

Demographic Disparities in Social Media's Perceived Role and the Impact of Accessible Salary Data on the College Major Selection Process

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Abstract

This study explores the associations between social media usage and the college major selection process among U.S. undergraduate students (N=255). The findings highlight that significant demographic disparities exist in how students perceive and use social media for major exploration, while accessible salary data serves as a powerful intervention for influencing actual choices. Descriptive and t-test analyses reveal that YouTube, Instagram, and X (formerly Twitter) are perceived as significantly less important to women than to men, with women also reporting fewer weekly usage hours for YouTube and X. While Black students reported higher usage across all platforms than White students, the difference was statistically significant only for X. The study identifies salary information as a more direct lever for influencing major considerations than social media. After reviewing actual median salary data, 33% of participants changed their top major selection. A probit model confirmed that the perceived importance of salary data significantly predicts the likelihood of a student switching majors post-intervention. Linear regression modeling further revealed that while White women selected majors with an average median salary of \$66 747, men and Asian students selected majors with median salaries \$3868 and \$5971 higher, respectively. These results suggest that while social media engagement varies by race and gender, timely access to accurate economic data remains a critical factor in academic decision-making.

Keywords: college major selection, social media, demographic disparity, information intervention, median salary, gender wage gap, perceived role, student decision-making

1. Introduction

1.1 Importance of College Major Selection

Selecting a major is one of the most important decisions for a college student. Li (2025b) highlighted some of the relevant research on why the study of the college major selection process is important, especially in helping to understand the gender wage gap: Compared with other majors, students who major in STEM and business have the highest cumulative earnings (Kim et al., 2015). STEM majors account for 17 of the 20 undergraduate majors that lead to the highest median earnings (Morris, Cheah, & Strohl, 2025). While the gender gap in potential wages based on majors has declined slightly among the most recent college graduates, a large gender gap in potential wages based on majors still exists (Sloane et al., 2021). Men tend to major in the highest-paying majors, such as STEM majors, whereas women major in the lowest-paying majors (Beffy et al., 2012; Dickson, 2010; Gailey, 2023; Morris et al., 2025; Quadlin, 2020; Reuben et al., 2017). Li (2025b) also summarized several of the key factors that influence the college selection process: Students' family income levels (Ma, 2009; Mullen, 2014; Quadlin, 2017), political views and personalities (Porter and Umbach, 2006), sending children to art or computer classes (Ma, 2009), enjoying coursework, gaining the approval of parents and enjoying work at available jobs (Zafar, 2013), higher than average earnings from parents' and siblings' jobs (Xia, 2016), and earnings expectations and ability perceptions (Wiswall and Zafar, 2015) all impact the major selection process. In finance, women are motivated by family members, whereas men are motivated by increased job opportunities (Hawash et al., 2020), and women major in STEM less frequently than men do (Staniec, 2004; Morris et al., 2025).

1.2 Perceived Role and Demographic Disparities in Social Media Engagement

As social media usage time increases among young adults, it is important to study the perceived role and associations of YouTube, TikTok, Instagram, and X (formerly Twitter) in the college selection process. More men (27%) than women (3%) visit YouTube daily and men (50%) are more likely than women (13%) to post videos and comments on YouTube (Molyneaux et al., 2009). Men operate 53% of the top German YouTube channels vs only 17% by women, and women are less visible than men (Wegener, Prommer, & Linke, 2020). Among South African college students who created TikTok content, 40% of men created content in the “education/info” category, vs. only 20% of women (Ndou, Magcaba, Mthembu, Jugoo, & Mutanga, 2025). Women use Instagram more often than men, but men use X (formerly Twitter) more frequently than women (Laor, 2022). Gendered engagement patterns on TikTok demonstrate significant disparities in daily usage durations. Caponnetto et al. (2025) found that while male participants reported usage intervals between 30 minutes and a two-hour maximum, female participants reported average daily engagement of up to seven hours. These patterns are further reflected in younger demographics; research among secondary students indicates that a majority of males (54%) access the platform for less than one hour daily, whereas a plurality of female students (44%) utilize the application for one to three hours per day (Fahrni et al., 2022).

