysis,

[14] We convert ACT scores to SAT scores using ACT/SAT concordance tables.

we are able to adjust for observable differences across treatment status and distinguish between (1) the impact of receiving information about the typical teaching and non-teaching job, and (2) the additional impact of receiving information on the importance of diversity in the teacher workforce. As in Figure 3, we see that students who received information about the pecuniary and non-pecuniary job characteristics of teachers and non-teachers revise up how much they believe they would earn as teachers, revise down how much they believe they would earn as non-teachers, and revise up the non-pecuniary job characteristics of both teachers and non-teachers. The coefficients on the indicator for treatment 2 only (i.e., the additive effect of T2) are not statistically significant; this suggests that students are revising their beliefs based primarily on the information on the pecuniary and non-pecuniary job characteristics and that there is little detectable additional impact from receiving the information from treatment 2.

Overall, We find that receiving information about the pecuniary and non-pecuniary characteristics of teachers and non-teachers impacts students' beliefs.

4.3 Impact on intended (major/minor and occupation) choice

Figure 4 shows that providing students information on just job characteristics (T1) caused them to revise up the reported likelihood they will major or minor in education by 3pp and work as a teacher or in education by 1pp. These estimates are qualitatively similar when we adjust for observable demographic characteristics as seen in columns 1 and 4 of Table 7. Again, we find that the coefficients on the indicator for treatment 2 only (that is, the additive effect for treatment 2) are not statistically significant (see panel B).

These impacts, at first glance, may appear relatively small; however, they are economically meaningful. At baseline, students in the control group report, on average, only an 8% chance that they will major or minor in education and a 8% chance they will work as a teacher or in education at age 30. This means that receiving information caused students to revise up the percent chance they will major or minor in education by 35% (2.95/8.21) and the percent chance they will work as a teacher or in education by 14% (1.05/7.63).

We find that our treatment impacts are primarily driven by students who were originally uninterested in pursuing teaching (i.e., report a zero percent chance of pursuing teaching at baseline). We find that information caused these students to revise up the reported likelihood they will ma-

jor or minor in education by 3pp (column 2 of Table 7) and work as a teacher or in education by 1.25pp (column 5). Treatment impacts for students ex ante already interested in teaching/education (columns 3 and 6) are slightly smaller and not statistically significant.[15]

To account for differences across groups in observables, Panel C of Table 7 replaces our main outcome (post-pre difference) with the post-outcome (e.g., replacing post-pre difference in propensity to major/minor in education with post-treatment propensity to major/minor in education). We control for the students' baseline beliefs, HS rank, and financing variables to adjust for baseline differences across treatment status. We find little difference in treatment effects in this specification—the treatment effect of receiving information on pecuniary and non-pecuniary characteristics on students' probability of majoring/minoring in education falls slightly from a 2.9pp increase to a 2.4pp increase. The treatment effect on students' probability of working as a teacher or in education rises from 1.1pp increase to a 1.3 increase.

Overall, we find that receiving information about the pecuniary and non-pecuniary characteristics of teachers and non-teachers impacts students' reported likelihood of majoring or minoring in education and pursuing a career as a pre-K-12 teacher or in education.

4.4 Heterogeneity in treatment effect

In this section, we examine heterogeneous treatment impacts of information along gender, household income, having a teacher in your immediate family, first-gen status, and expected student debt. In Table 8, we modify equation 1 and interact the treatment indicators with the aforementioned variables to identify any differential impact of information. We include main effects in our regressions but exclude those coefficients from the table because we are interested in examining differential impacts of information along these characteristics.

We explore the impact of treatment on the likelihood of majoring or minoring in education by gender in column 1. We find that, after receiving information, male students revise up the percent chance they will major or minor in education 4pp more than female students. We find the opposite effect for the impact of receiving information on diversity and the importance of male teachers—

[15]It is worth nothing that students report finding the information on pecuniary and non-pecuniary job characteristics useful and they believe it influenced their likelihood of pursuing teaching. Approximately one-quarter of students in our treatment conditions reported finding the information we provide useful. About 15% of the students said that after reviewing the information, they were more likely to pursue teaching vs 6% who said they were less likely to pursue teaching.

male students who receive this information revise up the percent chance they will major or minor in education 3pp less than female students who receive this information.[16] In column 6, we show there is no differential impact by gender on the likelihood of working as a teacher or in education.

We next examine heterogeneous treatment impacts along family background. In column 2, we show that, after receiving information on job characteristics, first-gen students (neither parent has a BA or higher) revise up the percent chance that they will major or minor in education by 7pp more than non-first gen students.[17] There is no differential treatment impact by first-gen status for career choices (column 7). We see no heterogeneous treatment effects along household income or having a teacher in the family. Column 10 shows that students who expect to have more debt (above the median) revise up the percent chance they will work as a teacher or in education 2pp less than students who expect to graduate with less debt.

In Table A6, we explore the differential impact of treatment along race. Given the small number of Black (n=43) and Hispanic (n=56) students in our sample, we consider these results exploratory. In column 1, we interact our dummy variables for Black and Hispanic with our treatment indicators and our reference group is students who identify as White, Asian, or multi-racial/other (the model includes all main effects but we do not report them in the table). While the impact for Black students is positive, the estimate is not precise. However, Hispanic students revise up the percent chance they will major or minor in education 13pp more than students who identify as White, Asian, or multi-racial/other when they receive information on just job characteristics (there is no differential impact for receiving information on the importance of diversity). In column 4, we show that Black students who received information on just job characteristics revise up the percent chance they will work as a teacher or in education 4pp less than students who identify as White, Asian, or multi-racial/other; however, they revise up by 3.5pp more than these students when they receive information on the importance of diversity. These results hold when we make the reference category just White students in columns 2 and 5, and when we use an alternative definition for race and include students who identify as multi-racial in the Black and Hispanic categories in columns

[16] These impacts do not appear to be driven by different levels of baseline beliefs. At baseline, the average male student reports there is a 6% chance they will major or minor in education compared to the average female student who reports a 7% chance. These values are not statistically significantly different from each other (p-value = 0.25).

[17] Compared to non-first-gen students, first-gen students at baseline report a higher likelihood of majoring or minoring in education (8% vs 6%; p-value = 0.048) and working as a teacher or in education (9% vs 6% ; p-value = 0.007).

3 and 6.[18]

Overall, our results indicate meaningful heterogeneity in impacts: male students are more responsive to information on pecuniary and non-pecuniary characteristics of the jobs (treatment T1), while females (and minorities) seem to be impacted more by information about the importance of diversity and role model effects of teachers.

4.5 Impacts on actual course-taking and major/minor decisions

Table 9 presents results on the impact of treatment on student course-taking and minor decisions in the subsequent academic year. We do not examine impacts on major decisions because only two students had declared a major in education at this point in their college career, and both students had declared their major prior to the intervention. We include the baseline probability of majoring or minoring in education in our regression models, as well as a richer set of controls from the administrative data including the total number of education classes taken prior to the intervention to examine how they relate to student's schooling choices. Columns 1 and 2 examine the impact of treatment on the probability of taking any education class, and columns 3 and 4 examine impacts on the probability of minoring in education. We rescale these binary indicators from 0/1 to be 0/100 for presentation purposes.

