



Generalist triumph over Specialist

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Abstract: *Jack of all Trade, Master of None. Now that is meant to be an insult. Conventionally, a person is expected to specialise in certain skill and make that a profession. People who hop from profession to profession, from skill to skill are seen as unstable and pursuing a course that is damaging to their career and their contribution. However, David Epstein has written a book that challenges this notion and instead argues that picking several skills and managing several professions, is better as it gives mind a flexibility and versatility that contributes to success more than a mind that is trained in one skill or profession.*

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I. Introduction

Most people plan their career around one skill. Say computer programming or sales or hair stylist or chef or advocate or engineer or chemist or journalist etc etc etc. Even in sports or entertainment people specialize in one area – golf, tennis, football or ballet, guitar etc. In fact the theory that specialisation is the best is so strong that even in a game like cricket, people specialize – bowling or batting. All-rounder's are rare in cricket and almost everywhere.

Experimenting a little bit with various professions or skills is considered blasphemous, sacrilegious and heretical flying in face of conventional wisdom. It is considered dangerous or at least risky to attempt many professions.

David Epstein has written a best seller book “Range – Why Generalist Triumph in a Specialized World”. As the title suggests this challenges conventional thinking and dares people to become a generalist on the grounds that a mind that is trained in different discipline is better able to tackle problems and hence more prized in long run thus paving way for success.

This paper, no doubt, inspired by the David Epstein book explores the generalist vs specialist debate.

Specialist are the norm, Generalist are the exception

The widely held belief that is evangelized to death is that if you want to really excel in certain skill, profession, or talent, the best way is to start early, focus intensely and get lots of practice in that area. Now this skill, profession, talent could be basketball, guitar, ballet, programming, law, chemistry, whatever.

And that seems sensible. After all if a person practices one thing day in day out from noon to night from the age of 5 till 50, that person is going to get better in that area. However if you study the profiles of winners – nobel laureates or professional athletes, most specialized late and experimented with various skills.

This seems counter intuitive. After all if you are studying chemistry all life you will be a better chemist. Similarly if you practice guitar and guitar alone you can play guitar better. And similarly if you play golf you will be better golf player.

This actually brings us to the Tiger vs Roger track of growth. We all know Tiger Woods, the golf player. At the age of two he won his first gold tournament. From then on his father believed that his path to greatness was through the path of golf. Roger Federer grew differently. Though his mother was a tennis coach, she never coached him. He played squash, skiing, wrestling, swimming and skateboarding. He played basketball, handball, table tennis and soccer at school. It was only in early teens that he gravitated towards tennis. Federer gives credit to range of sports he played for helping him develop his athleticism and hand-eye coordination.

Perhaps specialization has its origins in Industrial Revolution. Adam Smith explained in his Wealth of Nations, that if a single worker made the entire pin then few workers could make few pins, but if a single worker focused one tiny operating in pin making then few workers could make lots of pins.

And that is how enterprises are structured. Some people look after human resources, some people focus on sales and some people on production. The idea is specialization hones talents and develops expertise.

However, it must be pointed out that civil servants of governments are best classified as generalists. Yet, one must accept the premise that specialization is the norm, and generalists are the exception. People choose to specialize and believe it is best for their career.

Range: Why Generalists Triumph in Specialized World

Honestly, the book by David Epstein is an outlier in conventional career philosophy that prizes specialisation as path to expertise and thus success. The author of this paper is less capable of putting in exact words why being a generalist is better than a specialist. Hence around 45 quotes from David Epstein's book are included here.