Research from the Pew Research Center (2023) identifies significant racial disparities in digital engagement, reporting that Black students demonstrate higher usage rates across several platforms, including TikTok, Instagram, and X (formerly Twitter), when compared to their White peers. These findings suggest that social media may serve as a more central information and engagement channel for Black students during their academic and social exploration.

These demographic disparities in digital engagement suggest that social media platforms may serve as different types of information channels for different groups of students rather than exerting a uniform causal impact. Understanding these engagement patterns is essential for identifying how the perceived role of social media interacts with broader academic and career decision-making frameworks.

1.3 Research Questions

Drawing on the study’s focus on the intersection of digital engagement and academic decision-making, the research questions are framed to distinguish between the perceived role of social media and the impact of accurate economic information:

- (1) What is the perceived role of social media platforms, YouTube, TikTok, Instagram, and X (formerly Twitter), in the college major selection process, and what demographic disparities exist in usage and importance ratings across gender and racial groups?
- (2) To what extent does an information intervention utilizing accessible median salary data serve as a direct lever for influencing student academic decision-making and major-switching behavior?

1.4 Novel Areas of This Study

This study contributes to the scholarly body of research on the college major selection process by addressing a dual core of findings often overlooked in existing literature. First, it identifies significant demographic disparities in the perceived role and weekly usage of YouTube, TikTok, Instagram, and X (formerly Twitter) during the major exploration phase. By disaggregating these digital engagement patterns by gender and race, the research provides a more nuanced understanding of how different student populations navigate information channels. Second, the study evaluates the efficacy of accessible salary data as an information intervention, demonstrating that accurate economic data serves as a more direct lever for influencing major-switching behavior than social media engagement. This study shows that while social media is a part of students’ lives, having access to real salary information helps them make their college major decisions.

2. Method & Experimental Design

This study is an expansion of the study in the college major selection process found in Li (2025a), where 150 college sophomores were asked questions about the importance of 18 factors in the college major selection process. This study is different from the previous study in three ways: 1) This survey included all college years as survey participants, resulting in 255 submitted surveys, 2) this survey asked about the importance of 39 factors, and 3) this survey included additional questions on the number of hours participants watched or used each of the four social media platforms. Similar to the study in Li (2025a), the information intervention is the median salary data for 151 college majors from a 2023 online Bankrate article titled “Nearly 80% of graduates with the 20 most lucrative

college degrees are men” (Gailey, 2023). This data source was selected because of its easy accessibility to anyone who searches for salary information by college major on Google.

2.1 Experimental Design

Like Li (2025a), this study’s survey asked the students to specify the major they selected as their top choice when they were applying to their current college and then to estimate the median salary for people who graduated with the major. The survey also asked students for their top two major choices, followed by an estimate of each major’s median salary. The median salary estimates are then compared with the actual median salaries for the majors. The absolute value of the differences was then averaged to provide a single number measuring how well the participants could estimate the median salaries. The students then rated 39 specific factors on a 5-point Likert scale on the basis of their importance to the major selection process and estimated the number of hours per week they spend on each of the four social media platforms.

The online platform Prolific was used to recruit the 255 survey participants from August 14, 2025, to August 19, 2025. The participants received \$2.00 for submitting a valid response, and the average survey response duration was 11.3 minutes. The survey was hosted on Qualtrics XM and leveraged Qualtrics’ survey flow randomizer feature to present participants with one of two treatments. The instructions to the participants in the two treatment groups are the same, except for the URL link to the Google spreadsheet containing the median salary data. The Treatment 1 version of the spreadsheet removes the two columns in the Bankrate article showing the percentages of men vs. women who have selected that major, whereas the Treatment 2 version contains the original median salary data as found in the Bankrate article. The rationale for the two treatments is to determine whether there are differences in how participants would choose new majors if they saw information about the gender mix of the different majors.

2.2 Participant (Subject) Characteristics

Table 1. Survey Participants By Race and Gender

	Men	Women	Other	Totals	Total %
Asian	25	26	0	51	20%
Black	17	23	0	40	16%
Hispanic	16	13	0	29	11%
White	37	94	2	133	52%
Other	0	2	0	2	1%
Totals	95	158	2	255	100%
Total %	37%	62%	1%	100%	

As shown in Table 1, the survey participants (N=255) were 37% men and 62% women; 20% Asian, 16% Black, 11% Hispanic, and 52% White.

