

Landing the internship: the Role of gender in finding ID internships



Carly Hagins¹, Betsy Barnhart², Kate Tierney³

¹Western Michigan University
carly.hagins@wmich.edu

²University of Kansas
betsybarnhart@ku.edu

³Western Michigan University
katherine.tierney@wmich.edu

Abstract

Professional Industrial Design (ID) internships support student success and entrance into practice. Students experience work culture, processes, and different types of industrial design settings while gaining a highly valued line on their resume.

Despite gender parity in ID education, females make up only 19% of the ID workforce. The on-going disparity between male and female identifying industrial designers as they make the transition from school to professional practice necessitates (further) investigation. The authors hypothesize that internship experiences and who receives them has a snowball effect on student success and ultimately in their ability to join the ID work force at the same rate as their male peers.

The lack of women in ID moving forward into the workforce has broad implications for the field and for the success of Research & Development (R&D) teams. Research is critical for identifying barriers to women's success in ID, making it possible to address inequity in ID education and create strategies to increase gender parity in the workforce. This study explores if gender was a factor in how students obtained their internships; in particular if students were personally referred to the internship, they obtained the internship through networking, or if they responded to a job/internship posting without connections to those working there. This study employed quantitative methods for data collection and analysis. Student surveys and semi-structured interviews were administered in ID programs at Western Michigan University and the University of Kansas, both 4-year comprehensive universities in the United States. Respondents included current 3rd and 4th year students, as well as alumna 4 months post graduation, in the hopes of understanding application rates, internship experiences, hiring process, and perception of internship value for their education and for their preparation for employment. This is an initial investigation at our institutions and is a model for further research.

Author keywords

gender; equity; internship; industrial design; design education

Introduction

Understanding what factors lead to the under-representation of women in Industrial Design (ID) practice is complex and multifaceted. Currently, 81% of ID professionals are male, meanwhile ID education has achieved gender parity with equal numbers of male and female identifying students (Coroflot, 2022). In comparison to other related fields such as architecture or engineering there is little research investigating the disparity we find in ID. It is difficult for educators and practitioners to understand the causes for these demographic disparities because there is so little information available. At this time, there is no published demographic data regarding participation in ID internships, nor is there published demographic data for entry level industrial designers. Education must be able to make thoughtful developments to improve the success rate of all students regardless of race or gender. This includes making adjustments to pedagogy and approaches to mentorship and support for students, as well as ensuring equity and access to quality internships which are proven to help students succeed in entering a competitive field. This research investigates if gender is a factor in internship participation, how students secure an internship, and perceived value of the internship experience. By better understanding internships, we strive to build understanding of the participation gap occurring during the transition from student to professional industrial designer.

Literature Review

The following literature review frames four key aspects to our research, including the current demographics of students and professionals in the field of ID, the impact of diversity in the workplace, the value of internships, and barriers to internship participation. This review also reinforces that there is a need for further investigations and research into gender and racial disparities in the field of ID, specifically internship participation and understanding factors contributing to women participating in the field of ID.

Current Demographics of Students and Professionals

The profession of ID is heavily male dominated, with only 19% of the ID work force identifying as female (Coroflot, 2022).

However, ID academic programs are increasing enrollment of women, who make up 49% and 45% of industrial design students at our respective institutions. Compared to other professional fields with a large disparity between male and female participants (such as architecture and engineering), there is little research about this inequity in ID, specifically regarding experiences of students in their undergraduate studies and how that affects their ability to successfully enter the profession. This gap between academics and professional practice deserves further inquiry.

Impact of Diversity in the Workplace

Research tells us that gender inclusivity only improves innovation and corporate outcomes. Teams that are gender-balanced see an increase in creativity and innovation and a 15% rise in performance. Women are able to produce higher sales, employee engagement, team self-confidence, high psychological safety, and are more likely to promote and yearn for sustainable practice (Page, 2007). The lack of women in ID moving forward into the workforce has broad implications for the field and for the success of R&D teams. Research is critical for identifying barriers to women's success in ID, making it possible to address inequity in ID education and create strategies to increase gender parity in the workforce.

