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Life Lessons from the First Half-Century of My Career

I started my career at Hughes Aircraft in 1972 while working on my Ph.D. at the University of California, Los Angeles (UCLA). After designing airborne computers for four years, I graduated and then taught and did systems research at UC Berkeley for the next 40. Since 2016, I've helped Google with hardware that accelerates artificial intelligence (AI).

At the end of my technical talks, I often share my life story and what I've learned from my half-century in computing. I recently was encouraged to share my reflections with a wider audience, so I've captured them here as 16 people-focused and career-focused life lessons.

Table 1. 16 People-Focused and Career-Focused Life Lessons from David Patterson.

People-Focused	
1. Family first! Don't sacrifice your family's happiness on the altar of success.	**2**. Choose happiness.
3. It's the people, not the projects, that you value in the long run.	**4**. The cost of praise is small. The value to others is inestimable.
5. Seek out honest feedback; it might be right.	**6**. "For better or for worse, benchmarks shape a field."[16]
7. "I learned that courage was not the absence of fear, but the triumph over it."[11]	**8**. Beware of those who believe they are the smartest people in the room.
Career-Focused	
9. "Most of us spend too much time on what is urgent and not enough time on what is important."[4]	**10**. "Nothing great in the world has ever been accomplished without passion."[5]
11. "There are no losers on a winning team, and no winners on a losing team."	**12**. Lead by example.
13. "Audentes Fortuna iuvat." (Fortune favors the bold).	**14**. Culture matters.
15. It's not how many projects you start; it's how many you finish.	**16**. Look for the positive opportunities.

People-Focused

1. Family first! Don't sacrifice your family's happiness on the altar of success. Early in my Berkeley career, a senior colleague and I drove home late from an evening meeting in Silicon Valley. At the end of that long day, as I dropped him off, he remarked: "If I had to do it all over again, I wish I had spent more time with my family."

That was a phrase I never wanted to say.

My wife and I have two sons, and I volunteered for everything: Indian Guides, Cub Scout Den leader, assistant soccer coach, field trips, and so on. When one of my adorable children grew up

to be a rowdy teenager, he accused me of never being around. I went down the list: Indian Guides, Cub Scouts, soccer…he begrudgingly agreed that I was indeed around.

I'm very happy to say that today our sons, their spouses, our adult grandchildren, and their significant others live in four houses over a six-block patch in a small town near Berkeley, and we routinely get together for family events and vacations.

No one's last words are, "I wish I had spent more time at the office." Today, it's even easier to take your work home with you. If family is not your top priority, it can easily drift to the bottom.

2. Choose happiness. If you're unhappy in life, success is much harder to achieve. When I was growing up, the American mantra was that happiness requires wealth. Wealth and happiness are two different goals; we have unhappy billionaires today! I always picked happiness over wealth when there was a choice, and I'm very glad that I did.

While psychologists traditionally focused on mental health problems, more recently they evaluated what makes people happy.[20] Their advice:

- **Have good friends and a good family**. It's hard to be happy if you're isolated or having family problems.
- **Help others**. You feel better about yourself if you help the less fortunate via charity work or donations.
- **Develop a spiritual side**. You don't have to join an organized religion—you can be inspired by the grandeur of nature—but it helps to be aware of a universe that is larger than yourself.
- **Have a job you love**. One reason I got a Ph.D. was to be able to have a job I'd love to do even if they didn't pay me, as is the case at Berkeley and Google.
- **Take time to have fun**. Many adults often get too busy to play. I play Rummikub, go for walks with my wife, and bodysurf, cycle, lift weights, and play soccer on my own. Even now, if I do well in a soccer game, afterward I'm as happy as if I discovered a research breakthrough.

I continue working because I love what I do. I still have a fire in my belly, and, thanks to exercise, my biological age is much younger than my chronological age. Why stop now?

3. It's the people, not the projects, that you value in the long run. When I was finishing my Ph.D. and deciding what to do next, I read a book that surveyed working people to see what they thought of their jobs.[21] My conclusion was that professionals who helped people—like doctors or teachers or ministers—felt really good about their careers, and people who focused on more ephemeral tasks were less satisfied. I went to Berkeley expecting it would be the students and colleagues I worked with who mattered.[14]

I met up with the former dean of our College of Engineering 25 years ago. He told me that upon reflection, it was the people he worked with who mattered much more than his accomplishments. My internal reaction was, 'I already knew that!'

4. The cost of praise is small. The value to others is inestimable. However confident or successful one is, everyone loves praise and approval for a job well done. Praise or any other comments need to be sincere and true; otherwise, people see through them.[3]

A few words of approval or public remarks of praise are highly motivating to everyone. They cost so little, but net so much. Moreover, if the limelight is cast on you, reflecting it to others only brightens it—sharing does not diminish limelight.

5. Seek out honest feedback; it might be right. Getting honest feedback is critical to success. You don't want the first comments on your ideas to come from the decision makers. Remember that criticism of a project or idea is separate from criticism of you as a person. Offering suggestions is an endorsement that reviewers think your ideas are sufficiently interesting to be worthwhile of their time.