3. Results

3.1 Descriptive Results

Table 2. Top Choice Major Grouping, Before Information Intervention

	Undeclared / Other	Arts & Humanities	Business	Health & Medicine	STEM	Social Sciences	Totals
Men	1	6	11	8	57	12	95
Women	1	31	9	13	73	31	158
Other					1	1	2
Totals	2	37	20	21	131	44	255
% of Total	1%	15%	8%	8%	51%	17%	100%

The grouping of the top choice major selected by participants before the information intervention can be seen in Table 2. The top three categories are STEM (51%), social sciences (17%) (which includes education), and arts & humanities (15%). Among men, 57 out of 95 (60%) selected a STEM major, as did 73 out of 158 women (46%).

Table 3. Top Choice Major Grouping, Post Information Intervention

	Arts & Humanities	Business	Health & Medicine	STEM	Social Sciences	Totals
Men	5	12	7	54	17	95
Women	25	16	14	70	33	158
Other				1	1	2
Totals	30	28	21	125	51	255
Treatment Group 1						
Men	1	7	3	30	9	50
Women	14	4	7	37	14	76
Other				1		1
Totals	15	11	10	68	23	127
Treatment Group 2						
Men	4	5	4	24	8	45
Women	11	12	7	33	19	82
Other					1	1
Totals	15	17	11	57	28	128

The 127 participants in treatment group 1 and 128 participants in treatment group 2 were presented with different versions of the informational intervention, which is a Google Sheet containing the actual median salaries of all of the majors from the Gailey (2023) Bankrate article. The participants then selected majors posttreatment which were grouped into the categories shown in Table 3.

Overall, 125 out of 255 (49%) selected a STEM major, whereas 68 out of 127 (54%) and 57 out of 128 (45%) did so from treatment groups 1 and 2, respectively. Fifty-four out of 95 men (57%) selected a STEM major, as did 70 out of 158 women (44%). The percentage of men who selected a STEM major after the intervention decreased by 3%, whereas the percentage of women decreased by 2%.

Table 4. Post Treatment Changed Major Grouping

	Arts Humanities	& Business	Health Medicine	& STEM	Social Sciences	Totals
Men	2	4	2	18	8	34
Women	5	11	5	22	7	50
Totals	7	15	7	40	15	84
Treatment Group 1						
Men	1	2		7	4	14
Women	2	1		12	6	21
Totals	3	3	0	19	10	35
Treatment Group 2						
Men	1	2	2	11	4	20
Women	3	10	5	10	1	29
Totals	4	12	7	21	5	49

Table 4 shows the college major grouping of those who changed majors after treatment. Eighty-four out of 255 (33%) selected a different major than the one they selected pretreatment. Comparing Tables 3 and 4, 34 out of 95 men (36%) and 50 out of 158 women (32%) changed majors. Among men, 7 out of 14 (50%) in treatment group 1 switched to a major in STEM, whereas 11 out of 20 (55%) did so in treatment group 2. Among women, 12 out of 21 (57%) and 10 out of 29 (34%) in treatment groups 1 and 2, respectively, switched to STEM majors. The difference between the two treatment groups was 23%.

Table 5. Post Treatment Changed Major Grouping With Higher Median Salaries

	Arts Humanities	& Business	Health Medicine	& STEM	Social Sciences	Totals
Men	1		2	10	4	17
Women		4	3	11	3	21
Totals	1	4	5	21	7	38

Thirty-eight out of 84 participants (45%) selected a new major with a higher median salary (Table 5). Thirty-four out of 84 (40%) selected majors with a lower median salary, and 12 out of 84 selected majors with the same median salary (14%). Among the 34 participants who selected a major with a lower median salary, 15 of them selected a new major within the STEM field.