Value of Internships

Professional internships support academic success and facilitate entrance into the student's chosen field of practice. Interns experience work culture, processes, and different types of industrial design settings while gaining a highly valued line on their resume. While academic coursework focuses on learning core skill sets and theory, the soft skills, professional expectations, and understanding of the realities of the field are often learned through an internship. Students who participate in an internship related to their profession are more likely to find employment in their field (Binder et al., 2014).

Participation in internships has the added benefit of giving students the opportunity to develop workplace preferences, helping ensure the jobs they seek after graduation are a good fit (and avoiding the necessity of career trial-and-error). They also often lead to full-time job opportunities with the internship employer (Maertz et al., 2014). Students who have internships are perceived as being ready to enter the workforce, with students receiving 14% more job interviews if they have internships than those who do not (Nunley et al., 2016).

It's not just students who benefit from internship experiences; companies that employ interns gain the opportunity to complete lower priority projects at a lower cost of labor. Internships are also an excellent recruiting tool. At the point when a full-time job offer is extended, interns have already worked at the company, demonstrating their interests and capabilities and building on-the-job knowledge. Even when there isn't an opportunity for further employment, students who have a positive internship experience are likely to share that with friends and family, raising the reputation of the employer (Maertz et al., 2014).

Barriers to Internship Participation

Despite internships being highly valued, not all students are able to participate in them. Internship placement is intense-

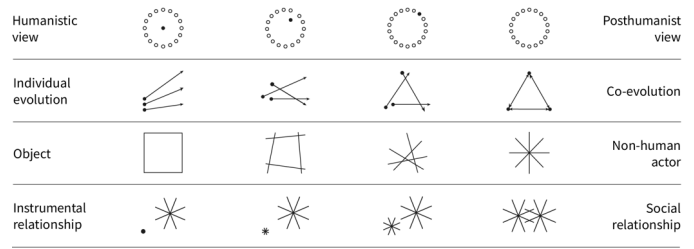


Figure 1. The key concepts for shifting from a humanist to a posthumanist perspective.

ly competitive, with employers seeking out students with sophisticated professional work. If upper-level student portfolios don't reflect previous internship experience, their job opportunities may be limited (Barnhart, 2022).

Beyond simply not being able to 'land' a job, considerations that make it difficult to pursue an internship include heavy course loads and the need to maintain a full or part-time job. Financial considerations make it especially difficult for students to take on an internship that requires relocation or a low-paying or unpaid internship. These issues often have an outsized impact on historically marginalized student populations (Hora et al., 2021).

Research Setup and Focus

The lack of data and previous literature regarding males entering the field of ID at a greater rate than their female counterparts led to the following three assessments. The first was to investigate if there is a disparity in internship participation rates between our male and female identifying students. Second was finding how male and female identifying students were obtaining their internships. Third was investigating if there is a gendered difference in the perception of value of the students' internship experience. To study this, ID students at Western Michigan University and the University of Kansas in their 3rd and 4th year as well as students who graduated the prior year (n=77) participated in a survey.

Survey Measures

Predictor Variable

The central predictor variable for this study was gender. Participants were asked: What gender do you identify as? Options included Male, Female, Non-Binary/Non-conforming, Transgender, and Other. One participant responded with an identity other than Female or Male. This participant was excluded as there were insufficient data to conduct analyses.

Outcome Variables

This study included three outcome variables of interest. First, participants were asked: Have you participated in an internship since starting in the ID program? Respondents could answer Yes or No. Participants who answered "Yes" were then asked: How did you land your internship(s)? Please select all that apply. Options included: someone personally referred you to the company, you responded to a job/internship posting, you met someone at the company through networking, and an other category with an open response. Three respondents provided "other" answers, which were reviewed by two of the authors and classified within the most appropriate existing category.

Because this study was interested in investigating the role of social connections in internship placement and gender, the responses to this second question were recoded into two categories including: 1) any personal connection involved (including the original responses: someone personally referred you to the company and you met someone at the company through networking) and 2) applied without any personal connection (including the original responses: you responded to a job/internship posting).

