Exploring Perceptions of Belonging and Success Among the First-Year Engineering Students

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Introduction

Engineering education plays a vital role in preparing graduates for a rapidly evolving workforce, yet persistent gender disparities remain a defining characteristic of the field. According to the 2023 report by ASEE Engineering & Engineering Technology by Numbers, 75.8% of the bachelor's degrees were awarded to male students compared to 24.2% awarded to female students in 2022. The same report states that only 20.1% of the tenured/tenure track engineering faculty are female. These statistics underscore the persistent gender imbalance in engineering education and the profession. Because students' perceptions of gender roles and professional belonging begin to take shape early in their undergraduate experience, examining these perceptions among first-year engineering students is essential.

In Spring 2025, an IRB approved study was conducted among a diverse group of first-year engineering students at the University of Arkansas. Prior research has explored the experiences of first-year women engineering students, uncovering patterns related to confidence, inclusion, and exposure to bias [1]. While these findings provide valuable insight, they represent only part of the broader picture. This study builds on earlier work by expanding the scope to include all first-year engineering students and by conducting a comparative analysis of responses from women and men. Overall trends in quantitative responses were plotted and explored by gender. The qualitative differences in how students describe their experiences were explored using thematic analysis. The analysis revealed significant perceptual differences between male and female students in areas such as confidence in their ability to succeed in classes, feeling comfortable and included in class discussions or teamwork, importance in having role models of the same gender, thoughts on gender influence in opportunities and career.

By examining these gender-based differences, this study aims to contribute to a deeper understanding of how perceptions shape the first-year engineering experience. By identifying early perceptual gaps, engineering educators can tailor classroom practices to encourage equitable participation. Such efforts may include structured team roles, inclusive language in instruction, and reflective activities that prompt students to examine assumptions about competence and collaboration.

Research Questions

1. How do first-year engineering students' perceptions of academic confidence and classroom inclusion differ by gender?
2. To what extent do women and men report experiencing or observing gender-related stereotypes and biases in their engineering program?
3. How do students perceive the influence of gender on future career prospects, and do these perceptions vary between women and men?
4. What role do representation and mentorship play in shaping students' sense of belonging, and are these factors valued differently across genders?

To situate this study within the broader context of engineering education research, the following section reviews existing literature on gender disparities, student perceptions of belonging, and strategies for fostering inclusive learning environments.

Literature Review

Although women's participation in higher education has increased significantly since the 1980s, progress in recruiting and retaining women and minorities in engineering programs remains minimal [2]. Despite comparable academic achievements between male and female students, Wilson & VanAntwerp and Zhu et.al. reported that women continue to be underrepresented in engineering, characterized by lower enrollment and higher attrition rates compared to men [3], [4]. Those studies also reported that a lack of belonging within male-dominated environments has been identified as a critical factor contributing to this underrepresentation and attrition. However, this disparity varies across engineering disciplines.

Faculty plays a pivotal role in shaping students' experiences and perceptions of engineering. Research shows that faculty often reinforce gendered images, positioning certain majors as masculine and others as feminine, which influences women's choices of specialization [5]. Classroom gender role attitudes can trigger identity threats for women, while inclusive mindsets may mitigate these effects [6]. The study reported that women frequently perceive themselves as socially dissimilar from stereotypical representations of engineers, which is often portrayed as isolated, technology-obsessed individuals thereby further diminishing their sense of fit within the field.

Social climate factors, including peer and instructor interactions, significantly shape women's STEM experiences [7], [8], [9]. In addition, negative messages about women's ability to succeed, coupled with implicit bias and micro-discriminations in team settings, undermine self-concept and belonging. Team-based projects, mandated by ABET accreditation standards, often place women in numerical minority positions, exacerbating challenges related to participation and assertiveness [10], [11]. These studies indicate that male students dominate discussions and technical presentations in group settings, while female students often adopt concede-avoidance strategies.

Attrition remains a pressing concern. Buse et. al reported that more than 66% of women leave engineering within 15 years of earning their degree, which is double the rate of men [2]. Contributing factors include lifestyle choices, lack of role models, masculine culture, and persistent gender bias [8], [12]. According to [13], mentoring interventions, particularly same-gender peer mentoring during transitional periods, have proven effective in enhancing belonging and retention. [14] and [12] suggests that exposure to successful ingroup role models also positively influences motivation and aspirations among women and other underrepresented groups. [15] reported that women are far less likely to pursue a career in software engineering, and those that do are less likely than men to stay in it. They observed that the reasons for women and other underrepresented minorities to leave the industry are a lack of opportunities for growth and advancement, unfair treatment and workplace culture.

Intersectionality adds complexity to these patterns [16], [17]. Women of color often face compounded challenges in achieving belonging within engineering programs, with Latina and White women reporting relatively higher belonging compared to other minority groups.

Methods and Project Approach

This study used a mixed-methods survey design to examine first-year engineering students' perceptions of how gender influences their academic experiences, sense of inclusion, and expectations for future opportunities. The survey included both quantitative Likert-type items and open-ended qualitative questions, allowing for comparative analysis across gender groups and deeper exploration of emerging themes. Branching logic was used to ensure relevance of questions based on gender identity. The survey was administered online during the final month of the semester to capture reflections after nearly a full year of coursework. The study was reviewed and approved by the university's Institutional Review Board (Protocol# 2412577833.) While the participation was voluntary, and responses were analyzed anonymously to protect confidentiality, students were offered bonus points to encourage participation. A copy of the survey is provided in Appendix A.