3.2 When Participants First Develop an Interest in Their Top Choice Major

Table 6. When Participants First Develop An Interest In Their Top Choice Major

	Men	Women	Other	Totals	%	Cum %
In elementary school	4	16		20	8%	8%
In middle school	12	25		37	15%	22%
Freshman year in high school	8	8		16	6%	29%
Sophomore year in high school	10	20	1	31	12%	41%
Junior year in high school	14	20		34	13%	54%
Senior year in high school	25	27	1	53	21%	75%
Freshman year in college	7	20		27	11%	85%
Sophomore year in college	9	13		22	9%	94%
Junior year in college	3	3		6	2%	96%
Senior year in college	3	6		9	4%	100%
Totals	95	158	2	255	100%	

While most academic research focuses on the college major decision process among high school seniors or college students, a significant percentage of students are interested in potential majors earlier in life. While 41% of the students developed interest by sophomore year in high school, 54% by junior year, and 75% by senior year, only 25% developed interest during college (Table 6). Forty-four percent of women vs. 36% of men developed interest in their college major by their sophomore year in high school.

3.3 Social Media Descriptive Results

Table 7. YouTube Average Importance By Race and Gender

	Men Mean (SD)	Women Mean (SD)	Other Mean (SD)	Totals Mean (SD)
Asian	2.56 (1.08)	1.92 (1.02)		2.24 (1.09)
Black	2.71 (1.57)	1.96 (1.15)		2.28 (1.38)
Hispanic	2.56 (1.59)	1.77 (1.17)		2.21 (1.45)
White	2.27 (1.30)	1.83 (1.08)	3.00 (0.00)	1.97 (1.16)
Other		2.50 (0.71)		2.50 (0.71)
Totals	2.47 (1.34)	1.87 (1.08)	3.00 (0.00)	2.10 (1.22)

Table 7 shows the average importance score of YouTube on the college selection process by race and gender. While there is not a great deal of difference between the importance scores by race, by gender, the men's average is 2.47 out of 5, whereas the women's average is 1.87, a sizable difference.

Table 8. YouTube Average Hours Per Week By Race and Gender

	Men Mean (SD)	Women Mean (SD)	Other Mean (SD)	Totals Mean (SD)
Asian	19.72 (18.43)	15.27 (19.73)		17.45 (19.04)
Black	17.29 (18.02)	25.70 (24.21)		22.13 (21.95)
Hispanic	26.00 (23.17)	18.92 (18.31)		22.83 (21.07)
White	27.32 (28.37)	15.83 (20.98)	42.00 (25.46)	19.42 (23.85)
Other		23.50 (30.41)		23.50 (30.41)
Totals	23.31 (23.52)	17.53 (21.20)	42.00 (25.46)	19.87 (22.29)

Table 8 shows the average number of hours the participants watched YouTube each week. Men average 23.31 hours, whereas women average 17.53. Interestingly, while men average more hours than women in almost every racial group, Black women average 25.70 hours and Black men only average 17.29 hours.

Table 9. TikTok Average Importance By Race and Gender

	Men Mean (SD)	Women (SD)	Mean Other Mean (SD)	Totals (SD)	Mean
Asian	2.08 (1.47)	1.73 (1.00)		1.90 (1.25)	
Black	2.24 (1.48)	1.61 (1.16)		1.88 (1.32)	
Hispanic	1.69 (1.30)	1.69 (1.18)		1.69 (1.23)	
White	1.81 (1.17)	1.91(1.21)	1.50 (0.71)	1.88 (1.19)	
Other		2.50 (0.71)		2.50 (0.71)	
Totals	1.94 (1.33)	1.83 (1.16)	1.50 (0.71)	1.87 (1.22)	

Table 10. TikTok Average Hours Per Week By Race and Gender

	Men Mean (SD)	Women (SD)	Mean Other Mean (SD)	Totals (SD)	Mean
Asian	12.40 (20.81)	13.15 (13.96)		12.78 (17.48)	
Black	14.24 (25.43)	24.48 (26.10)		20.13 (26.00)	
Hispanic	11.31 (20.82)	21.46 (25.56)		15.86 (23.21)	
White	16.51 (24.55)	18.73 (23.08)	0.50 (0.71)	17.84 (23.35)	
Other		17.50 (17.68)		17.50 (17.68)	
Totals	14.15 (22.91)	18.86 (22.46)	0.50 (0.71)	16.96 (22.66)	

Table 9 shows the average importance score of TikTok in the college selection process and Table 10 shows the average hours watched per week. While there is not a great deal of difference in the importance scores by gender or race, there is a great deal of variation in the average number of hours per week by gender and race. Women averaged 18.86 hours, whereas men averaged 14.15 hours. In terms of race, Blacks consumed TikTok an average of 20.13 hours per week, compared with 17.84 hours per week for Whites, 15.86 hours per week for Hispanics, and only 12.78 hours per week for Asians.

