Chapter 4. Engineering for Equity

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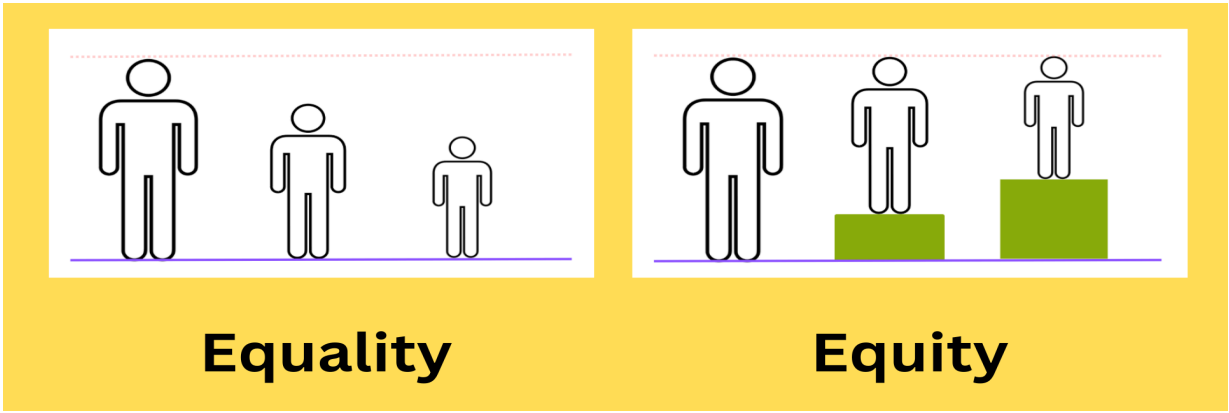

★ In this chapter, we'll discuss the unique responsibilities of an engineer when designing products for a broad base of users.
★ Further, we evaluate how an organization, by embracing diversity, can design systems that work for everyone, and avoid perpetuating harm against our users.
★ Understanding how to engineer products that empower and respect all our users is still something Google is learning to do.
★ We have had many public failures in protecting our most vulnerable users The path forward to more equitable products begins with evaluating our own failures and encouraging growth.

Useful Links:

1. *https://www.google.com/about/careers/applications/how-we-hire*

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Bias Is the Default

- When engineers do not focus on users of different nationalities, ethnicities, races, genders, ages, socioeconomic statuses, abilities, and belief systems, even the most talented staff will inadvertently fail their users.
- Such failures are often intentional; all people have certain biases, and social scientists have recognized over the past several decades that most people exhibit unconscious bias, enforcing and promulgating existing stereotypes.
- Unconscious bias is insidious and often more difficult to mitigate than intentional acts of exclusion.
- Even when we want to do the right thing, we might not recognize our own biases.
- By the same token, our organizations must also recognize that such bias exists and work to address it in its workforce, product development, and user outreach.
- Because of bias, Google has at times failed to represent users equitably within their products

- The lack of representation of such users in our workforce 1 means that we often do not have the requisite diversity to understand how the use of our products can affect underrepresented or vulnerable users.

Google Misses the Mark on Racial Inclusion

- In 2015, software engineer Jacky Alciné pointed out that the image recognition algorithms in Google Photos were classifying his black friends as “gorillas.” Google was slow to respond to these mistakes and incomplete in addressing them.
- As late as 2018, Google still had not adequately addressed the underlying problem
- In all of these cases, the technology itself is not really to blame.
- Autocomplete, for example, was not designed to target users or to discriminate. But it was also not resilient enough in its design to exclude discriminatory language that is considered hate speech. As a result, the algorithm returned results that caused harm to our users.
- How could this happen? After all, Google hires technologists with impeccable education and/or professional experience; exceptional programmers, who write the best code and test their work.
- One way to address these problems is to help the software engineering organization itself look like the populations for whom we build products.

Understanding the Need for Diversity

- At Google, we believe that being an exceptional engineer requires that you also focus on bringing diverse perspectives into product design and implementation.
- It also means that Googlers responsible for hiring or interviewing other engineers must contribute to building a more representative workforce.
- If you interview other engineers for positions at your company, it is important to learn how biased outcomes happen in hiring.

- Engineers should focus on people who are different from themselves, especially people who might attempt to use our products to cause harm.
- Engineering teams need to be representative of their existing and future users.
- In the absence of diverse representation on engineering teams, individual engineers need to learn how to build for all users.

Building Multicultural Capacity

- One mark of an exceptional engineer is the ability to understand how products can advantage and disadvantage different groups of human beings.
- Engineers are expected to have technical aptitude, but they should also have the discernment to know when to build something and when not to.
- We must extend our focus beyond our own communities to the next billion users or to current users who might be disenfranchised or left behind by our products.
- Over time, you might build tools that billions of people use daily—tools that influence how people think about the value of human lives, tools that monitor human activity, and tools that capture and persist sensitive data
- As an engineer, you might wield more power than you realize: the power to literally change society.
- Focusing on underrepresented users is a clear opportunity to promote equity.
- Shifting the focus of your industry experience to include more comprehensive, multicultural, race and gender studies education is not only your responsibility, but also the responsibility of your employer.