In column 1, we see that the treatment had an imprecise impact on taking any education class one year after treatment: the estimate of 0.15 indicates that treatment increased the probability of taking an education class by 0.15pp. It is sizable when compared to the control mean of 1.26 (12% increase), though it is not statistically significant at conventional levels. In column 3, we show that the treatment increased the probability students declared a minor in education by 0.7pp, though this is only statistically significant at the 10% level. To put this number into perspective, after treatment, only one student in the control group declared a minor in education whereas six students from the treatment group did so. This suggests that the treatment appears to have a small impact on the likelihood a student would declare a minor in education.

There are two other noteworthy findings worth discussing from these regression results. First, prior course-taking and major decisions are predictive of future course-taking and minor decisions

[18]For our alternative definition of race, we include multi-racial students in other race categories, meaning our race categories are not mutually exclusive. For example, if a student identified as Black and Hispanic they were given a value of 1 for both Black and Hispanic dummy variables.

in a way we would expect. Taking an education class prior to the intervention is associated with a 22pp increase in the likelihood of taking an education class in the following year and a 9pp increase in the likelihood of declaring a minor in education.[19]

The second striking result is that students' beliefs about majoring and minoring in education are strongly predictive of course-taking and *actual* minor decisions. A 1pp increase in students' baseline probability of majoring or minoring in education is associated with a 0.09pp (7%) increase in the likelihood of taking an education class and a 0.08pp (32%) increase in the likelihood of declaring a minor in education. Students' post-treatment beliefs are also predictive of course-taking and minoring in education—the correlation coefficient between post-treatment beliefs about majoring and minoring in education and taking an education class and minoring in education are 0.27 and 0.25, respectively. We find there are differences in the strength of this relationship across treatment status: the correlation coefficient between post-treatment beliefs about majoring and minoring in education and taking an education class and minoring in education are 0.11 and 0.08, respectively, for the control group, and 0.35 and 0.32, respectively, for the treatment group. This suggests that the students who received treatment are more likely to have acted on their beliefs.

Our findings here suggest that the intervention had small impacts on minor declarations one year after the intervention.

5 Conclusion

This paper examines the pecuniary and non-pecuniary factors driving undergraduate students' major and career decisions with a focus on teaching. We survey underclassmen at a large public university to understand what job characteristics they value when making career decisions, their general beliefs about the typical teaching and non-teaching job for college graduates, and their beliefs about their future career. We find that students hold biased beliefs about the typical teaching and non-teaching job a college graduate will have. Students underestimate the average annual salary of the typical teaching and non-teaching job; however, they are much more likely to underestimate salaries for non-teachers.

[19] We also see that declaring a major in education is negatively associated with taking education classes post-intervention and minoring in education. This follows for two reasons: (1) the two students who declared a major in education prior to the intervention were community college transfer students who mainly took general requirement courses the following year, and (2) there is no reason to minor in education if one is majoring in it.

We next explore some of the predictors of interest in teaching. Almost all students, regardless of interest in teaching, report job enjoyment, job stability, and work-life balance being important for their future career choices. Students uninterested in teaching are much more likely to report earnings and job prestige as important influences in their career choices. We find students of color are less likely to be interested in working as a teacher in the future. We also find that students uninterested in teaching believe they would earn substantially more annually and be more satisfied in their job as a non-teacher compared to students interested in teaching.

Motivated by these findings, we run a randomized field experiment by embedding an informational intervention in our survey to see if providing students information about the pecuniary and non-pecuniary characteristics of teachers and non-teachers impacts students' beliefs and prospective major and career decisions. In a second treatment arm, students receive additional information on the importance of gender and racial diversity in the teaching profession to see if such information can induce underrepresented groups to pursue teaching. On average, students who receive this information revise up how much they believe they would earn annually as a teacher by \$5K and revise down how much they believe they would earn as a non-teacher by \$7K. The informational intervention increases the reported percent chance they will major or minor in education by 35% and pursue a job as a teacher or in education by 14%. We provide suggestive evidence that information on the importance of having gender and racial diversity in the teacher workforce has a greater effect on female and Black students' likelihood of majoring and minoring in education and pursuing a job as a teacher or in education. Linking to administrative data, we find that the intervention had small impacts on the likelihood of declaring a minor in education one year later. Our findings suggest that students hold biased beliefs about their career prospects, they update these beliefs when provided information, and that this information can impact their prospective college major and career.

While we find relatively large impacts of providing information on students' beliefs, the impacts on students' actual course-taking and major/minor declarations are more limited. One reason for these muted effects could be due to our study sample. Our study takes place at the University of Michigan, which is a relatively selective school. Indeed, the top three majors conferred in 2021-22 were computer science, economics, and business administration. According to the college scorecard, the median earnings for these majors four years after graduation are \$136K, \$88K, and

$116K, respectively. Less than 1%, of undergraduate degrees conferred during this time period were education majors. It is possible that students in our sample are less sensitive to information on the pecuniary characteristics of teachers than students in less selective institutions who may have less lucrative outside options.[20]

Our findings suggest several possibilities for future research and policy. Given our findings that students hold biased beliefs about non-pecuniary job outcomes like job satisfaction, future work can expand on which non-pecuniary factors students find the most important when making career decisions, and some of their determinants. In addition, our analysis reveals that while the average student is unlikely to pursue teaching, a sizeable portion are considering teaching. Universities and educator preparation programs can explicitly target these students sympathetic to teaching with information about the profession to increase the pool of potential teachers.

[20] Another reason we may have seen limited impacts on course-taking and major/minor decisions is because they may have not materialized yet. Students typically declare a major in education at the university in their junior year, but about 80% of the students in our sample were freshmen (and therefore sophomores one year later). It is possible that treatment impacts may materialize at a later date.

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Tables

Table 1. Job Characteristics of Teachers and Non-Teaching College Graduates

	Teachers	Non-teachers
Weekly hours worked	46.33	45.16
Weeks worked in year in main* job	44.77	51.2
Salary per week	$1,774.64	$1,745.82
Annual salary from main* job	$50,654.51	$85,065.01
% whose job provides health insurance and a pension	83%	75%
% who are overall satisfied with their job	91%	88%
% who are satisfied with their job's contribution to society	97%	82%

Note: *The main job is the primary source of income. This data comes from the National Survey of College Graduates (2010-19) for full time workers (working more than 35 hours per week) aged 22 to 50.

