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*Range - Why Generalists Are Better Problem Solvers*

*Range* by David Epstein was a book that covered the ways in which generalists triumph those who hyperspecialize because of their adaptability and application of knowledge. Epstein primarily argued that generalists perform better when faced with problems; he also made a secondary argument that those who learn to work with what they are given are successful because of their ability to innovate.

A useful definition of hyperspecialization that Epstein provided was in the form of an analogy: “Everyone is digging deeper into their own trench and rarely standing up to look in the next trench over, even though the solutions to their problems happen to reside there,” (Epstein 13). He argued through this statement that when someone follows one track, they reach a point in which they are unable to solve their problems because they do not have anything other than that track to rely on. Rather than specializing, Epstein reasoned, people must learn how to integrate broad ideas (Epstein 29). Generalists are able to apply knowledge from multiple areas to a single problem, rather than from a singular mindset.

Epstein specifically mentioned education as a field where hyperspecialization is encouraged but should strive to encourage generalism. In this sense, students do not *need* to take classes that are opposite from their field of study, but they should take classes outside of their majors in order to develop interdisciplinary thinking and learning habits (Epstein 49). At the

University of Chicago, students participate in a two-year core in which they study inquiry in most disciplines (science, mathematics, and social sciences to name a few). They do this not to gain knowledge of every discipline, but rather to learn how to ask fundamental questions about how society functions from different standpoints (Epstein 49). Through speaking to professors and psychologists, Epstein realized that myopic mindsets are not only the fault of students who want to study their topic and graduate, but also of professors. Professors are already specialized in the courses they teach and they are eager to share their infatuation with students; however, even when they attempt to show students how ideas could be integrated into the world beyond their speciality, they tend to bury those thoughts with specialized ideas (Epstein 49-50). This leads one to wonder what universities can do to discourage myopic outlooks.

Bridgewater College is a liberal arts institution and uses Foundations in Liberal Arts (FILA) to help educate the whole person. In general, college tends to promote myopic thinking because students either begin with a major or must declare a major and are then required to enroll in specific courses in that field of study. FILA requires students to take courses in categories such as global dynamics, world cultures, ethical reasoning, and fine arts so that they can apply ideas from different subject areas to other aspects of their education. Students seem to dislike taking general education classes as it forces them to take classes in disciplines they may not enjoy, but those classes often teach them valuable information and skills.

Taking general education classes is much like what Epstein referenced as a “sampling” period for musicians. In a sampling period, musicians start with little structure in order to sample different instruments, and then later choose one and narrow their focus (Epstein 67). For my global dynamics course, I took Introduction to American Studies. I was not excited to take the

class, but I ended up loving it. American studies is interdisciplinary (it covers sociology, history, english, and more), so I find myself making connections to American studies quite often in my other classes. I now have an American studies minor, which is completely different from my mathematics major, but I feel more well-rounded because of it.

Epstein also mentioned other reasons why generalists fair well in society. First, he argued that well-rounded individuals have a “variety of base domains” that allow them to think in terms of analogies so that they are able to adapt to situations through categorizing problems they face (Epstein 115). He also talked about how when specialized people are faced with issues they do not know how to handle, they tend to regress to what they are trained to do (Epstein 254). He exemplified this through fire fighters and plane jumpers on rescue teams who were unwilling at the start to let go of what they previously knew in order to innovate for the problem at hand. These situations remind one of the dangers of “If it ain’t broke, don’t fix it” and of one-track minds.

While Epstein’s primary argument was about the dangers of specialization, he subtly argued that people who use what they are given to solve problems are successful. As a mathematics major, I was particularly intrigued by this discussion. Maryam Mirzakhani loved reading and writing, and was not interested in mathematics. Once she started mathematics, however, she ended up enjoying it. She provided a great analogy in saying, “It is like being lost in a jungle and trying to use all the knowledge you can gather to come up with some new tricks, and with some luck, you might find a way out,” (Epstein 166). This concept reminds me of a Socratic seminar, a skill that we practiced in one of my classes, which was discussed by Epstein.