1. You have people walking around with all the knowledge of humanity on their phone, but they have no idea how to integrate it. We don't train people in thinking or reasoning.
2. The challenge we all face is how to maintain the benefits of breadth, diverse experience, interdisciplinary thinking, and delayed concentration in a world that increasingly incentivizes, even demands, hyperspecialization.
3. Like chess masters and firefighters, premodern villagers relied on things being the same tomorrow as they were yesterday. They were extremely well prepared for what they had experienced before, and extremely poorly equipped for everything else. Their very thinking was highly specialized in a manner that the modern world has been telling us is increasingly obsolete. They were perfectly capable of learning from experience, but failed at learning without experience. And that is what a rapidly changing, wicked world demands—conceptual reasoning skills that can connect new ideas and work across contexts. Faced with any problem they had not directly experienced before, the remote villagers were completely lost. That is not an option for us. The more constrained and repetitive a challenge, the more likely it will be automated, while great rewards will accrue to those who can take conceptual knowledge from one problem or domain and apply it in an entirely new one.
4. If we treated careers more like dating, nobody would settle down so quickly.
5. breadth of training predicts breadth of transfer. That is, the more contexts in which something is learned, the more the learner creates abstract models, and the less they rely on any particular example. Learners become better at applying their knowledge to a situation they've never seen before, which is the essence of creativity.
6. Whether chemists, physicists, or political scientists, the most successful problem solvers spend mental energy figuring out what type of problem they are facing before matching a strategy to it, rather than jumping in with memorized procedures.
7. The labs in which scientists had more diverse professional backgrounds were the ones where more and more varied analogies were offered, and where breakthroughs were more reliably produced when the unexpected arose.
8. everyone needs habits of mind that allow them to dance across disciplines.
9. The more confident a learner is of their wrong answer, the better the information sticks when they subsequently learn the right answer. Tolerating big mistakes can create the best learning opportunities
10. Our work preferences and our life preferences do not stay the same, because we do not stay the same.
11. Overspecialization can lead to collective tragedy even when every individual separately takes the most reasonable course of action.
12. Learning stuff was less important than learning about oneself. Exploration is not just a whimsical luxury of education; it is a central benefit.
13. Their findings about who these people are should sound familiar by now: “high tolerance for ambiguity”; “systems thinkers”; “additional technical knowledge from peripheral domains; repurposing what is already available”; “adept at using analogous domains for finding inputs to the invention process”; “ability to connect disparate pieces of information in new ways”; “synthesizing information from many different sources”; “they appear to flit among ideas”; “broad range of interests”; “they read more (and more broadly) than other technologists and have a wider range of outside interests”; “need to learn significantly across domains”; “Serial innovators also need to communicate with various individuals with technical expertise outside of their own domain.”
14. As each man amassed more information for his own view, each became more dogmatic, and the inadequacies in their models of the world more stark.
15. Almost none of the students in any major showed a consistent understanding of how to apply methods of evaluating truth they had learned in their own discipline to other areas.
16. In a wicked world, relying upon experience from a single domain is not only limiting, it can be disastrous.
17. My inclination is to attack a problem by building a narrative. I figure out the fundamental questions to ask, and if you ask those questions of the people who actually do know their stuff, you are still exactly where you would be if you had all this other knowledge inherently.
18. mental meandering and personal experimentation are sources of power, and head starts are overrated