Table 2. Percent Chance of Major/Minor and Future Career at Baseline

	Control	Treat 1	Treat 2	Dropout of Survey	Control - Treat 1	Control - Treat 2
Baseline main outcomes (1-100)						
Major or minor in education	8.21	6.03	4.91	7.67	2.18*	3.30***
Working in teaching or education	7.63	6.06	5.69	7.21	1.57	1.93
Baseline major (1-100)						
Education	3.99	2.77	2.53	3.67	1.21	1.46*
STEM or business	65.63	68.15	67.07	61.79	-2.52	-1.44
Social sciences or art	29.19	28.04	28.71	32.56	1.15	0.48
Dropout of school	1.19	1.04	1.69	1.98	0.15	-0.50
Baseline second major (1-100)						
None	71.03	67.56	72.26	64.17	3.46	-1.23
Education	2.45	1.80	1.18	2.24	0.65	1.27*
STEM or business	12.88	15.35	12.04	15.33	-2.47	0.84
Social sciences or art	13.65	15.29	14.52	18.26	-1.64	-0.87
Baseline minor (1-100)						
None	33.50	37.54	36.19	34.32	-4.04	-2.68
Education	2.83	2.03	1.66	3.23	0.81	1.17*
STEM or business	32.40	29.54	29.81	28.58	2.86	2.59
Social sciences or art	31.26	30.89	32.34	33.87	0.38	-1.08
Baseline working field (1-100)						
Science	29.16	30.90	31.24	26.85	-1.74	-2.08
Health	20.66	22.59	20.54	21.54	-1.93	0.12
Business	20.90	20.78	19.40	19.57	0.12	1.50
Government	5.88	6.47	7.11	7.00	-0.59	-1.24
Teacher	3.97	2.74	2.33	3.09	1.22	1.64*
Education	3.66	3.31	3.37	4.13	0.35	0.29
Law	5.38	5.12	4.31	6.44	0.26	1.07
Other	10.40	8.09	11.71	11.38	2.31	-1.31
N	406	450	413	951		

Note: * p<0.1, ** p<0.05, *** p<0.01 for t-tests. Treat 1 refers to the group of students who received information on pecuniary and non-pecuniary job characteristics of teachers and non-teachers. Treat 2 refers to students who received the same information as treatment 1 as well as information on the importance of gender/racial diversity in the teacher workforce. Students were constrained to have the percent chance they would major in particular fields (or drop out) or work in particular fields to sum to 100.

Table 3. Baseline Beliefs About Teaching and Non-teaching Job Characteristics

	Teacher		Non-teacher			
	Beliefs	Prop Underestimate	Beliefs	Prop Underestimate	Prop who have direction wrong	Prop who underestimate teachers - prop who underestimate non-teachers
Panel A. Beliefs about teachers and non-teachers						
Annual Salary	49968.50	0.64	63997.16***	0.90***	0.17	-0.26
Weeks worked in year	38.43	0.86	46.92***	0.91***	0.06	-0.05
Weekly salary	1146.69	0.87	1497.6***	0.74***	0.73	0.13
Hours worked in week	47.07	0.55	44.39***	0.76***	0.22	-0.21
Prop working at job with benefits	0.69	0.73	0.61***	0.71	0.29	0.02
Prop working at job and satisfied	0.59	0.99	0.55***	0.99	0.33	0.00
Prop satisfied with contribution to society	0.76	0.96	0.52***	0.97	0.06	-0.01
Panel B. Beliefs about self if working as teacher or non-teacher						
Annual Salary	53285.74		99784.62***			
Weeks worked in year	39.11		46.58***			
Weekly salary	1196.72		2058.63***			
Hours worked in week	45.82		47.02***			
Prop working at job with benefits	0.70		0.74***			
Prop working at job and satisfied	0.50		0.74***			
Prop satisfied with contribution to society	0.68		0.70**			
N (1,269)						

Note: * p<0.1, ** p<0.05, *** p<0.01 for t-tests on beliefs between characteristics of teachers and non-teachers. In panel A, we display students' beliefs about what teachers and non-teachers earn, how much they work, and non-pecuniary job characteristics. In panel B, we display students' beliefs about what they would earn, how much they would work, and other non-pecuniary job characteristics if they pursued teaching or another career at age 30. The "Prop underestimate" column contains the proportion of students beliefs that underestimates from the estimates taken from the National Survey of College Graduates (2010-19) for respondents aged 22-50 who work at least 35 hours in a week.

Table 4. Predictors of Teaching or Education

	(1)	(2)	(3)
	Interest in teaching/edu > 0 (0-1)	% chance working in teaching/edu (1-100)	% chance working in teaching/edu if interest in teaching/edu > 0 (1-100)
Age	0.02	0.37	-1.51
	(0.02)	(0.80)	(2.09)
Sophmore	-0.01	1.67	8.30*
	(0.04)	(1.58)	(4.82)
Female	0.02	1.36	4.48
	(0.03)	(0.99)	(3.02)
Asian	-0.10***	-4.25***	-8.43**
	(0.03)	(1.04)	(3.54)
Black	-0.18***	-5.46**	2.15
	(0.06)	(2.33)	(8.11)
Hispanic	-0.02	-3.15	-10.50*
	(0.07)	(2.13)	(5.72)
Multiracial/other	0.00	-1.68	-4.52
	(0.04)	(1.53)	(3.99)
UMich cummulative GPA (0-4)	0.05	1.13	-0.62
	(0.04)	(1.45)	(4.50)
Attended HS in US	-0.00	-0.10	15.75
	(0.09)	(2.58)	(14.04)
Attended HS in MI	0.05*	0.51	-4.88
	(0.03)	(1.26)	(4.47)
International student	0.01	0.56	20.81
	(0.13)	(3.98)	(17.63)
Household income is $40,000 to 99,999$	0.04	2.19	1.39
	(0.05)	(2.07)	(5.06)
Household income is $100,000 to $199,999	-0.02	-1.10	-4.06
	(0.05)	(1.90)	(4.97)
Household income is $200,000 or more	-0.05	-1.71	-6.20
	(0.06)	(1.98)	(5.35)
Teacher in family	0.02	0.25	-1.55
	(0.03)	(1.09)	(3.01)
First-gen (no parent with BA+)	0.00	2.05	4.80
	(0.04)	(1.82)	(4.66)
Parents married	-0.08**	-0.84	4.22
	(0.04)	(1.25)	(3.18)
SAT math + Verbal score (400-1,600)	0.00	-0.00	-0.01
	(0.00)	(0.00)	(0.00)
HS rank (1-100)	0.00	0.03	0.11
	(0.00)	(0.03)	(0.11)
Parents financing ($1K)	-0.00	-0.02	-0.06
	(0.00)	(0.02)	(0.08)
Self financing ($1K)	-0.00	-0.02	-0.02
	(0.00)	(0.04)	(0.08)
Grants financing ($1K)	0.00	-0.01	-0.10
	(0.00)	(0.02)	(0.07)
Total expected debt ($1K)	-0.00	-0.01	-0.01
	(0.00)	(0.01)	(0.04)
N	1239	1239	336
Outcome mean	0.27	6.43	0.24
R-squared	0.04	0.04	0.07

Note: * p<0.1, ** p<0.05, *** p<0.01. Robust standard errors in parenthesis. We regress interest in teaching on student race (reference cateogry is White), gender, age, GPA, where they intended HS, HS rank, first-gen status, SAT/ACT scores, college year, household income (reference category is households making under $40,000), parental education, and financing variables. About one-third of the sample took the ACT instead of the SAT; for these students we convert ACT scores to SAT scores using ACT/SAT concordance tables. For the 9% of students who are missing household income data, we impute the variable to be zero and include a missing indicator variable. We drop 30 students from these analyses because they did not disclose their race or gender.