Table 11. Instagram Average Importance By Race and Gender

	Men Mean (SD)	Women (SD)	Mean Other Mean (SD)	Totals (SD)	Mean
Asian	1.96 (1.17)	1.69 (0.84)		1.82 (1.01)	
Black	2.24 (1.44)	1.83 (1.19)		2.00 (1.30)	
Hispanic	1.69 (1.08)	1.54 (0.97)		1.62 (1.01)	
White	1.97 (1.19)	1.69 (0.97)	2.00 (1.41)	1.77 (1.04)	
Other		2.50 (2.12)		2.50 (2.12)	
Totals	1.97 (1.21)	1.71 (0.99)	2.00 (1.41)	1.81 (1.08)	

Table 12. Instagram Average Hours Per Week By Race and Gender

	Men Mean (SD)	Women (SD)	Mean Other Mean (SD)	Totals (SD)	Mean
Asian	10.36 (14.88)	9.92 (10.39)		10.14 (12.66)	
Black	16.59 (26.68)	16.57 (22.68)		16.58 (24.13)	
Hispanic	8.81 (10.12)	13.15 (11.68)		10.76 (10.87)	
White	17.57 (23.21)	11.96 (18.08)	3.50 (4.95)	13.39 (19.63)	
Other		6.50 (2.12)		6.50 (2.12)	
Totals	14.02 (20.36)	12.32 (17.25)	3.50 (4.95)	12.89 (18.41)	

Table 11 shows the Instagram average importance score and Table 12 shows the average hours watched per week. While there is not a great deal of difference in importance scores by gender or race, there is a great deal of variation in the average number of hours per week by race. Compared with 13.39 for Whites, 10.76 for Hispanics and 10.14 hours for Asians, Blacks averaged 16.58 hours per week of Instagram usage.

Table 13. X (Formerly Twitter) Average Importance By Race and Gender

	Men Mean (SD)	Women Mean (SD)	Other Mean (SD)	Totals Mean (SD)
Asian	1.76 (1.05)	1.38 (0.70)		1.57 (0.90)
Black	2.35 (1.69)	1.39 (0.94)		1.80 (1.38)
Hispanic	1.75 (1.39)	1.31 (0.63)		1.55 (1.12)
White	1.86 (1.21)	1.34 (0.77)	1.00 (0.00)	1.48 (0.93)
Other		3.00 (2.83)		3.00 (2.83)
Totals	1.91 (1.30)	1.37 (0.82)	1.00 (0.00)	1.57 (1.05)

Table 14. X (Formerly Twitter) Average Hours Per Week By Race and Gender

	Men Mean (SD)	Women Mean (SD)	Other Mean (SD)	Totals Mean (SD)
Asian	9.44 (21.37)	0.88 (1.56)		5.08 (15.46)
Black	21.82 (29.33)	12.17 (24.39)		16.28 (26.68)
Hispanic	11.69 (19.25)	9.69 (12.76)		10.79 (16.41)
White	16.24 (24.97)	5.57 (16.34)	0.50 (0.71)	8.47 (19.55)
Other		4.00 (1.41)		4.00 (1.41)
Totals	14.68 (24.08)	6.08 (16.30)	0.50 (0.71)	9.24 (19.92)

Table 13 shows the X (formerly Twitter) average importance score and Table 14 shows the average hours used per week. Men placed more importance on X in the college major selection process than women did (average scores of 1.91 and 1.37, respectively). There is a great deal of variation in the average number of hours per week by gender and race. Men averaged 14.68 hours, whereas women averaged 6.08 hours. Blacks averaged 16.28 hours per week of X usage, compared with 10.79 for Hispanics, 8.47 for Whites and just 5.08 hours for Asians. Surprisingly, Asian women only averaged 0.88 hours of X usage per week.