Listen hard to the feedback and never push back. At project retreats, the most important session is when we get reactions from outsiders, and we enforce the rule that no one argues with feedback.[15]

For papers, I send drafts to many people for feedback as early as possible. (I sent this article to a dozen.) I especially recruit reviewers who might not be fans, as they'll give unvarnished comments.

6. "For better or for worse, benchmarks shape a field."[16] I coined this phrase for processor performance evaluation because I saw that good benchmarks accelerate progress and bad ones hinder it. But the quote also applies to life.

Bad benchmarks can warp careers. Until recently, one company had a highly visible 10-step technical ladder, which led some engineers to pick projects that were the safest path to getting promoted by avoiding high-risk, high-reward projects. In my opinion, that behavior was bad for their careers and bad for the company. In contrast, Hughes Aircraft followed the Bell Labs model, where the only technical titles were Member or Distinguished Member of the Technical Staff, which did not deter risk taking.

The academic versions of bad career benchmarks—for faculty and their institutions—are "publish or perish" and "dollars or death." When I arrived, I asked what Berkeley values. The answer was "impact: a positive change in the world." It didn't matter about the number of papers or co-authorship with senior faculty, as long as the research had an impact. Papers and funding were the indirect consequences of impact not the actual target.

I loved that advice. I am grateful now for such a good benchmark to start my career. But keep in mind, we as humans ultimately get to pick our own benchmarks, for our personal lives as well as for our careers.

7. "I learned that courage was not the absence of fear, but the triumph over it."[11] If you see an injustice, speak out! Here are a few examples over my career:

- I wrote an op-ed about the downside to California if the legislature kept underfunding the University of California.[17]

- Ed Lazowska and I campaigned to change a new DARPA policy that would have cut academic funding nearly in half. DARPA has long-sponsored breakthrough dual-use CS research that relied on academia, such as the Internet, so this cut would've been bad for the country as well as for universities.[10] Lazowska and I had a hard time finding other leading computer scientists to join us out of a well-founded fear that criticizing DARPA might make it much harder to get DARPA funding. While I had DARPA funding for the prior 20 years, for the next two projects after that op-ed I needed to learn how to raise funds from industry to replace the substantial DARPA funding of the past. I also lost a consulting role from a company with ties to DARPA due to my stance.

- John Hennessy, Maria Klawe, and I wrote an op-ed refuting a (now former) Google engineer who speculated that female software engineers are underrepresented due to inherent biological differences.[6]

- I organized a letter from 25 Turing laureates on how immigration crackdowns were driving away talent and that we should support candidates who would change that policy.[13] Since we were taking a stand in a national election, where nearly half of Americans voted for the other candidate, I received emails attacking my taking a political stand in general and specifically on this election.

One reviewer opined there was no downside of a well-known tenured professor taking such positions, so courage was not involved. As I look back on the first 50 years of my career, I am proud that I didn't let fear of upsetting some people prevent me from taking the stands I took. While you need to act if it's important, try to avoid making enemies when you can, as this proverb warns: "*Friends come and go, but enemies accumulate.*"[8]

8. Beware of those who believe they are the smartest people in the room. Over my career, I've known a few:

- A senior professor who is widely disliked.
- The president of an Ivy League school who was fired.
- The founder and the president of Enron, who are both convicted felons.[12]
- A close relative of an ex-in-law who is also a convicted felon.

Why would these calamities happen? My hypothesis is that it's not that they aren't smart; it's because they think they are smarter than everyone else. They believe there is nothing to learn by asking for feedback, which leads to them making disastrous decisions. Whether or not my diagnosis is accurate, I'd steer clear of such people, as in my experience catastrophe is just around the corner.

At the opposite end of the personality spectrum are insecure people, who I'd also avoid, as they tend to see credit as a zero-sum game, needing to diminish you to bolster themselves. As lesson 14 advises, it's hard to prevent difficult people from being part of a large organization, but you can choose to avoid working closely with them.

Career-Focused

While the following lessons are more career-focused on your career, they may apply to life as well.

9. "Most of us spend too much time on what is urgent and not enough time on what is important."[4] Some work on so many small tasks that their calendars are fully packed with meetings, and they have no time for critical, independent, self-reflective thinking. I know what time of day I am at my best and I protect that time. My brain automatically does background processing overnight on the ideas I'm exposed to during the day, and in the early-morning hours good ideas pop into my head. I get up early, and for two hours I record and act on those ideas. I return to bed and start the rest of my day later in the morning.

Covey uses this quadrant for time management:[4]

Table 2. A time-management matrix created by Steven Covey.[4]

	Urgent	Not Urgent
Important	Necessity	Effectiveness
Not Important	Distraction	Waste

Finding time for important, non-urgent tasks takes more initiative and proactivity than for urgent tasks. Success—in life and professionally—is often determined by making the time for important, non-urgent tasks.