Table 5. Baseline Beliefs About Teaching and Non-teaching Job Characteristics by Interest in Teaching or Education

	Teacher			Non-teacher		
	No teaching interest	Has teaching interest	Difference	No teaching interest	Has teaching interest	Difference
Panel A. Beliefs about teachers and non-teachers						
Annual Salary	50405.39	48784.30	1621.10*	64152.54	63576.02	576.51
Weeks worked in year	38.26	38.92	-0.66*	46.84	47.14	-0.30
Weekly salary	1161.77	1105.81	55.96	1502.42	1484.55	17.87
Hours worked in week	46.70	48.08	-1.39**	44.65	43.69	0.96
% working at job with benefits	68.70	68.62	0.08	61.20	62.11	-0.91
% working at job and satisfied	58.32	59.29	-0.96	54.72	55.35	-0.62
% satisfied with contribution to society	75.64	75.53	0.11	51.73	51.42	0.31
Panel B. Beliefs about self if working as teacher or non-teacher						
Annual Salary	53716.90	52117.08	1599.82	104030.36	88276.44	15753.92***
Weeks worked in year	38.80	39.94	-1.14***	46.52	46.75	-0.23
Weekly salary	1205.23	1173.67	31.56	2141.59	1833.76	307.83***
Hours worked in week	45.43	46.89	-1.46**	47.73	45.09	2.64***
% working at job with benefits	69.16	70.46	-1.30	74.41	73.66	0.74
% working at job and satisfied	44.84	62.64	-17.81***	75.07	70.92	4.16***
% satisfied with contribution to society	65.41	75.24	-9.83***	70.52	69.12	1.39
N	927	349		927	349	

Note: * p<0.1, ** p<0.05, *** p<0.01 for t-tests. In panel A, we display students' beliefs about what teachers and non-teachers earn, how much they work, and non-pecuniary job characteristics. In panel B, we display students' beliefs about what they would earn, how much they would work, and other non-pecuniary job characteristics if they pursued teaching or another career at age 30. The sample of students under columns labeled "No teaching interest" include those who reported a 0% chance they'd work as a teacher or in education in the future at baseline. The sample of students under columns labeled "Has teaching interest" include those who reported a nonzero chance they'd work as a teacher or in education in the future at baseline.

Table 6. Treatment Effect on Revisions of Self-expectations

	(1)	(2)	(3)	(4)	(5)	(6)
	Teacher		Non-teacher		P-value of	P-value of
	Treat	Treat 2 only	Treat	Treat 2 only	col 1 = col 3	col 2 = col 4
Annual Salary (age 30)	4273***	375	-7269***	4160	0.00	0.18
	(1064)	(1218)	(2328)	(2825)		
Annual Salary (age 45)	2987***	229	-9658***	180	0.00	0.99
	(1061)	(1287)	(2459)	(3102)		
Weekly salary (age 30)	389.02***	-57.19	-55.73	-1.26	0.00	0.36
	(39.34)	(47.10)	(57.49)	(66.56)		
Weeks worked (age 30)	1.40***	0.81*	0.39	0.37	0.03	0.39
	(0.40)	(0.45)	(0.37)	(0.40)		
Hours worked in week (age 30)	-1.14**	0.57	-0.13	0.32	0.12	0.75
	(0.55)	(0.64)	(0.56)	(0.75)		
% chance of working at job with benefits	12.23***	-0.56	2.36*	0.48	0.00	0.56
	(1.47)	(1.55)	(1.34)	(1.36)		
% chance of working at job and satisfied	15.93***	-0.86	2.08*	1.30	0.00	0.28
	(1.49)	(1.76)	(1.06)	(1.19)		
% chance of satisfied with contribution to society	10.71***	-0.30	4.78***	0.13	0.00	0.78
	(1.18)	(1.31)	(1.15)	(1.29)		
N	1239		1239			

Note: * p<0.1, ** p<0.05, *** p<0.01. Robust standard errors in parenthesis. We regress outcomes on an indicator for receiving treatment 1 or treatment 2 and an indicator for receiving only treatment 2 to identify the full effect of treatment and the marginal effect of treatment 2 in one model. Columns 1 and 2 present the impact of treatment on students' beliefs about their own job expectations if they were working as a teacher and columns 3 and 4 present the impact of treatment on students' beliefs about their own job expectations if they were working as a non-teacher. Columns 5 and 6 test whether treatment had a differential impact on students' expectations when working as a teacher vs non-teacher. We control for student race, gender, age, GPA, college year, household income, parental education, and SAT/ACT scores. About one-third of the sample took the ACT instead of the SAT; for these students we convert ACT scores to SAT scores using ACT/SAT concordance tables. For the 9% of students who are missing household income data, we impute the variable to be zero and include a missing indicator variable. We drop 30 students from these analyses because they did not disclose their race or gender.

Table 7. Treatment Effect on Revisions of Major/Minor and Occupation

	(1)	(2)	(3)	(4)	(5)	(6)
	% chance of major or minor in edu			% chance of working as teacher or in edu		
	Overall	No teaching interest	Has teaching interest	Overall	No teaching interest	Has teaching interest
Panel A. Overall treatment effect						
Treat	2.95***	3.20***	2.08	1.05*	0.99**	1.00
	(0.83)	(0.96)	(1.64)	(0.55)	(0.25)	(1.78)
Panel B. Treatment effect separated by treatment 1 and 2						
Treat	2.91***	3.06**	2.66	1.18*	1.24***	0.77
	(1.01)	(1.16)	(2.04)	(0.64)	(0.37)	(1.99)
Treat 2 only	0.09	0.30	-1.16	-0.23	-0.52	0.50
	(0.96)	(1.12)	(2.05)	(0.57)	(0.41)	(1.83)
Panel C. Treatment effect conditioning on baseline beliefs						
Treat	2.42**			1.26**		
	(0.99)			(0.60)		
Treat 2 only	-0.01			-0.27		
	(0.96)			(0.55)		
BL prob of majoring/minoring in edu (0-100)	0.75***			0.13***		
	(0.07)			(0.04)		
BL prob of working as a teacher or in edu (0-100)	0.18***			0.78***		
	(0.05)			(0.05)		
Control mean		8.21			7.63	
N	1239	903	336	1239	903	336

Note: * p<0.1, ** p<0.05, *** p<0.01. Robust standard errors in parenthesis. We regress outcomes on an indicator for receiving treatment 1 or treatment 2 and an indicator for receiving only treatment 2 to identify the full effect of treatment and the marginal effect of treatment 2 in one model. The sample of students under columns labeled "No teaching interest" include those who reported a 0% chance they'd work as a teacher or in education in the future at baseline. The sample of students under columns labeled "Has teaching interest" include those who reported a nonzero chance they'd work as a teacher or in education in the future at baseline. We control for student race, gender, age, GPA, college year, household income, parental education, and SAT/ACT scores. About one-third of the sample took the ACT instead of the SAT; for these students we convert ACT scores to SAT scores using ACT/SAT concordance tables. For the 9% of students who are missing household income data, we impute the variable to be zero and include a missing indicator variable. We drop 30 students from these analyses because they did not disclose their race or gender. We label students as interested in teaching if they indicated there was a nonzero chance they'd work as a teacher or in education in the future. In panel C, we include more covariates: baseline probability of majoring or minoring in education, baseline probability of working as a teacher or in education, high school rank, and student financing variables (see Table A3).