The survey was distributed to students enrolled in introductory engineering courses within the First-Year Engineering Program at the University of Arkansas during Spring 2025. A total of 705 students were invited to participate and 353 completed the survey. Among the respondents, 99 identified as women (28.0%), 246 as men (69.7%), and 5 as nonbinary (1.4%), and 3 preferred not to say (0.8%).

To contextualize the sample, the demographic composition of the first-year cohort during the academic year of data collection is provided. Note that the College of Engineering expanded its enrollment reporting to include both traditional engineering freshmen and students entering a new Data Science major. Students in the Data Science majors are not enrolled in the general engineering courses as there is a separate first-year course created for that major only and are not included as a part of this study. The combined incoming class consisted of 821 first-year students, including 779 engineering freshmen and 42 Data Science freshmen. Within this cohort, 203 students (24.7%) identified as female, 617 as male, and one student identified as non-binary or another gender identity. By the start of the Spring 2025 semester, 705 of these students were enrolled in the introductory engineering courses that served as the population for this study.

The response rate for the survey was approximately 50%. Recent evidence from Holtom, Baruch, and et al. [18] shows that published survey response rates in organizational and applied research have increased over time, averaging 48% in 2005, 53% in 2010, 56% in 2015, and 68% in 2020. While response rates have trended upward, the authors emphasize that "*response-rate value alone is not a sufficient indicator of sample quality"*. Instead, they advocate assessing response validity through factors such as sample appropriateness, participant motivation, data-collection context, and representativeness. Although the response rate in the present study is lower than the most recent averages reported for 2020, it remains well within the range observed in earlier years and aligns with established norms for researcher-administered surveys. More importantly, because the survey was administered directly to students enrolled in the courses being studied

and participation was mostly voluntary, the resulting sample reflects appropriate relevance and engagement, supporting the validity of the responses collected.

Results and Discussion

Table 1 summarizes the demographic characteristics of the 353 participants in this study. The majority identified as men (69.7%), followed by women (28.0%), with a small proportion identifying as nonbinary or preferring not to disclose their gender. Approximately 21.3% of participants were first-generation college students, and 40.8% reported having family members in the engineering field. Most students (69.7%) decided to pursue engineering during high school, while smaller groups indicated they had always wanted to be engineers (18.7%), made the decision during their first semester (4.5%), while in the workforce (3.1%), or were still unsure (4.0%). Race and ethnicity data indicated that most participants identified as White (75.1%), followed by Asian (10.2%) and Black or African American (6.5%), with other identities represented in smaller proportions.

Table 1. Participant Demographics Summary

	Men	Women	Nonbinary	Prefer Not	Total
Number of Participants	246	99	5	3	353
First-Generation Students	52	23	5	3	75
% First-Generation	21.1%	23.2%	100%	100%	21.3%
Family in Engineering	96	42	5	1	144
% Family in Engineering	39.0%	42.4%	100%	33.3%	40.8%
Decision Timing					
– During High School	170	71	2	3	246
– Always Wanted to be Engineer	49	15	2	0	66
– First Semester at UofA	9	7	0	0	16
– While in Workforce	10	1	0	0	11
– Still Unsure	8	5	1	0	14

Motivation for Choosing Engineering

In the survey, students were asked what motivated them to choose engineering. Although all students, irrespective of the gender, reported comparable core motivations for pursuing engineering including career opportunities, interest in technology, and enjoyment of math and science, there were gender differences in emphasis areas. The survey reported that the major motivating factor for women was academic interest, with enjoying math and science appearing most frequently among their selections, whereas men balanced this with equal emphasis on career prospects and technology/innovation. Women also highlighted the role of relational influences along with academic enjoyment.

First-generation students emphasized the effect of higher parental expectations (9.0%) in choosing engineering compared with non-first-generation peers (5.4%). 11.5% of non-first-generation students reported the effect of family role models in their choice. Although there was

a difference between the responses of both genders, students with engineering family members reported a much higher family influence (19.1%) compared to the students who do not have any engineering family members (4.1%). It is noteworthy that the majority of students (68.8% of men and 71.4% of women) decided on engineering in high school, indicating the role of high school in choosing engineering discipline. 20.3% male students reported that they "always wanted engineering" compared to 16.2% of female students.

Academic Confidence and Inclusion

In the survey, students were asked how confident they feel about succeeding in engineering and if they feel comfortable and included in class discussions, group projects, and other academic activities. Results are shown as percentages in Figures 1 and 2.

As reported in Figure 1, most participants reported high confidence in their ability to succeed in engineering courses, with responses clustering between levels 6 and 8. Among men, 89 students (36.2%) selected level 8, and 66 (26.8%) selected level 7, while 34 (13.8%) rated themselves at level 10. Women's confidence peaked at level 7, with 35 students (35.4%), followed by level 8 (25 students, 25.3%) and level 10 (12 students, 12.1%). Very few students in either group reported low confidence (levels 1–4 accounted for less than 5% combined).

