Introduction

A group of scientists in Seattle were trying to create a vaccine for the HIV virus, and they came across an enzyme that they thought might play a significant role. In microbiology, the shape of enzymes matters because they work like locks and keys. Therefore, the scientists needed to know the shape of this enzyme. They worked on it for a long time but couldn't figure out its exact shape, even after creating complex computer models of it. The project went on for ten years with no solution. Out of a sense of urgency, the scientists decided to open the project to the public to see if others could help. They took their computer models, put them in a game, and released the game publicly to video gamers. In three weeks, the video gamers had solved the puzzle.

Let's think about this for a moment. Microbiologists tend to be pretty smart people and are definitely specialists in their field. After ten years, they could not solve the puzzle of the shape of this enzyme. But video gamers were able to solve it in just three weeks. Is this because video gamers are smarter than scientists? Not necessarily. Let's look at a similar story about solving difficult problems.

Timothy Gowers is a celebrated mathematician. In 1998, he won the Fields Medal, which is like the Nobel Prize for mathematics. In the field of mathematics, there are many difficult problems that go back many decades. Very capable and very smart mathematicians have tried to solve these problems but have been unable to do so. Gowers decided to do what the scientists in Seattle did and invite the public to help with these long-standing problems. Terence Tao, another Fields Medal winner, joined the group, and many others, from college professors to high school math teachers to common hobbyists. One would think that Gowers and Tao, the two smartest mathematicians in the group, would have been able to solve the problems all by themselves, but it didn't turn out that way. Those two certainly made the majority of contributions, but it took contributions from a whole range of people to make progress. The group, called Polymath, solved some of the problems and at this writing has six publications in mathematics journals.

What we see in both of these examples is that some of the smartest people around could not solve very difficult problems on their own. And when they opened the process to a wider range of people, they suddenly made progress. Why? What happened? Why did adding more people yield better results than just having a small group of very smart people? Let's explore this question.

I found these two stories in the work of Scott Page, an economist and political scientist at the University of Michigan. He studies diversity, and he and Lu Hong, a mathematician, have used mathematics to demonstrate that diversity is more effective than sheer intelligence when trying to solve difficult problems. In other words, if you have ten of the smartest people in a room working on a difficult problem but they all come from more or less the same background, they will be less successful in solving the problem than ten less smart people of more diverse backgrounds. I think this is an important insight.

Page says that when we think about diversity, we usually think of identity diversity—gender, age, ethnicity, sexual orientation, etc. What matters most, though, is what he calls cognitive diversity. Cognitive diversity has two aspects, according to him: perspectives and heuristics. Perspectives are how we organize information in the world, classifying it, arranging it, associating some items and disassociating others. Heuristics are how we process the information that we have already organized in order to solve a problem. Heuristics are like a problem-solving toolbox.

As an example, suppose you are going up a hill and there is an obstacle in the road, such as a giant boulder. You wonder how to deal with the boulder and realize you have a hammer. You use the hammer to pound on the boulder, but it has little effect. Suppose there are nine other people with you, all with hammers like yours. Together you pound on the rock, but still it is largely unaffected. Now suppose ten people come up behind you. One of them has a hammer, but they also have many other tools, such as a portable drill, a rope, a crowbar, even a drone. With all of these different tools, the second group of ten will be more likely to solve the problem of the boulder; one of them might even think to use the hammer as a lever.

Identity diversity is not necessarily unrelated to cognitive diversity—in fact, increasing identity diversity often helps increase cognitive diversity—but they are also not necessarily related, so the emphasis for effective problem solving should be on cognitive diversity.[1]

In philosophy, we have many difficult problems to solve. In fact, that's what philosophers do—we find the hardest problems and we try to make progress on them, and not only in the field of philosophy. Philosophers cross over just about every boundary, working for example in health care ethics, in law, in biology, in physics, etc. We've been trying to solve difficult problems for hundreds of years. I think that we can use Page's insights to improve our problem-solving ability, not just in philosophy but across academia.