Table 8. Treatment Effect Heterogeneity by Gender, HH Income, Teacher in Family, First-gen, and Student Debt

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	% chance of major or minor in edu					% chance of working as teacher or in edu				
Treat	5.24***	1.67	2.04*	2.93**	2.22	1.21	0.84	1.02	1.33*	2.39**
	(1.38)	(1.11)	(1.22)	(1.20)	(1.39)	(1.18)	(0.73)	(0.70)	(0.74)	(1.13)
Treat 2 only	-1.88	-0.02	0.56	0.01	0.91	-0.56	-0.10	-0.20	0.26	-0.53
	(1.37)	(1.07)	(1.18)	(1.12)	(1.48)	(0.91)	(0.62)	(0.57)	(0.58)	(0.78)
Treat * female	-3.98**					-0.05				
	(2.02)					(1.35)				
Treat 2 only * female	3.34*					0.59				
	(1.88)					(1.11)				
Treat * firstgen		6.61**					1.91			
		(2.57)					(1.50)			
Treat 2 only * firstgen		0.38					-0.81			
		(2.19)					(1.44)			
Treat * hh inc<100K			2.65					0.48		
			(2.11)					(1.58)		
Treat 2 only * hh inc<100K			-1.48					-0.09		
			(2.05)					(1.35)		
Treat * teacher in family				-0.03					-0.27	
				(2.20)					(1.62)	
Treat 2 only * teacher in family				0.32					-2.11	
				(2.09)					(1.44)	
Treat * debt above median					1.38					-2.44*
					(2.03)					(1.33)
Treat 2 only * debt above median					-1.60					0.66
					(1.90)					(1.05)
Control mean				8.21					7.63	
N (1,239)										
R-squared	0.04	0.04	0.03	0.03	0.03	0.01	0.01	0.01	0.02	0.02

Note: * p<0.1, ** p<0.05, *** p<0.01. Robust standard errors in parenthesis. We regress outcomes on an indicator for receiving treatment 1 or treatment 2 and an indicator for receiving only treatment 2 to identify the full effect of treatment and the marginal effect of treatment 2 in one model. We control for student race, gender, age, GPA, college year, household income, parental education, and SAT/ACT scores. We also include main effects but do not report them in this table. About one-third of the sample took the ACT instead of the SAT; for these students we convert ACT scores to SAT scores using ACT/SAT concordance tables. For the 9% of students who are missing household income data, we impute the variable to be zero and include a missing indicator variable. We drop 30 students from these analyses because they did not disclose their race or gender. The reference category for female includes students who identify as male, non-binary, third gender, queer, genderqueer, agender, and gender non-conforming.

Table 9. Treatment Effect on Course-Taking and Minor Decisions One Year Post-Intervention

	(1)	(2)	(3)	(4)
	Took any educ class post-intervention (0/100)		Minor in educ (0/100)	
Treat	0.15	-0.07	0.70*	0.64
	(0.60)	(0.67)	(0.42)	(0.50)
Treat 2 only		0.48		0.13
		(0.55)		(0.45)
Total # of educ classes taken before intervention	22.23***	22.26***	9.12***	9.12***
	(5.50)	(5.50)	(3.37)	(3.37)
Major declared (0/100)	0.01	0.01	0.01*	0.01*
	(0.01)	(0.01)	(0.01)	(0.01)
Declared major before intervention (0/100)	-0.00	-0.00	0.00	0.00
	(0.01)	(0.01)	(0.00)	(0.00)
Declared major in educ (0/100)	-0.19**	-0.19**	-0.11*	-0.11*
	(0.09)	(0.09)	(0.06)	(0.06)
Minor declared (0/100)	0.01	0.01	0.01**	0.01**
	(0.01)	(0.01)	(0.01)	(0.01)
Minor declared before intervention (0/100)	7.34	7.41	8.36	8.38
	(5.41)	(5.41)	(6.34)	(6.34)
Baseline prob of majoring/minoring in educ (0-100)	0.09**	0.09**	0.08**	0.08**
	(0.04)	(0.04)	(0.04)	(0.04)
Control mean	1.26		0.25	
N	1,239		1,239	
R-squared	0.28	0.28	0.20	0.20

Note: * p<0.1, ** p<0.05, *** p<0.01. Robust standard errors in parenthesis. We regress outcomes on an indicator for receiving treatment 1 or treatment 2 and an indicator for receiving only treatment 2 to identify the full effect of treatment and the marginal effect of treatment 2 in one model. For each outcome, we include controls for for student race, gender, age, GPA, college year, household income, parental education, SAT/ACT scores, the total number of education classes taken before the intervention, an indicator for if the student had declared a major, an indicator for if the student declared a major in education, an indicator for if the student declared a minor, and an indicator if the student declared a minor before the intervention. About one-third of the sample took the ACT instead of the SAT; for these students we convert ACT scores to SAT scores using ACT/SAT concordance tables. For the 9% of students who are missing household income data, we impute the variable to be zero and include a missing indicator variable. We drop 30 students from these analyses because they did not disclose their race or gender.

Figures

Below we report on information about teachers in the United States from high-quality research studies (we include full references at the end). The essence of these studies is that teachers of the same race or gender as the students they teach are extra effective at improving students' outcomes. However, teachers of color are underrepresented, and so students of color have fewer than expected teachers who reflect their racial or ethnic identity.

Teachers of color are severely underrepresented in the teaching profession. People of color make up about 50% of the public school student population, but only about 20% of the teacher workforce. Almost two decades of research confirms that students of color especially benefit from having a teacher of color. Regarding Black students, one study found that having at least one Black teacher in 3rd, 4th, or 5th grade cut the high school dropout rate for Black boys in half. Other studies have shown that Black students placed with Black teachers have better achievement scores, less exclusionary discipline, and are more likely to take advanced and honors coursework.