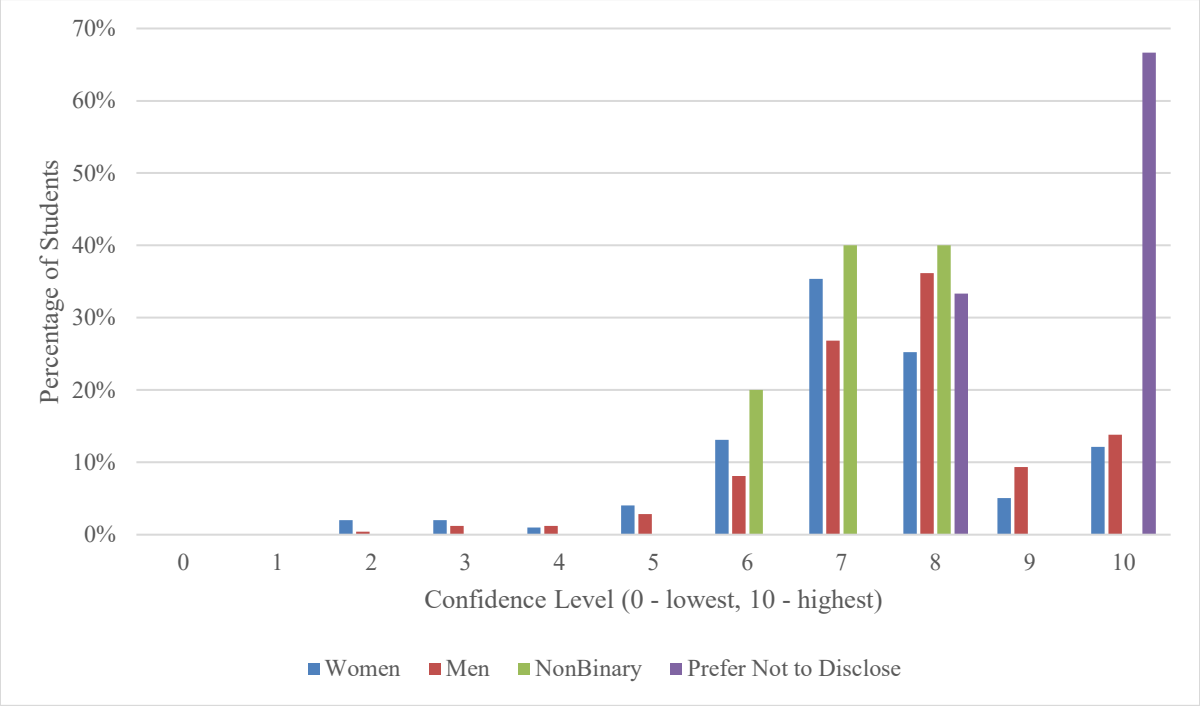

Figure 1. Perceptions of student groups on their ability to succeed in engineering. Figure shows the distribution of responses to the question "How confident do you feel in your ability to succeed in engineering courses?"

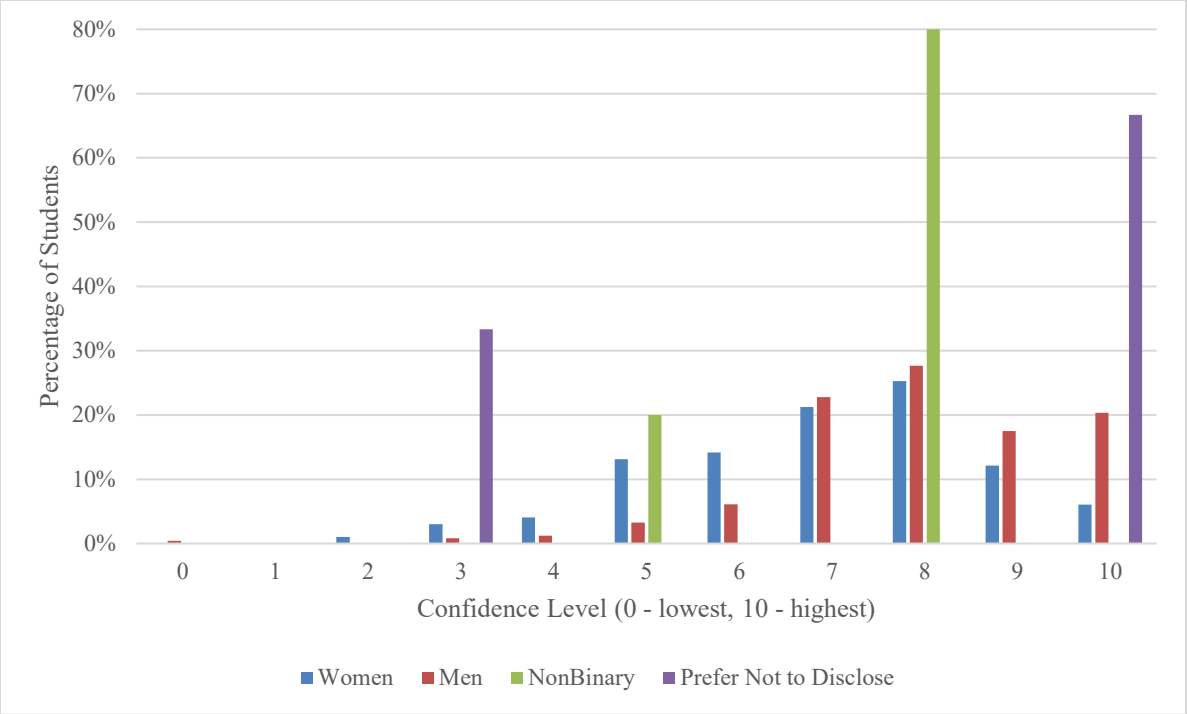

Figure 2. Perceptions of student groups on comfort and inclusion in activities. The figure shows the distribution of the responses to the question "Do you feel comfortable and included in class discussions, group projects, and other academic activities? "