3.4 Hypothesis Testing

Drawing on existing literature on the gendered digital engagement patterns, this study examines the perceived role and associations of social media within the college major selection process. Li (2025b) reported that men placed greater importance on YouTube than women, as well as social media in general on the college major selection process. H1 states that women will rate the importance of YouTube lower than men do. H2 to H4 state that women will rate TikTok, Instagram and X (formerly Twitter) as less important than men do, respectively. Since men are more active on YouTube (Molyneaux et al., 2009; Wegener et al., 2020) and use X (formerly Twitter) more frequently than women (Laor 2022), H5 and H8 state that women watch or spend fewer hours per week on YouTube and X (formerly Twitter), respectively. Women spend more time on Instagram (Laor, 2022) and TikTok (Caponnetto, 2025; Fahrni, 2022). H6 and H7 state that women watch or spend more hours on these platforms, respectively. The t.test function in RStudio was used to test H1 through H8.

Table 15. Summary of Hypothesis Testing Results By Gender

Hypothesis	Alt. Dir.	Women Mean	Men Mean	P Value	Alt. Hypo.
H1. Women will rate YouTube as less important than men.	Less	1.8671	2.4737	0.0001	TRUE
H2. Women will rate TikTok as less important than men.	Less	1.8291	1.9368	0.2566	FALSE
H3. Women will rate Instagram as less important than men.	Less	1.7089	1.9684	0.0395	TRUE
H4. Women will rate X (formerly Twitter) as less important than men.	Less	1.3734	1.9053	0.0002	TRUE
H5. Women will spend fewer hours per week watching YouTube than men.	Less	17.5253	23.3053	0.0256	TRUE
H6. Women will spend more hours per week watching TikTok than men.	Greater	18.8608	14.1474	0.0560	FALSE
H7. Women will spend more hours per week using Instagram than men.	Greater	12.3228	14.0211	0.7511	FALSE
H8. Women will spend fewer hours per week using X (formerly Twitter) than men.	Less	6.0823	14.6842	0.0012	TRUE

Table 15 summarizes the hypotheses and results by gender. Five of the specific hypotheses had P values less than 0.05 (H1, H3, H4, H5 and H8); thus, the null hypothesis H0 can be rejected, and the alternative hypothesis HA is true. Women rate YouTube, Instagram and X as less important than men do in the college major selection process. Women spend fewer hours than men do on YouTube and X. Although the women's mean (18.86) is greater than the men's (14.15) mean number of hours per week watching TikTok, the P value of 0.056 is greater than 0.05. The alternative hypothesis HA is rejected.

Table 16. Summary of Hypothesis Testing Results Comparing Blacks and Whites

Hypothesis	Alt. Dir.	Black Mean	White Mean	P Value	Alt. Hypo.
H9. Blacks will rate YouTube as more important than Whites.	Greater	2.2750	1.9699	0.1043	FALSE
H10. Blacks will rate TikTok as more important than White.	Greater	1.8750	1.8797	0.5080	FALSE
H11. Blacks will rate Instagram as more important than White.	Greater	2.0000	1.7744	0.1599	FALSE
H12. Blacks will rate X (formerly Twitter) as more important than White.	Greater	1.8000	1.4812	0.0886	FALSE
H13. Blacks will spend more hours per week watching YouTube than Whites.	Greater	22.1250	19.4211	0.2527	FALSE
H14. Blacks will spend more hours per week watching TikTok than Whites.	Greater	20.1250	17.8421	0.3101	FALSE
H15. Blacks will spend more hours per week using Instagram than Whites.	Greater	16.5750	13.3910	0.2246	FALSE
H16. Blacks will spend more hours per week using X (formerly Twitter) than Whites.	Greater	16.2750	8.4662	0.0459	TRUE

The study also explores demographic disparities based on race. Existing literature, such as the Pew Research Center (2023), indicates that Black and Hispanic students often demonstrate higher usage rates across several social media platforms than their White peers. Consequently, H9 through H12 state that Black students will rate the perceived role of YouTube, TikTok, Instagram, and X (formerly Twitter) as higher than White students in the college major selection process. Furthermore, H13 through H16 suggest that Black students will report more weekly usage hours on each of these four platforms than White students. Table 16 provides a summary of these demographic comparisons.

Although the Black mean is higher than the White mean for seven out of the eight hypotheses, only one of the hypotheses from H9 to H16 had a P value less than 0.05 (H16), so its null hypothesis H0 can be rejected, and the alternative hypothesis HA is true. Blacks spend more hours using X (formerly Twitter) than Whites do.