19. Whether or not experience inevitably led to expertise, they agreed, depended entirely on the domain in question. Narrow experience made for better chess and poker players and firefighters, but not for better predictors of financial or political trends, or of how employees or patients would perform.
20. First act and then think... We discover the possibilities by doing, by trying new activities, building new networks, finding new role models." We learn who we are in practice, not in theory.
21. Seeding the soil for generalists and polymaths who integrate knowledge takes more than money. It takes opportunity.
22. While it is undoubtedly true that there are areas that require individuals with Tiger's precocity and clarity of purpose, as complexity increases—as technology spins the world into vaster webs of interconnected systems in which each individual only sees a small part—we also need more Rogers: people who start broad and embrace diverse experiences and perspectives while they progress. People with range.
23. Instead of asking whether someone is gritty, we should ask when they are. "If you get someone into a context that suits them," Ogas said, "they'll more likely work hard and it will look like grit from the outside.
24. Compared to the Tiger Mother's tome, a parenting manual oriented toward creative achievement would have to open with a much shorter list of rules. In offering advice to parents, psychologist Adam Grant noted that creativity may be difficult to nurture, but it is easy to thwart. He pointed to a study that found an average of six household rules for typical children, compared to one in households with extremely creative children. The parents with creative children made their opinions known after their kids did something they didn't like, they just did not proscribe it beforehand. Their households were low on prior restraint."
25. AI systems are like savants. They need stable structures and narrow worlds."
26. Modern work demands knowledge transfer: the ability to apply knowledge to new situations and different domains. Our most fundamental thought processes have changed to accommodate increasing complexity and the need to derive new patterns rather than rely only on familiar ones.
27. Everyone is digging deeper into their own trench and rarely standing up to look in the next trench over, even though the solution to their problem happens to reside there."
28. it is difficult to accept that the best learning road is slow, and that doing poorly now is essential for better performance later. It is so deeply counterintuitive that it fools the learners themselves," 29. the study suggested that "admonitions such as 'winners never quit and quitters never win,' while well-meaning, may actually be extremely poor advice."
30. Struggling to retrieve information primes the brain for subsequent learning,
31. Exposure to the modern world has made us better adapted to complexity, and that has manifested in flexibility, with profound implications for the breadth of our intellectual world. In every cognitive direction, the minds of premodern citizens were severely constrained by the concrete world before them."
32. This must change, he argues, if students are to capitalize on their unprecedented capacity for abstract thought. They must be taught to think before being taught what to think about. Students come prepared with scientific spectacles, but do not leave carrying a scientific-reasoning Swiss Army knife.
33. Mostly, though, students get what economist Bryan Caplan called narrow vocational training for jobs few of them will ever have. Three-quarters of American college graduates go on to a career unrelated to their major—a trend that includes math and science majors—after having become competent only with the tools of a single discipline. One good tool is rarely enough in a complex, interconnected, rapidly changing world.
34. The ultimate lesson of the question was that detailed prior knowledge was less important than a way of thinking."
35. ...he preferred to view his crew leadership not as decision making, but as sensemaking. "If I make a decision, it is a possession, I take pride in it. I tend to defend it and not listen to those who question it...If I make sense, then this is more dynamic and I listen and I can change it."
36. The world is not golf, and most of it isn't even tennis. As Robin Hogarth put it, much of the world is "Martian tennis." You can see the players on a court with balls and rackets, but nobody has shared the rules. It is up to you to derive them, and they are subject to change without notice." "It's easier for a jazz musician to learn to play classical literature than for a classical player to learn how to play jazz," he said. "The jazz musician is a creative artist, the classical musician is a re-creative artist."
37. Specialization is obvious: keep going straight. Breadth is trickier to grow."
38. The sampling period is not incidental to the development of great performers—something to be excised in the interest of a head start—it is integral."
39. A team or organization that is both reliable and flexible, according to Weick, is like a jazz group. There are fundamentals—scales and chords—that every member must overlearn, but those are just tools for sensemaking in a dynamic environment. There are no tools that cannot be dropped, reimagined, or repurposed in order to navigate an unfamiliar challenge."
40. Don't end up a clone of your thesis adviser," he [Oliver Smithies] told me. "Take your skills to a place that's

not doing the same sort of thing. Take your skills and apply them to a new problem, or take your problem and try completely new skills.”

41. Ukrainian boxer Vasyl Lomachenko set a record for the fewest fights needed to win world titles in three different weight classes. Lomachenko, who took four years off boxing as a kid to learn traditional Ukrainian dance, reflected, “I was doing so many different sports as a young boy—gymnastics, basketball, football, tennis—and I think, ultimately, everything came together with all those different kinds of sports to enhance my footwork.”

42. cognitive psychologists I spoke with led me to an enormous and too often ignored body of work demonstrating that learning itself is best done slowly to accumulate lasting knowledge, even when that means performing poorly on tests of immediate progress. That is, the most effective learning looks inefficient; it looks like falling behind.”

43. I propose instead that you don’t commit to anything in the future, but just look at the options available now, and choose those that will give you the most promising range of options afterward.”

44. “Compared to other scientists, Nobel laureates are at least twenty-two times more likely to partake as an amateur actor, dancer, magician, or other type of performer. Nationally recognized scientists are much more likely than other scientists to be musicians, sculptors, painters, printmakers, woodworkers, mechanics, electronics tinkerers, glassblowers, poets, or writers, of both fiction and nonfiction. And, again, Nobel laureates are far more likely still.