Comfort and inclusion in academic activities followed a similar pattern as shown in Figure 2. Men reported the highest ratings at level 8 (68 students, 27.6%) and level 10 (50 students, 20.3%), whereas women peaked at level 8 (25 students, 25.3%) and level 7 (21 students, 21.2%). Nonbinary students (n=5) reported mid-to-high confidence (levels 6–8) and comfort primarily at level 8 (4 students), while those who preferred not to disclose gender (n=3) reported comfort at level 10 (2 students) and confidence at levels 8 and 10. These findings suggest generally positive perceptions of confidence and inclusion, with men slightly more concentrated at the highest levels compared to women (with 65% of men reporting confidence levels 8 -10 versus 43% of women reporting confidence levels 8 - 10.)

Gender based treatment from peers or faculty/staff

In the survey, students were asked if they ever felt that their gender affected how they were treated in engineering classes by their fellow students or how they were treated by faculty/staff.

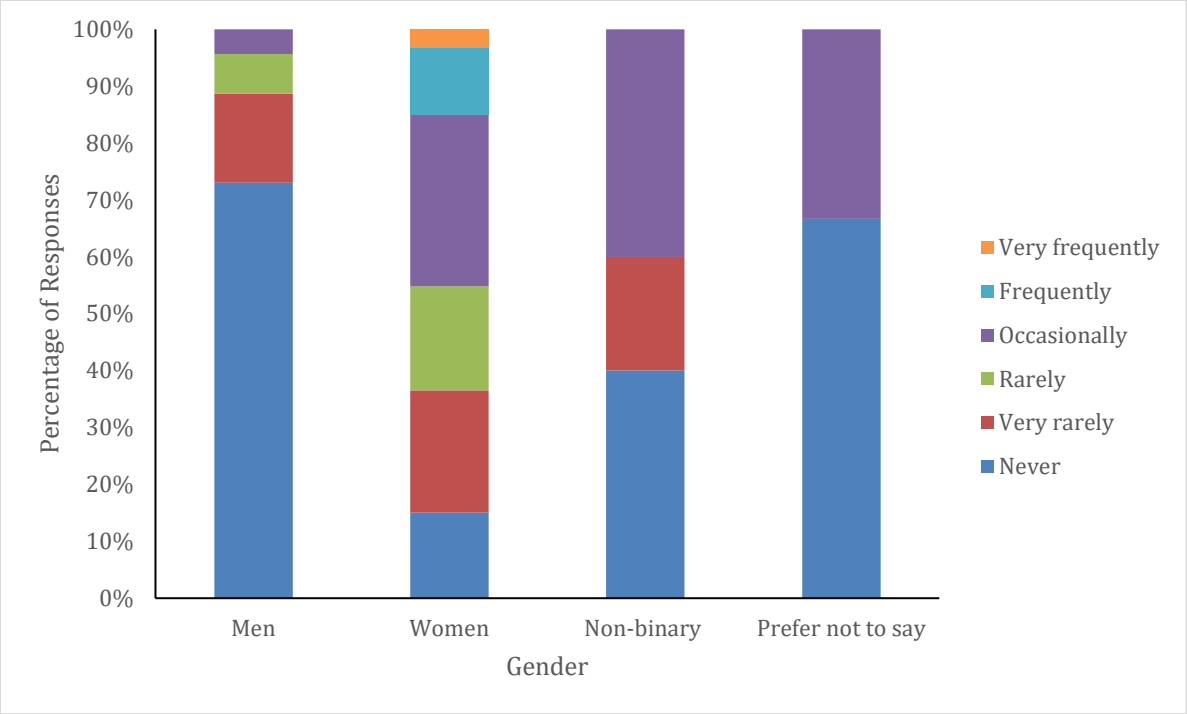

Figure 3. Perceptions of student groups on the influence of gender during interactions with peers. The figure shows the distribution of the responses to the question "Have you ever felt that your gender affected how you were treated in engineering classes by your fellow students?"

Figure 3 illustrates that among men (n = 246), most selected **"**Never" (73%), with additional responses in "Very rarely" (16%), "Rarely" (7%), and "Occasionally" (4%); none selected "Frequently" or "Very frequently." In contrast, women (n = 99) reported substantially higher levels of perceived differential treatment: only 15% chose "Never," while notable proportions selected "Very rarely" (22%), "Rarely" (18%), and nearly one-third "Occasionally" (30%). A further 15% of women indicated frequent or very frequent occurrences (12% and 3%, respectively). Responses from nonbinary students (n = 5) were split, with 40% selecting "Never" and another 40% selecting "Occasionally." Those who preferred not to state their gender (n = 3) primarily selected "Never" (67%) or "Occasionally" (33%). Overall, the figure highlights that while men predominantly report no perceived differential treatment, women report such experience at much higher rates, with nonbinary respondents also indicating elevated levels of occasional differential treatment. (Note: Given the small sample sizes for "non-binary" and "prefer not to say" groups, these results should be interpreted cautiously.)