- Technology companies must ensure that their employees are continually receiving professional development, and that this development is comprehensive and multidisciplinary.
- Change requires that each of us, individually or as leaders of teams, invest in continuous professional development that builds not just our software development and leadership skills, but also our capacity to understand the diverse experiences throughout humanity.

Making Diversity Actionable

- Systemic equity and fairness are attainable, if we are willing to accept that we are all accountable for the systemic discrimination we see in the technology sector.
- We are accountable for the failures in the system.
- Deferring or abstracting away personal accountability is ineffective, and depending on your role, it could be irresponsible.
- It is also irresponsible to fully attribute dynamics at your specific company or within your team to the larger societal issues that contribute to inequity.
- As a hiring software engineer manager, you're accountable for ensuring that your candidate slates are balanced.
- Are there women or other underrepresented groups in the pool of candidates' reviews?
- After you hire someone, what opportunities for growth have you provided, and is the distribution of opportunities equitable?
- Every technology lead or software engineering manager has the means to augment equity on their teams.
- It is important that we acknowledge that although there are significant systemic challenges, we are all part of the system. It is our problem to fix.

Reject Singular Approaches

- We cannot perpetuate solutions that present a single philosophy or methodology for fixing inequity in the technology sector.
- We must disrupt singular approaches to advancing representation in the workplace, even if they are promoted by people we admire or who have institutional power.
- One singular narrative held dear in the technology industry is that lack of representation in the workforce can be addressed solely by fixing the hiring pipelines. Yes, that is fundamental step
- Also, We need to recognize systemic inequity in progression and retention while simultaneously focusing on more representative hiring and educational disparities across lines of race, gender, socioeconomic, and immigration status
- If you manage a diverse engineering team, focus on psychological safety and invest in increasing multicultural capacity on the team so that new team members feel welcome.
- A common methodology today is to build for the majority use-case first, leaving improvements and features that address edge-cases for later. But this approach is flawed
- Instead, by building in inclusive design from the start and raising development standards for development to make tools delightful and accessible for people who struggle to access technology, we enhance the experience for all users.
- Designing for the user who is least like you is not just wise, it’s a best practice.
- It begins with more comprehensive user-experience research. This research should be done with user groups that are multilingual and

multicultural, and that span multiple countries, socioeconomic class, abilities, and age ranges.
- Focus on the most difficult or least represented use case first.

Challenge Established Processes

- Challenging yourself to build more equitable systems goes beyond designing more inclusive product specifications.
- Building equitable systems sometimes means challenging established processes that drive invalid results.
- On its face, expediting the evaluation process and helping jobseekers save time is a great goal.
- Ratings, although an important way to measure performance during a specific period, are not predictive of future performance, and should not be used to gauge readiness for a future role or qualify an internal candidate for a different team.
- This equity analysis definitely took up significant project time, but the positive trade-off was a more equitable internal mobility process.

Values versus Outcomes

- Google has a strong track record of investing in hiring.
- It also continually evaluates our processes in order to improve equity and inclusion.
- More broadly, Google's core values are based on respect and an unwavering commitment to a diverse and inclusive workforce.
- The struggle to improve its equitable outcomes persists despite the policies and programs in place to help support inclusion initiatives and promote excellence in hiring and progression.

- The failure point is not in the values, intentions, or investments of the company, but rather in the application of those policies at the implementation level.
- So, what's the way out?
    - 1. Take a hard look in the mirror.
    - 2. Don't build for everyone. Build with everyone.
    - 3. Design for the user who will have the most difficulty using your product.
    - 4. Don't assume equity; measure equity throughout your systems.
    - 5. Change is possible.

Stay Curious, Push Forward

- The path to equity is long and complex.
- However, we can and should transition from simply building tools and services, to growing our understanding of how the products we engineer impact humanity.
- Challenging our education, influencing our teams and managers, and doing more comprehensive user research are all ways to make progress.
- Although change is uncomfortable and the path to high performance can be painful, it is possible through collaboration and creativity.
- As future exceptional engineers, we should focus first on the users most impacted by bias and discrimination.
- Together, we can work to accelerate progress by focusing on Continuous Improvement and owning our failures.
- Becoming an engineer is an involved and continual process. The goal is to make changes that push humanity forward without further disenfranchising the disadvantaged.

- As future exceptional engineers, we have faith that we can prevent future failures in the system.

Conclusion

- Bias is the default.
- Diversity is necessary to design properly for a comprehensive user base.
- Inclusivity is critical not just to improving the hiring pipeline for underrepresented groups, but to providing a truly supportive work
- environment for all people. Product velocity must be evaluated against providing a product that is truly useful to all users.
- It’s better to slow down than to release a product that might cause harm to some users.