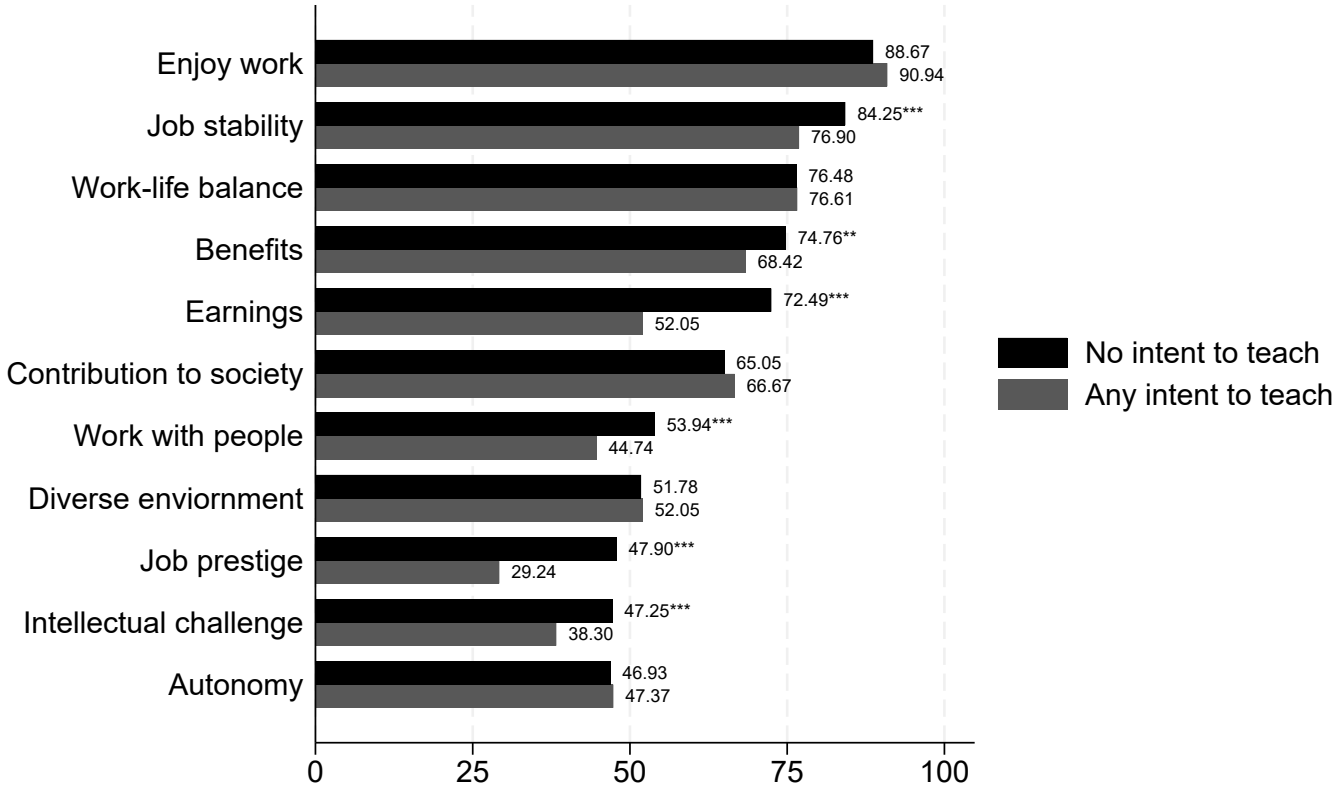
Regarding Latinx/e students, one study found that doubling the share of Latinx/e teachers for Latinx/e students in New York City middle schools would mean 144 fewer suspensions and an additional 720 school days for those students per year. Other studies have found that Latinx/e students placed with Latinx/e teachers have substantially better gains in early literacy skills and are more likely to take advanced placement, honors and international baccalaureate courses.

Similarly, men are underrepresented in the teaching profession - almost 80% of teachers are women. Research has shown that same-gender teachers can significantly improve student achievement and student engagement. For example, one study found that, though boys typically score lower than girls on reading achievement, having one year with a male English teacher would eliminate nearly a third of the gender gap in reading scores.

Click here if you want to see the references for the mentioned studies.

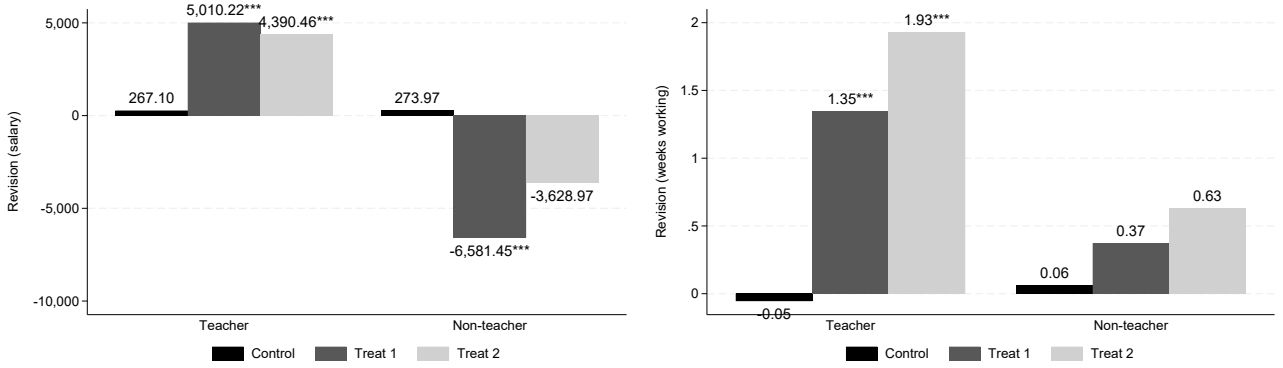
We want to make sure you understood the information above. Based on this information:

Figure 1. Treatment 2 Additional Information



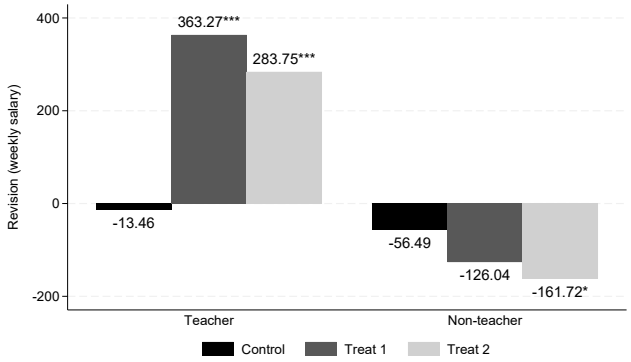
Note: This figure plots the percent of students who find each job characteristic important for making career decisions. For each characteristics, students answered how important each was on a five-point Likert scale. If a student placed a value of 4 or 5 (very or extremely important), they were coded as finding the characteristic important. This figure is split by students who have no intent to teach (baseline probability of teaching is 0) and students who have some intention to teach (baseline probability of teaching is greater than 0). * p<0.1, ** p<0.05, *** p<0.01 for t-tests.

Figure 2. Percent of Students That Considers Job Characteristic Important For Future Career