Figure 4 shows similar gender-based differences in perceptions of how students were treated by faculty or staff. Among men (n = 246), most selected "Never" (79%), with smaller shares reporting "Very rarely" (11.3%), "Rarely" (6.6%), and "Occasionally" (2.7%); "Frequently" was under 1%. In contrast, women (n = 99) were less likely to select "Never" (43%) and more likely to report some degree of differential treatment: "Very rarely" (19%), "Rarely" (23%), and "Occasionally" (14%). About 21% of men versus about 57% of women indicated experiencing some level of differential treatment from faculty or staff.

The nonbinary respondents (n = 5) showed a mix as well, with 60% reporting "Never," but a combined 40% indicating "Rarely" or "Occasionally." Those who Prefer not to say were split between "Never" and "Rarely." (Note: Given the small sample sizes for "non-binary" and "prefer not to say" groups, these results should be interpreted cautiously.) Overall, these results mirror the previous pattern: while men predominantly report no perceived differential treatment, women and nonbinary respondents more frequently report at least occasional experiences in which gender influenced how they were treated.

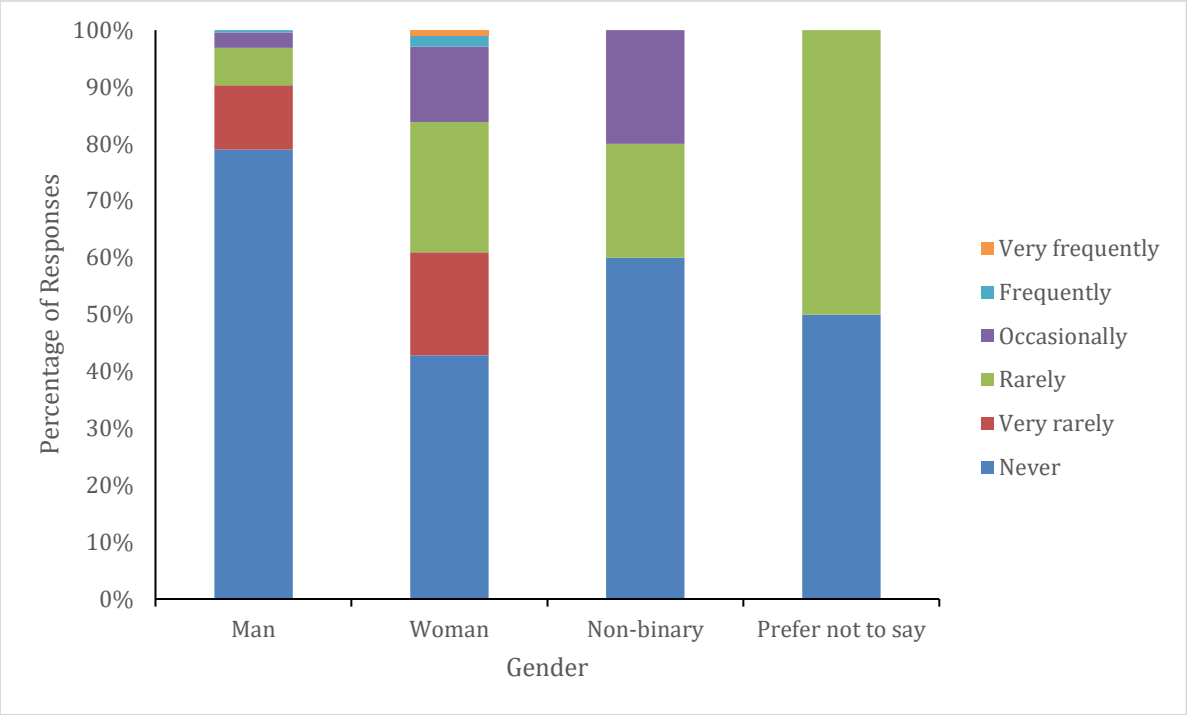

Figure 4. Perception of student groups on influence of gender during interactions with faculty/staff. The figure shows the distribution of the responses to the question "Have you ever felt that your gender affected how you were treated by faculty or staff?"

Role Models

The survey data showed clear gender-based patterns in how students describe their role models. Male students most often referenced family members (28.7%), especially fathers as their role models in engineering. They also mentioned male public figures (e.g. Mark Rober, Tesla/Elon Musk) as role models in engineering, while relatively few cited women as role models. Women, in contrast, frequently identified women role models (43.8%), including female professors, peer mentors, and family members, and were more likely to describe mentors who supported their confidence, persistence, and sense of belonging in engineering. In general, female student's role-model narratives emphasized representation and encouragement, whereas male student's focused more on family influence and well-known engineers.