In an eighth grade mathematics class, students were learning variables and how to create expressions in terms of variables. They seemed to understand at first, but they were actually exhausting everything that they could guess until they guessed correctly. Rather than forcing the students to think critically about how to form the correct answer, the teacher steered them in the right direction through their guesses (Epstein 79-81). On the contrary, another teacher practiced a strategy in which instead of multiple choice, when a student had a suggestion, they had to come to the board and put a magnet next to their idea (Epstein 83). At the end of class, one problem would be displayed on the board with the ways in which students attempted to solve it, even when they reached dead ends (Epstein 83). This way of teaching is called the “generation effect” and shows that even if a student struggles to generate their own answer, they still learn in the process (Epstein 85). Students of Socrates practiced the same idea, as stated by Epstein: “Socrates was apparently on to something when he forced pupils to generate answers rather than bestowing them,” (Epstein 85). I have firsthand experience with this learning method.

Last semester, I took a mathematics course titled Modern Algebra. The course was abstract and theoretical, so there were many proofs involved. Prior to the course, if there was a proof that I did not know how to start, I would immediately shut down and tell myself I was unable to complete it. Many days in Modern Algebra were devoted to Socratic seminars. Though they were frustrating on occasion because the class felt like we were not making any progress, those were the days when we learned the most. We may not have learned much material, but we did learn how to think critically and how to solve problems. For each proof, we would look at what we were given and then we derived as many new expressions or thoughts as we could, even if we thought they might not be relevant in the end. This proved to be helpful to my learning

process, because now when I am faced with a difficult problem, I automatically gather what I am given and attempt to use that to figure out as much as I can.

Finally, while Epstein showed how Socratic learning can help with students, he also detailed how working with what you are given works in the professional realm. Gunpei Yokoi worked for Nintendo. He displayed lateral thinking, which Epstein defined as “reimagining information in new contexts, including the drawing together of seemingly disparate concepts or domains that give old ideas new uses,” (Epstein 193). Rather than using cutting-edge, expensive technology to design gadgets, Yokoi pieced together cheap and simple technology (Epstein 194). He used that philosophy to design the Love Tester, a toy that tested how “compatible” two people were just using conductive handles and a gauge.

Eventually, Yokoi designed the Game Boy, which is arguably one of the most popular handheld gadgets of all time. Though it was ugly and lacked sharp technology, it was popular because it was cheap, small, and difficult to break (Epstein 196-197). Time and again, Yokoi used what he was given to invent new devices. Anyone could use new technology, but it is important to know how to integrate and innovate technology first. This point was later summarized with the quote, “You have people walking around with all the knowledge of humanity on their phone, but they have no idea how to integrate it,” (Epstein 277). In this regard, Yokoi understood that new technology could be used by other companies, but if they could not learn how to integrate it, it was no better than using what he was given.

I thoroughly enjoyed this book. Epstein did a fabulous job of highlighting potential dangers of specialization *and* the ways in which they can be solved or prevented. He explained that specialization is not terrible, but too much could create issues. He provided a variety of new

learning techniques that one can apply to their own life. My only concern with the book is that I wish there would have been more examples of ordinary people who were more successful because of generalization. I understand that stories involving famous people probably have more weight in proving his point, but I also felt that Epstein romanticized generalization as something that is easier than it actually may be. Before reading, I never would have thought that generalists perform better. I definitely fall victim to specialization and a myopic view because I want to have control over how things happen in my life. I am just like the specialists who regress to what they know when they are faced with a new problem.

After reading *Range*, I have a few questions. What are high schools doing to encourage generalization? Are they even attempting to do so, or are they still promoting specialization? When I was in high school, we were encouraged to think about what we wanted to do in the future, and not encouraged to think of a variety of subjects. I also wonder why I do not hear more stories about successful generalists. Is that because our role models are those who worked hard in one area and the “American dream” is to work hard and then reap the benefits? Finally, I wonder how one would increase their range if they do not realize until later in life that being a generalist often makes a person more successful.

Overall, *Range* was an informative book and was well written. The book enhanced concepts that I have already practiced or thought about and also taught me a variety of new practices that I will use in the future. I tend to give up easily sometimes, but sometimes I also force myself to work too hard for something that I do not enjoy just because it was in my original life plan. *Range* helped me realize that, and since it detailed evidence through studies conducted, I will likely reference the book and the studies in my conversations with others.

Works Cited

Epstein, David. *Range: Why Generalists Triumph in a Specialized World*. Penguin Publishing Group, 2019.