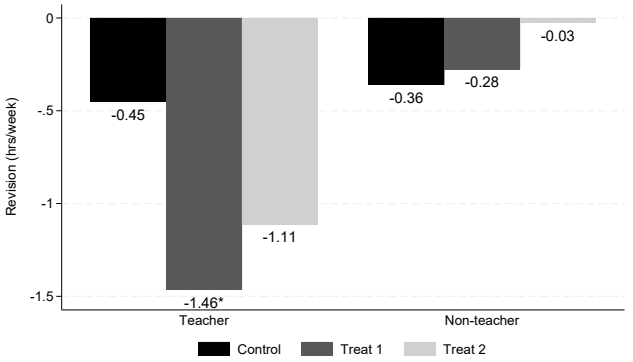


(a) Annual Salary at Age 30

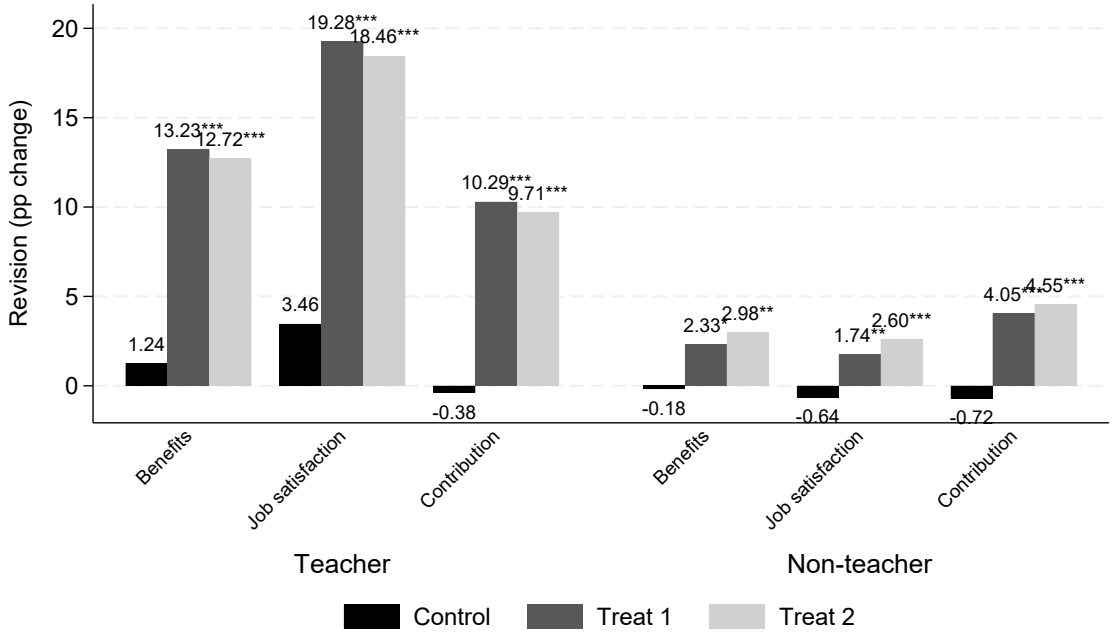
(b) Weeks Working at Age 30



(c) Weekly Salary at Age 30



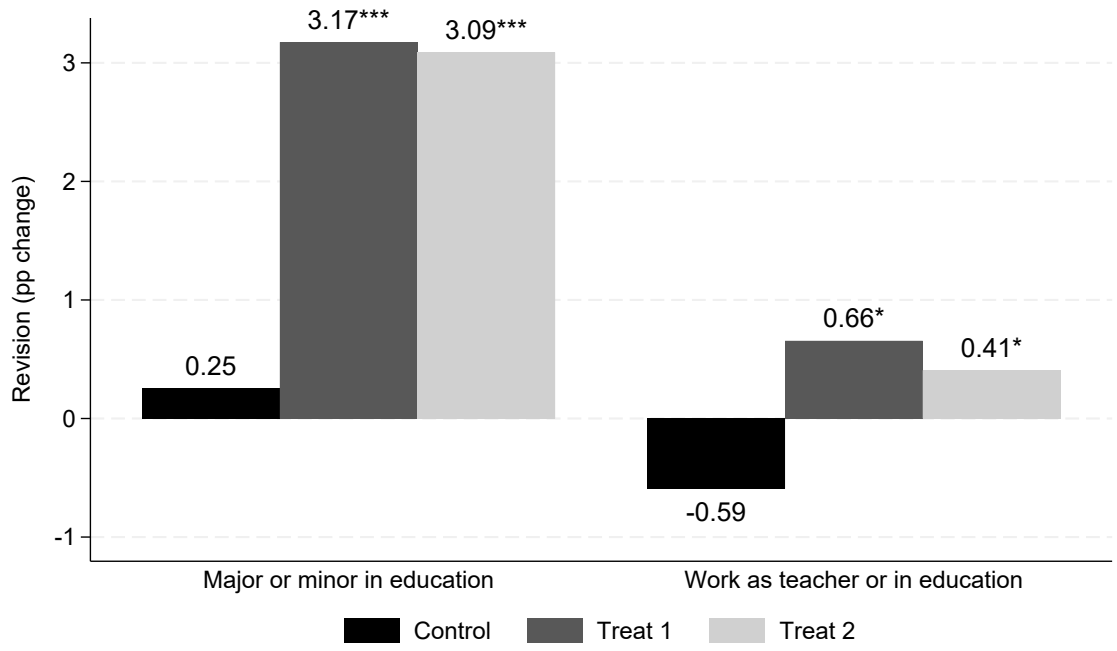
(d) Hrs/Week at Age 30



(e) Non-pecuniary Job Characteristics

Note: * p<0.1, ** p<0.05, *** p<0.01 for t-tests.

Figure 3. Treatment Effect on Beliefs if Working as Teacher or Non-Teacher at Age 30



Note: * p<0.1, ** p<0.05, *** p<0.01 for t-tests.

Figure 4. Treatment Effect on Intended Major, Minor, and Occupation Choice

Appendix Tables

Table A1. Post-secondary education attainment in Select OECD Countries, 2005-2020

Country	Percent in 2005	Percent in 2020	Percentage Point Change from 2005 to 2020
Australia	38.10	54.61	16.51
Canada	53.69	64.39	10.70
Israel	42.93	47.26	4.33
Italy	16.11	28.86	12.75
South Korea	50.86	69.81	18.95
Poland	25.54	42.43	16.89
OECD Average	**32.15**	**45.51**	**13.36**
Sweden	37.29	49.13	11.84
United Kingdom	35.35	55.83	20.48
United States	39.36	51.86	12.50

Note: These statistics were compiled using publicly available data on the population with tertiary education from the OECD: https://data.oecd.org/eduatt/population-with-tertiary-education.htm.

Table A2. Survey Sample vs Broader University Sample of Freshmen and Sophomores

	(1)	(2)	(3)	(4)	(5)
	Survey sample		University Sample		
	Mean	SD	Mean	SD	Difference
Freshmen	0.80	0.40	0.63	0.48	0.17***
Age	18.70	0.71	18.58	0.85	0.12***
Female	0.57	0.49	0.55	0.50	0.02
Asian	0.26	0.44	0.17	0.38	0.09***
Black	0.03	0.18	0.05	0.22	-0.02***
Hispanic	0.05	0.21	0.02	0.15	0.03***
White	0.56	0.50	0.58	0.49	-0.02*
HS in MI	0.62	0.49	0.52	0.50	0.10***
International	0.01	0.10	0.00	0.00	0.01***
F21 GPA	3.65	0.37	3.57	0.47	0.08***
ACT	32.52	2.46	31.63	3.16	0.89***
SAT Math	706.48	58.01	704.51	79.03	1.97
SAT Verbal	722.37	72.51	688.00	62.39	34.37***
Household income is $100,000 to 199,999	0.33	0.47	0.22	0.41	0.11***
Household income is $200,000 or more	0.30	0.46	0.31	0.46	-0.01
Single parent	0.20	0.40	0.16	0.37	0.04***
N	1,269		8,901		

Note: * p<0.1, ** p<0.05, *** p<0.01 for t-tests. This table contains our analytic sample of those who fully completed the survey vs the broader university sample of freshmen and sophomores using administrative data at the university.