Effect of gender on future career prospects in engineering

Students were asked open-ended questions on whether they thought there was an effect of gender on career prospects in engineering. The results of the thematic analysis based on all student responses are given in Table 3. To reduce the discrepancies in coding, there was only one coder involved in the thematic analysis of qualitative data.

Table 3. Student perceptions regarding the influence of gender on career prospects in engineering

Theme	Men (%)	Women (%)	Nonbinary (%)	Prefer Not to Disclose (%)
Neutral / No Impact	61.7%	20.3%	0%	50.0%
Male Advantage Acknowledged	18.0%	0%	0%	0%
Female Barrier / Bias	7.0%	46.4%	0%	0%
Diversity Advantage	4.3%	15.9%	0%	0%
Mixed / Conditional	5.5%	13.8%	25.0%	0%
Nonbinary Barrier	0%	0%	75.0%	0%
Uncertain / No Opinion	3.5%	3.6%	0%	50.0%

Most male respondents indicated that gender would have little to no impact on their career outcomes, emphasizing merit, qualifications, and work ethic as the primary drivers of success. A substantial subset explicitly acknowledged perceived advantages associated with being male in a traditionally male-dominated field, including greater likelihood of being hired or taken seriously, easier access to networking opportunities, reduced need to prove competence relative to female peers. A smaller segment of male respondents expressed concern about potential disadvantages related to diversity hiring preferences or competitive saturation among white males, although these views were less common. Below are some example responses from students who identified as man:

"I think that because I'm a man, I'll probably have an advantage over women in my career prospects, as there's a general bias against women in engineering (that I've seen). "

"I feel like males have a better chance of getting a job/internships compared to females in my specific engineering program. Many people think that men will always do a better job at this kind of work then women."

"I think that my knowledge will affect my engineering career and not my gender."

"I think that gender is not a factor that affects your career prospects in engineering."

"Because of the recent awakening in gender equality especially in engineering, I feel that white males are almost held to a disadvantage now."

Female respondents consistently reported higher perceived barriers compared to men. Dominant themes found include needing to work harder to prove competence, fearing being underestimated, stereotyped, or not taken seriously, anticipated bias in hiring, pay, promotion,

and leadership opportunities and experiences/ expectations of exclusion in group work and networking. Several women expressed discomfort with being perceived as a "diversity hire" rather than being evaluated on merit. Below are some example responses from students who identified as woman:

"Being a woman in engineering means facing some gender biases, but it also opens doors through support networks, diversity initiatives, and the chance to lead change in a traditionally male-dominated field."

"I think being a woman lowers my likelihood of getting certain jobs and if I am able to get them, my pay will be lower"

"If anything, I feel it could be used as a bonus or a leg-up against my male peers simply because companies like diversity hires. I don't agree with people hiring others based on their identity over their qualifications, but I do feel it could benefit me in finding a job nonetheless."

"It hasn't affected me too much yet, but I want to get a future job because I earned it not because they need to fill a quota of females in the office"

"I think I will have the same opportunities as everyone else."

Overall, women more likely anticipated future gender-related challenges in their engineering careers than men. Although the nonbinary sample size was small, these respondents consistently anticipated significant obstacles related to workplace acceptance, bias, and identity visibility. These findings suggest a continued need for targeted institutional strategies focused on inclusive culture, mentorship, bias mitigation, and equitable career development pathways.

Of the responses on the effect of gender on career prospects in engineering, male students mostly reported that merit-based beliefs coexist with an awareness of male advantage and some reverse-bias concerns. The responses indicate that female students anticipate structural barriers, credibility challenges, social exclusion, and higher performance expectations, though some recognize increasing institutional support for women in STEM. Nonbinary respondents perceive heightened vulnerability to discrimination and reduced career security.

Conclusion

This study demonstrates that gender continues to shape the perceptions and experiences of first-year engineering students in ways that may influence long-term engagement in the field. While both men and women reported high levels of academic confidence and classroom inclusion, men were more likely to cluster at the highest confidence ratings, whereas women exhibited slightly greater variability. Women also expressed heightened concern about gender-related barriers in their future careers, citing anticipated challenges such as bias in hiring and promotion, credibility struggles, and fears of being perceived as "diversity hires." In contrast, most men viewed career outcomes as merit-based, though some acknowledged systemic advantages for males in engineering and, to a lesser extent, concerns about reverse bias.

Beyond confidence and career expectations, the study found differences in how students felt their gender affected treatment by peers and faculty. Most students reported neutral experiences, but women and nonbinary students noted more variation, including occasional bias or unequal treatment. While clear discrimination was uncommon, subtle signs of exclusion still appeared and can influence students' sense of belonging. Addressing these issues early is important to prevent students from leaving and to create a more inclusive learning environment.

Role models also played a key role in shaping belonging. Women frequently emphasized the importance of female mentors and supportive relationships, while men primarily referenced family members and well-known male engineers. These patterns highlight the enduring influence of representation and mentorship on students' sense of fit within engineering.