Let's think for a moment about how learning is constructed and organized in academia. Suppose you are a biologist. In your training, you are taught by your teachers to see problems as a biologist sees them. When you look at a living creature, you view it in terms of cells, tissues, organs, organ systems, species, etc. Why are you taught to view life this way? Because most of the time, it is the most effective way of making progress in biology. But now suppose you are faced with a long-standing problem that no biologist has been able to solve. In the end, it turns out that the best way to solve the problem was to view it in terms of information rather than cells and organs.

In physics, you are taught to see certain phenomena in terms of discrete bodies that bump into each other in law-like ways. Then some experimental results turn out to involve randomness. Now how should the phenomena you study be thought of?

In field after field, there are acceptable methods, which are really habits of thinking, beliefs about the best way to get results and make progress. In this sense, we are all indoctrinated into the dogmas of our fields, making it so that there is a lack of diversity in each field. This is why universities often promote interdisciplinary studies. They are trying to get people from different disciplines to talk to each other in order to catalyze new ideas.

Now consider where our disciplines come from. Every university is organized into fields of study: biology, physics, anthropology, literature, philosophy, etc. Each of these fields, along with universities themselves, arose in its modern sense in the West—in Europe and America. That means that as you are indoctrinated into your field within any university around the world, you are also indoctrinated into a way of thinking that has its roots in the West. Even if you were raised in China, when you study biology, you are taught to think like a biologist, and because biology arose in the West, it has naturally inherited certain assumptions going all the way back to the Ancient Greeks.

We are taught in high school that the scientific method is free of bias and so is free of unfounded assumptions. But this is naive. In order to do science well, as we've seen, one must approach every step in any field largely from the point of view of one's predecessors. No one can start over from scratch. We all inherit the assumptions of our teachers.

Now consider that in addition to what occurred in the West, in places such as China and India, great intellects have been thinking about problems of the human condition for thousands of years. Around the world, very smart people have been working on very difficult problems and have written down their results in what we now call literature, philosophy, religion, and history. This is a great reservoir of cognitive diversity—of perspectives and heuristics. But we throw all of that aside when we do biology, or physics, or sociology—even contemporary philosophy. The main claim in this book is that recovering some of these ancient insights can help us make progress in intellectual endeavors today—together, they can act as a new cognitive toolbox to help us with exceedingly difficult problems.

If Page is right that increasing cognitive diversity can help us solve difficult problems, and if ancient culture is a reservoir of cognitive diversity, then it only makes sense to study ancient culture and apply its perspectives and heuristics to problems today.

In what follows, I will give you concrete examples of this. I will show how I have taken a key idea from early Chinese philosophy and applied it to contemporary philosophy of action, cognitive science, and aesthetics. In each case, I will show how introducing the idea exposes some unseen assumptions in the field and helps us make progress in it. The point is not just to show how it might be possible to do this but how it has actually been done.

In chapter 1, I introduce the idea of *ziran* from early China. I explain in detail what it means in the context of early Chinese Daoism, then I canvass the Western philosophical tradition for close equivalents, showing why a number of seemingly good candidates are actually significantly different. I thus establish that the idea of *ziran* is a unique intellectual resource for topics of action, attention, and aesthetics. In chapter 2, I apply the idea of *ziran* to a long-standing paradox in Western philosophy and show how the paradox can be solved by introducing this idea and how the idea can help us make further progress in the philosophy of action. In chapter 3, I apply the idea of *ziran* to contemporary cognitive psychology, exposing hidden assumptions about attention and showing how the field has been advanced by introducing this idea. In chapter 4, I apply the concept of *ziran* to contemporary art and aesthetics, delineating a new kind of art and clarifying the notion of improvisation.[2]

This book is a transcription of talks given at Shandong University, China, and National Chengchi University, Taiwan. The talks were intended to be a unified and simplified statement of ideas that are already in print in several different publications. Their unity in one place in a less technical idiom allows the reader easier access to the project, which is to use the tools of comparative philosophy to import a significant intellectual resource from a premodern non-Western culture into the contemporary intellectual conversation. In creating and delivering the talks, I attempted to take the ordinarily complex and technical form of academic writing and strip it down to its bare essentials, to say only as much as necessary to make my points, with no complex elaborations or technical asides. The full publications from which the various chapters of this book are derived are mentioned in the final pages of the book. Readers are encouraged to turn to them for more detail.