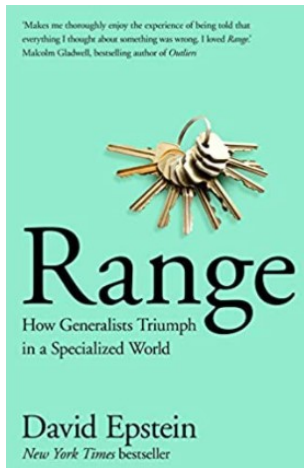




Title, Author: Range – How Generalists Triumph in a Specialized World, David Epstein

Published: 2019, Riverhead Books (Penguin Random House)

The book starts with a very interesting comparison between Roger Federer and Tiger Woods. Tiger Woods is an early specialist, who started training at the age of 3. He was trained by his father not only in Golf, but also in media interviews about how to give succinct answers, nothing beyond what is required. On the other hand, Roger played all kind of sports – tennis, football, skiing, basketball, handball, badminton in his early years. He started focusing on tennis much later in his mid-teens. Despite starting late, it doesn't

seem to hamper his game in any manner. He is still playing at the age of 39, when most other tennis players have already retired.

The idea of this example is to show that early specialisation is good, but people with broad range of skills, diverse experiences also do well. And this is the objective of the author – he tries to put together many examples to show we need more and more people with RANGE. In the book, the author brings many stories from diverse spheres – sports, music, science, creative arts, to drive home his point – we need breadth and not just depth in this world which is moving towards hyper-specialisation. I would like to put forward some of his key tenets in the following paragraphs to elaborate further.

Kind & Wicked Domains: A “Kind” Domain is a learning environment, where patterns repeat over and over, and feedback to correct is very accurate. For example, in Golf and Chess, a ball or piece is moved as per the rules which are within the pre-decided boundaries. Similarly, surgeons improve with repetition of the same procedure. Accountants, poker players develop intuition through repetitive experience. However, in a Wicked Domain (Unkind Domain), the rules are unclear and incomplete. The patterns are not repetitive and thus feedback is not very accurate. When people with narrow specialisation operate in an Unkind Domain, their bias to use the experience they learnt in the Kind environment can backfire horribly. In a new situation or a problem, people with a broad range of knowledge can better navigate the problem.

This brings us to an important question: do we need more people with narrow specialisation especially in this world of technology and artificial intelligence? In 1997, Deep Blue defeated Garry Kasparov, as Deep Blue evaluated 200 million positions per second. Then in a 2004 freestyle chess tournament, 2 amateurs with the help of 3 computers were able to defeat a team of grandmasters also using computers. How? Because the 2 amateurs were able to utilize or guide computers on what to analyze and use that to prepare the next move. With the help of technology, they were able to overcome grandmasters' multiple hours of specialised pattern recognition.

Another point on which the book provides insight is on early vs. late specialisation. It mentions a study by Ofer Malamud, Economist at Northwestern University, who studied the British school system. He found that in England/Wales, students apply to a particular field of study at university based on the knowledge or exposure they had in high school. However, Scottish students were actually required to study different fields for the first two years of university and could keep sampling even beyond that. Thus, students in Scotland majored in

subjects that didn't exist in high schools, such as engineering. Adults in England/Wales were more likely to get detached and move often from the chosen fields than Scottish counterparts. Did early specialisation help English students monetarily as they settled earlier? No, because Scottish students caught up despite starting late.

This idea is best captured by a thought-provoking speech by Paul Graham, computer scientist & co-founder at Y Combinator (start-up funder of Airbnb, Dropbox, Stripe & Twitch). Although he wrote this but could not deliver it. *"It might seem that nothing would be easier than deciding what you like, but it turns out to be hard, partly because it's hard to get an accurate picture of most jobs...Most of the work I've done in the last ten years didn't exist when I was in high school ... In such a world it's not a good idea to have fixed plans."*

Not every problem is solved by specialists; there are many examples where outsiders (have delivered solutions. In 2001, Alph Bingham, VP – R&D of Eli Lilly & Co posted certain problems on the website for anyone to see. Lots of answers came in from varied fields and it made Eli Lilly spin off the entity as a new company called Innocentive. It is a crowdsourcing platform for innovation; it facilitates entities in any field acting as 'seekers' paying to post 'challenges' and rewards for outside 'solvers'. In another such example, scientists at NASA were unable to predict solar particle storms, radioactive material spewed by the Sun that damaged astronaut equipment for the last 30 years. NASA posted the problem on Innocentive in 2009. Within 6 months, it was solved by a retired engineer using radio waves picked up by telescopes. Since we have invested time and money in something, we are reluctant to let it go. We tend to look at the minute details and overlook the basic problem.

Polymaths: Andy Ouderkirk, a senior scientist at 3M, having 308 patents as of September 2020, also investigated inventive teams, ingredients of invention and individual inventors along with two other experts. They profiled two types of inventors – very specialised (focused on a single technology) and generalist (worked across various domains, but not specialising in anything). Specialists worked on a difficult technical subject, whereas generalists added value by integrating domains, taking technology from one area and applying to another. They also categorized one more type of inventor: "Polymaths" – broad with at least one area of depth. Since Polymaths had depth in one area, albeit not as deep as specialists, they (Polymaths) still had patents in that. Also, as they had broad knowledge of many domains, they were able to do it better than the generalists also.

To conclude, this book explores how to cultivate that broad range of knowledge, how to get diverse and inter-disciplinary experience in a world which is getting hyper-specialised. I thoroughly enjoyed reading the book and realise how we all tend to be narrow thinkers at times. There is no reason to feel behind in any field. There's nothing wrong with specialisation; however, the way the world promotes early and hyper specialisation is worrying. Generalists are also needed in this world as the book clearly articulates. Broad coverage is better than depth.

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