These results also line up with several earlier studies in engineering education. For example, prior work has shown that women often report lower belonging and higher attrition in engineering programs [3], [4], and our findings show similar trends in the first year, with women experiencing more variable confidence and more frequent gender-based treatment. The concerns that many women raised about bias, credibility, and career barriers also match reported issues related to stereotype threat, implicit bias, and unequal participation in team settings [7], [8], [9]. In addition, the importance women placed on having female mentors or role models is consistent with research showing that same-gender mentors and visible ingroup role models help support confidence and persistence [13], [14]. Finally, the experiences noted by nonbinary students in our sample reflect recent work documenting the challenges that underrepresented gender identities face in engineering programs [15]. Together, these connections show that the patterns we observe in first-year engineering students are aligned with broader trends that have been documented across the engineering education literature.

These findings point to several actionable implications for first-year engineering programs. Because women (and nonbinary) students reported more variable confidence and more frequent gender-based treatment, introductory courses may benefit from structured team assignments, clearer expectations for group work, and early conversations about inclusive communication. Increasing the visibility of female mentors and role models may also help address the strong need for representation; this can be done through guest speakers, peer mentors, or collaboration with student organizations like SWE. Looking ahead, future work could build on this study by giving the same survey to engineering students in their junior or senior years to see how these perceptions change as students advance through the curriculum. Although individual students cannot be tracked, targeting the same cohort of courses would provide a meaningful comparison. Because one of the authors teaches upper-level civil engineering courses, this offers a practical way to expand the dataset beyond the first year. Registered student organizations could also serve as valuable partners for deeper qualitative work, such as focus groups that explore students' experiences in more detail. These steps would help clarify how students' experiences change over time and point to the moments when targeted support could have the greatest impact.

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Appendix A: Survey

First-Year Engineering Students' Perspectives on Gender Influences on Education Survey

Principal Researchers:
(redacted)

Welcome to our survey on gender influences in engineering education. Your participation is crucial in helping us understand the diverse experiences and perspectives of students like you.

The purpose of this survey is to:
Gather insights on how gender may influence your educational experience
Identify potential areas for improvement in our engineering program
Contribute to research aimed at creating a more inclusive learning environment

(redacted)

We are expecting around 500 participants in the study. Your participation is voluntary, but your input is invaluable to our research and potential improvements in engineering education. Thank you for your time and contribution to this important study.

Required

This form will record your name, please fill your name.

Consent to Participate in the Study

I have read the above statement and have been able to ask questions and express concerns, which have been satisfactorily responded to by the investigator. I understand the purpose of the study as well as the potential benefits and risks that are involved. I understand that participation is voluntary. I understand that significant new findings developed during this research will be shared with the participant. My completion of the survey indicates my consent for my responses to be used in the research as described. *

- ◯ I accept to participate
- ◯ I decline to participate

First, we want to know a little bit about you!

Collecting socio-demographic information helps to enhance the data quality and validity, and ensure inclusivity in representation.

How old are you? *

Are you Hispanic, Latino, or Spanish origin? *

- ◯ Yes
- ◯ No
- ◯ Prefer not to answer

How would you describe yourself? *

- ◯ American Indian or Alaska Native
- ◯ Asian
- ◯ Black or African American
- ◯ Native Hawaiian or Other Pacific Islander
- ◯ White
- ◯ Prefer not to answer
- ◯ Other

Do you have any siblings? (Enter the number in the box below. Enter 0 if you have no siblings.) *

Are you a first-generation college student? *

- ◯ Yes
- ◯ No

Do you have any family members in engineering field? *

- ◯ Yes
- ◯ No

Are you a traditional student? *

Traditional student: enroll right after high school and attend full time. Non-traditional student: enroll later in life, attend part time, or have other commitments (family, full-time work, etc.)

- ◯ Yes
- ◯ No

What motivated you to pursue an engineering degree? (You can choose more than one.) *

- ☐ Interest in technology and innovation
- ☐ Career opportunities
- ☐ Influence of role model (family)
- ☐ Influence of role model (teacher, mentor)
- ☐ Enjoy math and science
- ☐ Parental expectations
- ☐ Other

When did you make your decision to study engineering in College? *

- ◯ I always wanted to be an engineer
- ◯ During high school
- ◯ While in workforce after high school
- ◯ During my first semester at UofA
- ◯ I'm still not 100% sure

What percentage of the engineering workforce do you believe is comprised of women? *

- ◯ Less than 10%

- ◯ 10-15%
- ◯ 15-20%
- ◯ 20-25%
- ◯ 25-30%
- ◯ 30-35%
- ◯ 35-40%
- ◯ 40-45%
- ◯ 45-50%

What is your gender identity? *

We are asking about your gender identity as part of this survey because it will allow us to analyze whether there are any gender-based patterns or disparities in educational experiences. Some survey questions may vary based on your response to ensure we capture relevant experiences and perspectives.

- ◯ Woman
- ◯ Man
- ◯ Non-binary
- ◯ Other
- ◯ Prefer not to say

**Survey branches after this question:

- Students who chose “woman” for the question above receive the sets of questions with “woman only” in the title. (Note that the “woman only” text was added manually to the survey copy for this paper only; students had the same titles regardless of their response.)
- Students who chose “man”, “non-binary”, “other”, or “prefer not to say” for the question above receive the sets of questions with “chose not woman” in the title. . (Note that the “chose not woman” text was added manually to the survey copy for this paper only; students had the same titles regardless of their response.)