Table A3. Student Demographics by Treatment Status

	(1)	(2)	(3)	(4)	(5)
	Control	Treat 1	Treat 2	Control - Treat 1	Control - Treat 2
Demographics					
Freshmen	0.79	0.81	0.79	-0.02	0.00
Age	18.71	18.66	18.73	0.04	-0.03
Female	0.57	0.60	0.55	-0.04	0.01
Asian	0.25	0.27	0.24	-0.02	0.01
Black	0.03	0.04	0.03	-0.00	-0.00
Hispanic	0.05	0.05	0.04	0.00	0.01
White	0.57	0.55	0.54	0.02	0.03
Attended HS in US	0.98	0.98	0.99	-0.01	-0.01*
Attended HS in MI	0.58	0.64	0.62	-0.06*	-0.04
International student	0.01	0.02	0.00	-0.00	0.01*
UMich cummulative GPA (0-4)	3.63	3.66	3.67	-0.02	-0.04
SAT math score (200-800)	706.61	707.14	705.55	-0.53	1.06
SAT verbal score (200-800)	720.97	724.95	720.72	-3.98	0.25
ACT score (1-36)	32.52	32.32	32.77	0.20	-0.25
HS rank (1-100)	12.22	9.33	10.43	2.89***	1.79
Family background					
Teacher in immediate family	0.26	0.22	0.23	0.03	0.03
Household income < $40,000	0.12	0.11	0.10	0.01	0.01
Household income is $40,000 to $99,999	0.26	0.24	0.26	0.01	-0.00
Household income is $100,000 to $199,999	0.34	0.32	0.34	0.02	0.01
Household income is ≥ $200,000	0.28	0.33	0.30	-0.04	-0.02
Parents married	0.78	0.83	0.78	-0.05*	-0.01
First-gen (no parent with BA+)	0.20	0.16	0.18	0.04*	0.03
Student financing since starting school ($)					
Parents	25,221	23,859	24,240	1,362	981
Own savings	3,192	2,332	2,014	860*	1,179**
Own loans	3,433	1,996	1,883	1,437*	1,550**
Parent loans	1,213	1,312	1,772	-99	-559
Loans to be repaid	741	659	604	82	138
Grants to NOT be repaid	8,857	7,240	8,737	1617	120
Total expected debt at graduation	27,534	28,307	29,232	-773	-1,698
Survey incomplete after receiving information[a]	0.13	0.17	0.16	-0.04*	-0.03
N	406	450	413		

Note: * p<0.1, ** p<0.05, *** p<0.01 for t-tests. This table contains our analytic sample of those who fully completed the survey (51% of those that started the survey completed the survey).

[a]This is the proportion of students who arrived at the survey page for treatment and control information, but did not complete the survey after arriving at this landing page. The sample sizes for this broader sample for control, treatment 1, and treatment 2 are 476, 555, and 501, respectively.

Table A4. Baseline Equivalence

	(1)	(2)	(3)	(4)
	Treatment 1 vs Control		Treatment 2 vs Control	
F-statistic	0.90	1.20	1.15	1.65
F-test p-value	0.67	0.13	0.23	0.00
N	836	836	801	801
R-squared	0.05	0.08	0.05	0.09
Baseline expectations and beliefs	Yes	Yes	Yes	Yes
Demographics	No	Yes	No	Yes

Note: In columns 1 and 2, we regress an indicator for being in treatment 1 vs control on baseline beliefs and expectations and demographics. In columns 3 and 4, we regress an indicator for being in treatment 2 vs control on baseline beliefs and expectations and demographics. Columns 1 and 3 include controls for questions we asked prior to the informational intervention: student age, cumulative GPA, students' baseline beliefs about their future major/minor and career expectations (Table 2), and beliefs about teachers/non-teachers (Table 3). In columns 2 and 4, we include demographic controls (which we solicited after students received information): student race, gender, college year, household income, parental education, and SAT/ACT scores. About one-third of the sample took the ACT instead of the SAT; for these students we convert ACT scores to SAT scores using ACT/SAT concordance tables. For the 9% of students who are missing household income data, we impute the variable to be zero and include a missing indicator variable. All regressions use robust standard errors.

Table A5. Probability of Incomplete Survey by Treatment Status

	(1)	(2)	(3)	(4)	(5)	(6)
	Dep. var = survey incomplete after receiving info (0/1)					
	Treatment 1		Treatment 2		Control	
Major/minor in edu (10pp)	-0.01	-0.01	0.03*	0.02***	-0.00	-0.00
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Work in teaching or edu (10pp)	0.00	0.01	-0.03**	-0.02*	0.00	-0.00
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Student controls	No	Yes	No	Yes	No	Yes
N	531	531	490	490	468	468
R-squared	0.00	0.75	0.01	0.68	0.00	0.72

Note: * p<0.1, ** p<0.05, *** p<0.01. Robust standard errors in parenthesis. We regress an indicator variable for dropping out of the survey after receiving information on baseline beliefs about majoring, minoring, or working in education or as a teacher. We control for student race, gender, age, GPA, college year, parent's education, household income, parental education, and SAT/ACT scores. About one-third of the sample took the ACT instead of the SAT; for these students we convert ACT scores to SAT scores using ACT/SAT concordance tables. For the 9% of students who are missing household income data, we impute the variable to be zero and include a missing indicator variable.

Table A6. Treatment Effect Heterogeneity By Race

	(1)	(2)	(3)	(4)	(5)	(6)
	% chance of major or minor in edu			% chance of working as teacher or in edu		
Treat	2.19**	1.57	1.55	1.52**	1.49	1.34
	(0.97)	(1.12)	(1.11)	(0.69)	(0.92)	(0.95)
Treat 2 only	-0.08	0.45	1.07	-0.40	-0.27	-0.17
	(0.93)	(1.13)	(1.16)	(0.60)	(0.76)	(0.77)
Treat * black	3.06	3.69	-1.33	-3.61**	-3.58*	-2.51*
	(8.62)	(8.67)	(8.23)	(1.73)	(1.85)	(1.47)
Treat 2 only * black	0.76	0.25	-2.29	3.59*	3.46*	3.04**
	(8.41)	(8.48)	(6.08)	(1.84)	(1.89)	(1.52)
Treat * hispanic	12.61*	13.24*	11.06*	-4.35	-4.32	-1.20
	(7.27)	(7.31)	(5.89)	(2.82)	(2.90)	(2.85)
Treat 2 only * hispanic	3.53	3.01	-3.55	1.22	1.08	-0.55
	(7.85)	(7.89)	(5.15)	(2.85)	(2.90)	(2.74)
Treat * asian		2.15	2.15		0.09	0.24
		(2.30)	(2.30)		(1.26)	(1.28)
Treat 2 only * asian		-1.81	-2.43		-0.50	-0.59
		(1.91)	(1.93)		(1.13)	(1.13)
Excluded group	White, Asian, multi/other	White	White	White, Asian, multi/other	White	White
Control mean		8.33			7.46	
N (1,239)						
R-squared	0.05	0.05	0.04	0.02	0.02	0.02

Note: * p<0.1, ** p<0.05, *** p<0.01. Robust standard errors in parenthesis. We regress outcomes on an indicator for receiving treatment 1 or treatment 2 and an indicator for receiving only treatment 2 to identify the full effect of treatment and the marginal effect of treatment 2 in one model. We control for student race, gender, age, GPA, college year, household income, parental education, and SAT/ACT scores. About one-third of the sample took the ACT instead of the SAT; for these students we convert ACT scores to SAT scores using ACT/SAT concordance tables. For the 9% of students who are missing household income data, we impute the variable to be zero and include a missing indicator variable. We drop 30 students from these analyses because they did not disclose their race or gender. Students who indicated more than one race category were assigned to the multi/other category.

For columns 3 and 6, we use alternative definitions for race. In these columns multi-racial students are included in the other race categories, meaning these race categories are not mutually exclusive. For example, if a student identified as Black and Hispanic they were given a value of 1 for both Black and Hispanic dummy variables.