The final set of questions focuses on the perceived impact of the internship. Participants were given the following prompt: How would you rank your internship's impact on each of the following? (With 0 showing no impact, and 5 showing maximum impact.). Below the prompt were 3 sliding Likert scales for 1) career/professional learning, 2) benefit to your future, and 3) benefit to your industrial design education.

Analysis Plan

The aim of the analyses was to evaluate whether having an internship, how participants landed the internship, and the perceived impact of the internship varied by gender. Cross-tabulations between the categorical outcomes and gender were conducted and descriptive statistics by gender were calculated for the scale variables. Bivariate logistic and ordinary least-squares (OLS) regression were conducted based upon the outcome variable. For the OLS analyses, the R-squared and effect size (calculated with Cohen's *d*) are provided.

Several sets of sensitivity analyses were conducted. First, a bivariate multinomial regression using three categories instead of two categories for how participants landed their internships was conducted. In this alternative specification the categories included: 1) only applied, 2) only personal connection, and 3) both applied and personal connection. Second, for the binary outcome variables, Chi-square tests of independence and tests of proportions were conducted. Third, because Likert scale outcomes may not meet the criteria for parametric tests, a Mann-Whitney Wilcoxon rank-sum test was conducted on the variables that used the Likert scale rankings.

Findings

Table 1 provides cross-tabulations for the categorical variables (Panel A) and descriptive statistics of the scale variables (Panel B) by gender. The cross-tabulations show that among the 77 participants included in the analyses, 47% were women. In total, 68% of participants had completed an internship ($n=52$) with 63.9% of women reporting an internship compared with 68.3% of men. Overall, more participants reported landing an internship with a personal connection than through applying alone (53%). Among women who had landed an internship, 52.2% reported applying alone and the remaining 47.8% reported use of any personal connection. By contrast, 42.9% of men who landed an internship reported applying alone while 57.1% reported use of personal connections. Importantly, 1 participant did not report how they landed their internship.

With regard to the perceived impacts, only 42 of the 52 participants who had an internship answered these questions. The median scores on these questions differed by gender. On the career/professional learning, the median score for women was 3 versus 4 for men. Similarly, on the benefit to your future

scale, the median score for women was 4.5 versus 4 for men. Finally, on the benefit to industrial design education scale, the median score for women was 3.0 versus 3.5 for men.

Table 2 provides the results of the bivariate analyses using regression. Although the cross-tabulations and descriptive findings suggest potential differences by gender, none of the regression models showed any statistically significant differences by gender. Despite the lack of statistical significance, other indicators provide some preliminary support for the idea that gender may be associated with our outcomes of interest. First, for the binary outcome measures, the odds ratios provide insight into the effect of gender. For example, in this sample, men were 21.7% more likely to have had an internship than women and they were 45.5% more likely to land this internship using a personal connection of some kind. While these values do not rise to the level of statistical significance in this sample, the results are suggestive of potential differences. Second, the R-squared demonstrates that 6.5%, 2.8%, and 1.4% of the variation in responses to the career, future, and education impact scales are attributable to gender, respectively. The estimates of Cohen's *d* suggest small to medium effects, but the confidence intervals around this estimate suggest the results are not reliable.

Sensitivity Analyses

The sensitivity analyses conducted did not differ substantially from the findings presented above.

Interviews

To further understand the experiences of our students, informal, semi-structured interviews ($n=8$) were conducted with 4 students from each participating program, equal numbers of

Table 1. Cross-tabulations and Descriptive Statistics by Gender for All Outcome Variables

Panel A: Cross-tabulations			
	Female ($n=36$)	Male ($n=41$)	Total ($n=77$)
Had Any Internship	63.9%	68.3%	$n=52$
How Participant Landed Internship			$n=51$
Applied Only, No Personal Connection	52.2%	42.9%	$n=24$
Any Personal Connection	47.8%	57.1%	$n=27$
Panel B: Descriptive Statistics			
Perceived Impacts	Female ($N=20$)	Male ($n=22$)	Overall ($n=42$)
On Career			
Median	3.0	4.0	4.0
Minimum	1.0	2.0	1.0
Maximum	5.0	5.0	5.0
On Future			
Median	4.5	4.0	4.0
Minimum	1.0	2.0	1.0
Maximum	5.0	5.0	5.0
On Education			
Median	3.0	3.5	3.0
Minimum	0.0	0.0	0.0
Maximum	5.0	5.0	5.0