Academic Experience (woman only)

How confident do you feel in your ability to succeed in engineering courses? *

0	1	2	3	4	5	6	7	8	9	10

Not confident Very confident

Do you feel comfortable and included in class discussions, group projects, and other academic activities? *

0	1	2	3	4	5	6	7	8	9	10

No All the time

Have you ever felt that your gender affected how you were treated in engineering classes by your fellow students? *

- ◯ Never
- ◯ Very rarely
- ◯ Rarely
- ◯ Occasionally
- ◯ Frequently
- ◯ Very frequently

Have you ever felt that your gender affected how you were treated by faculty or staff? *

- ◯ Never
- ◯ Very rarely
- ◯ Rarely
- ◯ Occasionally
- ◯ Frequently
- ◯ Very frequently

Perceptions and Stereotypes (woman only)

Have you encountered any gender-related stereotypes or biases in your engineering program? *

- ◯ Never
- ◯ Very rarely
- ◯ Rarely
- ◯ Occasionally
- ◯ Frequently
- ◯ Very frequently

Do you feel that your gender influences how your peers or instructors perceive your abilities? *

- ◯ Yes
- ◯ No

Have you observed or been subject to comments or behaviors that undermine your abilities or contributions based on your gender? *

- ◯ Yes
- ◯ No

Do you feel that there are equal opportunities for men and women in the engineering program? *

- ◯ Yes
- ◯ No

How do you think being a woman affects your future career prospects in engineering? *

Role Model and Representation (woman only)

How important is it to you to have woman professors or teaching assistants in your engineering courses? *

0	1	2	3	4	5	6	7	8	9	10

Not important at all — Extremely important

Have you received adequate support and mentorship as a woman in the engineering program?

- ◯ Yes
- ◯ No

Have you encountered any challenges specific to being a woman in the engineering field during your first year of studies? If yes, please explain. *

Do you have any woman role models in the engineering field? If so, how have they influenced you? *

Support and Resources (woman only)

Do you believe there is a need for specific resources or support systems tailored to address gender-related challenges within the engineering departments? *

- ◯ Yes
- ◯ No

Are you aware of any support programs or resources specifically for women in engineering at University of Arkansas?

- ◯ Yes, and I have used at least one resource.
- ◯ Yes, but I haven't used any resources yet.
- ◯ No

Have you participated in any women in engineering organizations or events? If so, which ones? How helpful were they? *

Challenges, Opportunities, and Future Outlook (woman only)

How difficult is it to balance your academic responsibilities with other aspects of your life, such as extracurricular activities, work, or personal obligations? *

0	1	2	3	4	5	6	7	8	9	10

Not difficult — Extremely difficult

What do you perceive as the biggest challenges for women in engineering? *

Have you experienced any unique opportunities as a woman in engineering? *

What advice would you give to the faculty and administration to improve the experiences of women students in the first year of the engineering? *

Academic Experiences (chose not woman)

How confident do you feel in your ability to succeed in engineering courses? *

0	1	2	3	4	5	6	7	8	9	10

Not confident Very confident

Do you feel comfortable and included in class discussions, group projects, and other academic activities? *

0	1	2	3	4	5	6	7	8	9	10

No All the time

Have you ever felt that your gender affected how you were treated in engineering classes by your fellow students? *

- ◯ Never
- ◯ Very rarely
- ◯ Rarely
- ◯ Occasionally
- ◯ Frequently
- ◯ Very frequently

Have you ever felt that your gender affected how you were treated by faculty or staff? *

- ◯ Never
- ◯ Very rarely
- ◯ Rarely
- ◯ Occasionally
- ◯ Frequently
- ◯ Very frequently

Perceptions and Stereotypes (chose not woman)

Have you encountered any gender-related stereotypes or biases in your engineering program? *

- ◯ Never
- ◯ Very rarely
- ◯ Rarely
- ◯ Occasionally
- ◯ Frequently
- ◯ Very frequently

Do you feel that your gender influences how your peers or instructors perceive your abilities? *

- ◯ Yes
- ◯ No

Have you observed or been subject to comments or behaviors that undermine your abilities or contributions based on your gender? *

- ◯ Yes
- ◯ No

Do you feel that there are equal opportunities for all genders in the engineering program? *

- ◯ Yes
- ◯ No

How do you think your gender affects your future career prospects in engineering? *

Role Model and Representation (chose not woman)

How important is it to you to have professors or teaching assistants same gender as you in your engineering courses? *

0	1	2	3	4	5	6	7	8	9	10

Not important at all — Extremely important

Have you received adequate support and mentorship in the engineering program?

- ◯ Yes
- ◯ No

Have you encountered any challenges specific to your gender in the engineering field during your first year of studies? If yes, please explain. *

Do you have any role models in the engineering field? If so, how have they influenced you? *

Support and Resources (chose not woman)

Do you believe there is a need for specific resources or support systems tailored to address gender-related challenges within the engineering departments? *

- ◯ Yes
- ◯ No

Challenges, Opportunities, and Future Outlook (chose not woman)

How difficult is it to balance your academic responsibilities with other aspects of your life, such as extracurricular activities, work, or personal obligations? *

0	1	2	3	4	5	6	7	8	9	10

Not difficult — Extremely difficult

What advice would you give to the faculty and administration to improve the experiences of students in the first year of the engineering? *