3.5 Probit & Linear Regression Model Testing

Building on the findings from Li (2025a), this section evaluates the efficacy of accessible salary data as an information intervention and examines whether digital engagement patterns predict the economic value of selected majors. To evaluate the impact of the salary information intervention, a probit regression model was employed using the glm function in RStudio. The model tested whether a participant's rating of the importance of the Bankrate median salary data influenced the probability of switching their top major choice post-intervention, with White women serving as the reference group. Hypothesis H17 tests whether the participant's rating of the importance of the Bankrate median salary data significantly affects the probability of switching majors.

Table 17. Probit Regression Model Results to Test H17

	Estimate	Std. Error	z value	P Value	Signif.
(Intercept)	-3.1294	0.5633	-5.5560	2.77E-08	***
Male	0.1354	0.2983	0.4540	0.6500	
Other Gender	-13.5958	1021.8319	-0.0130	0.9890	
Asian	-0.5503	0.3902	-1.4100	0.1580	
Black	0.0868	0.3960	0.2190	0.8260	
Hispanic	0.2800	0.4666	0.6000	0.5490	
Other Race	0.3818	1.4333	0.2660	0.7900	
Treatment Group 2	0.4637	0.2871	1.6150	0.1060	
Bankrate Median Salary Data	0.4574	0.1006	4.5480	5.42E-06	***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

The results, synthesized in Table 17, confirm that the perceived importance of salary data is a highly significant predictor ($p < 0.001$) of a student's likelihood to choose a new major. This finding positions accurate economic information as a direct lever for influencing academic decision-making. Conversely, the negative and significant intercept suggests that White women were statistically less likely to switch majors following the intervention compared to other demographic groups.

Table 18. Linear Regression Model Results to Test H18 to H21

Model #	I	II	III	IV	V
(Intercept)	66.747***	66.1487***	67.9671***	67.5677***	65.8125***
Men	3.868 .	3.6668	3.9542 .	4.0043 .	3.466
Other Gender	2.577	2.1611	2.3523	2.7257	2.8139
Asian	5.971*	5.9142*	5.9585*	5.967*	5.9933*
Black	3.454	3.3718	3.4321	3.5449	3.2854
Hispanic	2.294	2.2611	2.1444	2.1846	2.3562
Other Race	-7.923	-8.1675	-7.5061	-7.5332	-9.1254
Treatment Group 2	-3.648 .	-3.6758 .	-3.7139 .	-3.6582 .	-3.6923 .
YouTube		0.3427			
TikTok			-0.6416		
Instagram				-0.4822	
X (formerly Twitter)					0.7197

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

A series of linear regression models (using the `lm` function) investigated whether perceived importance of social media platforms was associated with the actual median salary of the majors students selected after the intervention, in thousands of dollars. Li (2025b) reported that YouTube was a significant factor in estimating the actual median salary of the top choice major. As a result, hypothesis H18 states that YouTube is a significant factor in the estimation of the actual median salary. H19 to H21 state that TikTok, Instagram and X are not significant in the estimate of the actual median salary, respectively. All the models use White women as the reference group. The results of the five models are shown in Table 18.

The primary takeaway from these models is that social media importance ratings were not significant predictors of the economic value of the chosen major ($p > 0.05$ for YouTube, TikTok, Instagram, and X, formerly Twitter). However, the models revealed several critical demographic and experimental associations. Men selected majors with median salaries \$3868 higher than White women (\$66 747) in Model I, and Asian students selected majors with salaries \$5971 higher. The "gender-data effect" highlights a significant trend where participants in Treatment Group 2—who viewed both salary data and the gender composition of each major—selected fields with median salaries \$3648 lower than those in Treatment Group 1. One potential explanation for this result is that when women observed low female representation in higher-paying majors, they became less inclined to select these male-dominated fields, perhaps prioritizing "demographic comfort" or social fit over maximum economic returns.