Table 2. Bivariate Logistic or Ordinary Least Squares (OLS) Regressions between Outcome Variables and Gender

	(1)	(2)	(3)	(4)	(5)
	Any Internship	How Landed Internship	Perceived Impact - Career	Perceived Impact - Future	Perceived Impact - Education
Gender (Ref= Female)					
Male	1.217 (0.588)	1.455 (0.823)	0.591 (0.355)	0.382 (0.354)	0.364 (0.491)
Constant	1.769 (0.614)	0.917 (0.383)	3.500*** (0.257)	3.800*** (0.256)	3.000*** (0.355)
R-Squared	-	-	0.065	0.028	0.014
Cohen's d	-	-	-0.514	-0.333	-0.229
95% CI			-1.127 - 0.105	-0.941 - 0.279	-0.835 - 0.380
Observations	77	51	42	42	42

Models 1 and 2 use logistic regression and exponentiated coefficients are provided. Models 3, 4, and 5 use OLS regression. Standard errors in parentheses
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

self-identifying male and female students were interviewed. These qualitative interviews were conducted to understand the students' process for finding an internship and their actual experiences if they had or did not have an internship. Students' positive and negative reflections, as well as barriers to participating in internships, were recorded.

Questions that were asked:

- » Can you walk through your internship experience?
- » How did you find internships, and how many did you apply for?
- » Which internships did you apply for? Was it based on...
 - » Who you know, particular interest in the field, geographic location, financial compensation, or something else?
- » How much pressure did you feel to get an internship?

Questions for students who participated in an internship(s):

- » How would you describe the hiring process you went through?
- » How many interviews did you go through? What were they like? Are there any questions that stood out to you in particular?
- » What was your day-to-day experience?
- » How many/what sort of projects did you work on? Who did you work with?
- » What (if any) value did your internship(s) have for your education?
- » What (if any) value did your internship(s) have for your job preparedness?

Questions for students who did not participate in an internship(s):

- » Were internships an option for you while studying ID?
- » Did you apply for any internships? (How many do you think you applied to?)
- » What (if anything) do you think you're missing by not having had an internship?
- » Do you have any sense of why you didn't get an internship? Was there anything in particular holding you

back? (Geography, finances, time, etc.)

- » If you were going to go through the process of applying for internships again, what might you do differently this time around?

Findings from interviews (n=8)

Importance of Personal Connections

- » Personal connections and recommendations were critical for obtaining internships. All students interviewed who participated in an internship (n=5) obtained their internships through their network and personal connections.
- » Mentors simplified and removed barriers for students applying to internships. Mentors would connect students without the students submitting a formal portfolio.
- » Students with mentors connecting them to internships did not apply to other internships.
- » Professional mentors were the most likely connection for internship placement.

Confidence through Internship Experience

- » Initially applying for internships was overwhelming and intimidating.
- » Having internships improved students' confidence and they were more comfortable submitting their portfolios to other internships or professional positions if they are graduating.
- » Students who did not participate in an internship felt less confident than their peers with internships, even if they were not able to participate due to costs or other issues, not because they did not have the same skill sets as their peers who were able to participate in internships.

Value of Internship Experience

- » Internships are highly valued even if they aren't found to be valuable, students reported that they thought having an internship on their resume was critical in their ability to find full time employment after graduation even if they reported that the internship was not beneficial to their education or prepared them for the profession.
- » Female identifying students found the internship experience less relevant to their success as a student or as their success in the future.
- » Students feel unsupported when not assigned a manager, or when their assigned manager is often unavailable.
- » Students reflected that they wanted to feel like they fit into the workplace and culture, specifically women wanted to work with other women.