45. As the historian and philosopher Arnold Toynbee said when he described analyzing the world in an age of technological and social change, “No tool is omnicompetent.”

Author’s Personal Experience

A research paper is supposed to be original and not a book review. The section above seems like a book review. But the above quotes are given because they express exactly what the author of this paper has arrived at independently of David Epstein.

The author of this paper is not very brilliant or intelligent person by any stretch of imagination. In fact at his engineering college the author was considered to be below average who managed to get good grades because of hard work rather than intelligence. But the author of this paper has already got two doctorates – 1 PhD in Economics and 2nd DBA - Doctor of Business Administration. What is more the author is likely to enter movie industry. What is even more surprising is that the author is likely to get additional 6 PhDs , hopefully, and more interestingly within a year by pursuing the PhD by publication route.

1. PhD in Economics(second)
2. PhD in Engineering
3. PhD in Management(second)
4. PhD in Medicine and Healthcare
5. PhD in Humanities and Social Sciences
6. PhD in Psychology of Religion

It would appear that such a person must be a genius or something. But nothing could be farther from truth. No doubt the author is at least of average intelligence. But that would at best merit a single PhD. What has enabled the author, who by own admission confesses to be of average intelligence to have confidence of acquiring in total 8 PhDs and then attempt a career in movie industry.

It is not the amount of intelligence but what you do with it. Before you presume that the author worked hard, never quit, stuck to one area and mastered it, here is the clue, he did nothing of that sort. In fact the author basically dabbled and experimented and stumbled along in many professions and many skills.

After graduation in chemical engineering, the author worked as chemical engineer and failed at it miserably. But meanwhile, the author experimented with spirituality and religion. Then the author became a logistics officer handling movement of trucks. And then the author attempted civil services examination. But instead of choosing Physics or Maths or Engineering, he chose Economics and Management. Of course for civil services he had to additionally study General Studies. Then the author entered IT company in Sales. After a year the author switched to computer programming and software engineering. Then the author switched to account management and project management. And after that he became a business planner reporting to managing director. Just when you thought he was at peak of corporate career, the author got into economics research with economic advisor to Prime Minister. By the way the author also dabbled with entrepreneurship on the way. When you thought the author had enough, he became a journalist. By the way all through the author was keenly involved in social work and charity. But journalism was not enough of change for an engineer. The author threw up the comfortable journalist job to become an activist advocating on social issues with government. After failing at advocacy, the author returned to corporate world, to learn and teach creative thinking. But that was not the end of it. The author then started content writing for NGOs, worked in 3 startups in quick succession. Then came a phase when the author was juggling 3 jobs at the same time. Of course for long periods of time the

author was struggling with career and working at jobs with very low salary. In fact the author was working in a call centre and data entry unit at a salary of someone with 12 years education and salary which was 1/100th of salary had the author continued to pursue conventional career of specialist. Of course there were times when the author worked from home as freelancer. In total the author must have switched over 25 jobs.

But then at the age of 54 the author already has 2 Doctorates – 1 PhD in Economics and 1 DBA – Doctor of Business Administration. And what is more the author is likely to get 6 more PhD by publication in diverse areas – Economics, Psychology of Religion, Humanities and Social Sciences, Engineering, Medicine and Healthcare and Management. And top it all the author plans to enter movie industry. So all that experimenting does seem to be paying back in full measure. After all 8 PhDs is nothing to scoff at , especially from someone from Movie Industry.

The author credits all this with experimenting with different skills, professions and talents. The author is incapable of explaining why being a generalist thus helps achieve greater success. However that task is best done by the David Epstein book : Range – Why generalists triumph in a specialized world. But the author has lived the book and found that its principles work.

II. Conclusion

Specialists may get advantage initially in career, but in long run generalists who develop skills in different domains are more likely to succeed as mind that dances across different disciplines is capable of greater successes than the mind that focuses on one domain.

References

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