Table 19. Linear Regression Model With Gender-Treatment Group Interaction

	Estimate	Std. Error	z value	P Value	Signif.
(Intercept)	67.6860	2.1990	30.7850	<2e-16	***
Men	1.5510	3.2310	0.4800	0.6317	
Other Gender	-7.6860	17.5540	-0.4380	0.6619	
Treatment Group 2	-5.5510	2.7790	-1.9970	0.0469	*
Asian	6.0120	2.9190	2.0600	0.0405	*
Black	3.8170	3.1850	1.1980	0.2320	
Hispanic	2.1590	3.6310	0.5950	0.5527	
Other Race	-7.9110	12.4260	-0.6370	0.5250	
Men:Treatment Group 2	4.7010	4.5650	1.0300	0.3041	
Other Gender: Treatment Group 2	20.5510	24.7870	0.8290	0.4078	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

This prioritization of demographic comfort provides a framework for understanding the \$3648 salary reduction observed among participants in Treatment Group 2. To explore whether this "gender-data penalty" varied by student identity, an interaction model was conducted to evaluate the combined effects of gender and the specific information intervention. The results, detailed in Table 19, show that the interaction terms for men and other genders within Treatment Group 2 were not statistically significant. These findings indicate that the tendency to select lower-paying majors after viewing gender-composition data was a consistent trend across the sample, rather than an effect isolated to one specific gender.

In summary, while social media is a ubiquitous part of student life, these models demonstrate that timely access to accurate salary information serves as a far more direct and statistically significant driver of actual major choice behavior than digital engagement patterns.

3.6 Limitations of This Study

This research is subject to several limitations that impact the generalizability and interpretation of the results. First, the study relies on self-reported measures for social media usage and importance ratings, which are often subject to participant bias and the tendency to overestimate time spent on digital platforms. Second, the convenience sample of 255 participants was recruited through Prolific and is predominantly White (52%) and female (62%), which may not fully represent the diverse characteristics of the broader U.S. undergraduate population. Third, the cross-sectional design identifies correlational associations rather than causal relationships, making it difficult to determine if engagement patterns are the cause or consequence of academic decisions. Additionally, while the study evaluates immediate switching behavior following the intervention, it does not track long-term persistence or actual selection of the new major choices. Finally, the analysis focused exclusively on four social media platforms (YouTube, TikTok, Instagram, and X), potentially omitting other influential digital tools used for academic exploration.

3.7 Suggestion for Future Research

Future research should expand upon this study's findings by focusing on the qualitative mechanisms of digital influence and the psychological drivers of academic decision-making.

First, a mixed-methods approach is recommended to move beyond quantifying usage and explore how students engage with specific digital content. Qualitative inquiries could investigate the role of career influencers and content that debunks salary myths in shaping major perceptions. Furthermore, examining platform-specific design features—such as TikTok's algorithm-driven personalization versus YouTube's search-based functionality—could identify which formats are most effective at delivering timely economic information to diverse student populations.

Second, researchers should investigate the psychological and social mechanisms underlying the "gender-data penalty" observed in this study. Future experiments should determine whether a reduction in selected median salary among participants who viewed gender-composition data was driven by a search for "demographic comfort," a reaction to gender-based stereotypes, or concerns regarding workplace culture in male-dominated, high-paying fields. Understanding these drivers is essential for developing interventions that encourage students to prioritize economic returns alongside social fit.

4. Policy Recommendation and Conclusion

This study identifies a dual core of findings that distinguish between students' digital engagement and their actual decision-making behavior. First, the research highlights significant demographic disparities in the perceived role and usage patterns of social media. Platforms like YouTube, Instagram, and X (formerly Twitter) are associated with lower importance ratings and fewer usage hours among women compared to men, while Black students demonstrate a higher frequency of engagement with X than their White peers. Second, the study establishes that while social media is a ubiquitous presence in student life, timely access to accurate median salary data serves as a much more direct lever for influencing academic shifts.

The observed \$3.6K reduction in the median salary of majors selected by participants in Treatment Group 2 suggests a "gender-data penalty." This finding implies that when students are presented with gender-composition data, they may prioritize "demographic comfort" or social fit over maximum economic returns, potentially reinforcing the existing gender wage gap. Consequently, this study supports the policy recommendation in Li (2025b) that policy makers and high school counselors adopt a holistic approach—starting as early as the sophomore year—that integrates social media literacy with accessible economic data. By addressing these informational gaps early, educators can better equip diverse student populations to navigate the college major selection process with a balanced understanding of both social fit and long-term economic stability.

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