Discussion

Internships play a pivotal role in supporting students' success in entering the ID workforce. This research reflects inequity for women in ID, specifically the experiences that women are having in finding and then during their internships are not the same as their male counterparts. Male students who had internships were also personally referred to positions 42% of the time, while 30% of our female internship participants were personally referred. Although no statistically significant differences arose from our survey data, trends emerged.

These trends, including male students benefiting from a strong network, with more men participating in internships overall and male students finding the internship experience more beneficial to their education and to their future careers in the field of industrial design, were reiterated during qualitative interviews. The authors believe this discrepancy contributes to women's difficulty entering the field of industrial design at the same rate as their male peers.

Since this research shows the importance of a personal network, specifically mentorship, and how male students are benefiting at a greater rate than our female students it would be beneficial to assess how to expand the networking opportunities for female students. Female students are needing and looking for mentorship and guidance from professional female designers. Making female mentors available for female industrial design students would contribute to building confidence and give them a connection to an employer who values gender diversity. To make changes needed we believe it is not only the responsibility of faculty and students, but also employers can have an impact. This research shows that providing opportunities for their female designers to mentor and represent the design team to students will be beneficial in attracting and recruiting a gender balanced design team.

We found that students felt like they needed more support during the internship experience. There was a difference in women and men's perspectives on the value of the internship. Women saw the internship as an important checkbox for their resume while men seemed to find more value from the actual internship experience, reflecting that it was ben-

eficial to their education and their future. This difference would be worth investigating further in a future study.

Conclusion

This study showed that there is a gender-based disparity in students' experiences with internships. This includes how many students receive internships and how students obtain their internships, with men having more internship experience overall and being much more likely to have more than one internship.

With these results, this indicates a need for further investigation into how to better provide support for students and their search for internships. There is also a need to investigate the disparity in perceived value of students' internships. All of these variables in finding and experiences during internships contribute to inequity which leads to the under representation of women in the workforce.

There is merit in continuing this investigation in:

- » Exploring why demographics for interns is more inclusive than hiring full time industrial designers into the profession
- » Investigating how educational institutions define industrial design internships
- » Expanding to other geographic areas, collecting data from other academic institutions and industrial design firms
- » Assessing portfolios submitted to open positions
- » Interviewing industrial design hiring managers and assessing what the demographics are of new hires vs. interns

References

- Barnhart, B. R. (2022). Application gap: Uneven gender participation in industrial design internships. DS 117: Proceedings of the 24th International Conference on Engineering and Product Design Education (E&PDE 2022), London South Bank University in London, UK. 8th - 9th September 2022. <https://doi.org/10.35199/epde.2022.117>
- Binder, J. F., Baguley, T., Crook, C., & Miller, F. (2015). The academic value of internships: Benefits across disciplines and student backgrounds. *Contemporary Educational Psychology*, 41, 73–82. <https://doi.org/10.1016/j.cedpsych.2014.12.001>
- Coroflot. (2022). Industrial Designer Salaries in United States. Design Salary Guide. Retrieved November 19, 2022, from <https://www.coroflot.com/designsalaryguide/industrial-designer/united-states>
- Hora, M. T., Wolfram, M., Chen, Z., & Lee, C. (2021). Closing the doors of opportunity: A field theoretic analysis of the prevalence and nature of obstacles to college internships. *Teachers College Record: The Voice of Scholarship in Education*, 123(12), 180–210. <https://doi.org/10.1177/01614681211070875>
- Maertz, C., Stoeberl, P., & Marks, J. (2014). Building successful internships: Lessons from the research for interns, schools, and employers. *Career Development International*, 19(1), 123–142. <https://doi.org/10.1108/cdi-03-2013-0025>
- Nunley, J., Pugh, A., Romero, N., & Seals, R. A. (2016). College major, internship experience, and employment opportunities: Estimates from a résumé audit. *Labour Economics*, 38, 37–46. <https://doi.org/10.1016/j.labeco.2015.11.002>
- Page, S. E. (2007). *The difference: How the power of diversity creates better groups, firms, schools, and Societies*. Princeton University Press.