10. *Nothing great in the world has ever been accomplished without passion."*[5] Passion and enthusiasm help in recruiting teammates, securing funding, and pushing projects through the difficult challenges that you must overcome to succeed. My Berkeley career was based on a series of five-year projects where each time the group of faculty involved passionately believed we had a chance to change the world.[15]

11. "There are no losers on a winning team, and no winners on a losing team." I learned this quote from Turing laureate Fred Brooks, Jr., who borrowed it from his university's basketball coach. The idea is that everyone involved wins if your team wins.

I wrestled in high school and college, and despite it being an individual sport, my coaches believed our squad would win more dual meets and tournaments if we bonded as a team. I believe down to my DNA that if a group forms an effective team, it can outperform others who don't jell, independent of the competitors' talents or resources. I strive to find good team players who can collaborate effectively to work on projects with me.

Perhaps my favorite activity is helping my team win. In 2007, Intel and Microsoft held an open competition to fund a $10M research center in parallel computing. Like many of my projects,[15] we formed a strong, multidisciplinary team, as we needed to collaborate in areas slightly outside our

comfort zones and areas of expertise. We then practiced hard to pitch our ideas. One of the proudest moments of my career was receiving a call that the Berkeley team was the unanimous pick to get the center.[1]

12. Lead by example. If you want a high-productivity team, then coaching from the sidelines will only go so far; you have to lead by example. Teams are inspired if you're the first on the practice field and the last one off. Trust also matters, especially in leadership positions. It is much easier to lead if people trust you and your motivations.[7] Whatever behavior you model, the team will seek to display as well.

13. *"Audentes Fortuna iuvat."* (Fortune favors the bold). Vision matters: big things happen from a bold vision. Be curious, as bold visions often start from curiosity. When my colleague Randy Katz got the first new small, cheap hard disk drive for his Macintosh PC, he asked: "***I wonder what we could do with these?***" That curiosity eventually led to a bold vision of fast, reliable, low-cost storage, christened redundant array of inexpensive disks (RAID).[18]

As most research does not have a big impact—otherwise it's not really research—people tend only to remember the rare home runs and not the other at bats. Since there is little reputational downside to missing a home run, if you want impact, why not swing for the fences? It strikes me that hitting it out of the park is more likely if you aim to hit home runs than if you always try to bunt for singles. As Helen Keller put it, aim high, as *"the fearful are caught as often as the bold."*[9]

14. Culture matters. Berkeley Computer Science, Google, and Sun Microsystems all had policies of trying to not hire jerks—they actually use a more graphic term—but jerk filters don't scale well. If you're very careful, you can recruit a group of perhaps up to 10 people with no bad apples, but it's nearly impossible to scale jerk-free to 50 or 100. Thus, it's important to set expectations of good behavior in large organizations. My Berkeley projects recruited students and faculty who played well with others *and* we set social guidelines.[15] I recently heard a story of behavioral norms in action. A friend had been at the same firm as another person before they both joined Google. He remembers his acquaintance *shouting* in meetings at the old place, but is now civil in Google gatherings because its employees are directed to act "Googley."[2]

15. It's not how many projects you start; it's how many you finish. I awoke one sunny morning with this phrase stuck in my head, as if God had spoken to me. Since that epiphany, I make sure I only do one main research project at a time.[5] But this guideline also applies to other responsibilities. For example, when I was chairing the CS Division, leading the Par Lab,[1] being ACM President, refreshing the Tapia Celebration of Diversity in Computing Conference,[19] I did only one at a time, declining other big service tasks so I could finish the one already on my plate. Bear in mind that you will be remembered for the five or six really important things you do, rather than for a long list of minor contributions.

16. Look for the positive opportunities. There are so many things that might go wrong in a project that being positive is the best policy; otherwise, it's very easy to surrender as problems can look insurmountable. I'm a natural-born optimist; my favorite book as a child was *The Little Engine That Could*. I went on a few dates with a girl when we were both 16, and I liked her so much that I asked to be exclusive (we called it "going steady"). Since we were young, her answer was, "Well, Dave, you're such a nice guy, I don't know how to say no." Being an optimist and a logical thinker, not a "no" sounded like a "yes" to me, so I hugged her and said "Great!" She felt pity for me and decided she would let me down gently later. However, we've been married 57 years, and she hasn't let me down yet.

When you've been together that long, people ask what your secret is. It's not that we don't argue; one repeated source of friction is she tells me a problem she is having in the hope of getting empathy and I, as a good engineer, instead try to solve her problem. The secret is what we say *after* we resolve a disagreement. Usually one of us repeats these nine magic words: "I was wrong. You were right. I love

you." No substitutions! The last three words can't be, *"You're a jerk!"* And absolutely no additional use of the word "**but**".

Embracing these 16 life lessons and remembering to say (all of) the nine magic words may, and hopefully will, help you have a blissful, lifelong relationship and a happy, successful career.

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