

Summary: The End of Average, Todd Rose (2016)

According to Rose, we are on the brink of a new way of seeing the world, a change driven by one big idea: individuality matters. This means no one is average. This simple notion has enormous practical consequences for the way we organize, among other things, education and work. For this, we can not afford to ignore this book.

Rose emphasizes that average is useful in some cases. For instance if you are comparing two groups of people, as opposed to individuals in those two groups. However, the moment you need *an* individual in *a* specific role, like *a* pilot, *a* doctor, *a* plumber, the moment you need to teach *this* child or decide whether to hire *that* employee, the average is useless. Even more so, it disguises what is most important about an individual.

The rise of averagarians

In 1819 Quetelet started developing the field of social science by borrowing astronomy's method of averages and applying it to people. Following this reasoning he founded the concept of the "Average Man"; Determining the ultimate male body by averaging the physical measures of thousands of male bodies. *From that moment on the average became normal and the individual became error.*

In 1851 it was Galton, who extended the scope of the use of averages towards mental measures and introducing the notion of people being either superior (above average), mediocre (around average) or imbecile (below average). With this he assumed that if people are found to be imbecile, mediocre or superior at one thing, they are assumed to be the same at all things.

Although the assumptions underneath both notions sound rather bold and some arguments against these assumptions could be heard at the time, in the dawn of the 20th century these averagarians ideas became leading in the development of some of our most influential social systems: education and work.

In 1880 Taylor successfully introduced the idea of scientific management; Standardizing work for ultimate efficiency, assigning all planning, control and decision making to managers and, with that, placing systems above man.

The Tayloristic thinking subsequently provoked the standardization of education, letting Thorndike - one of the most influential people in the history of education - to believe that the main goal of education is to sort young people according to their ability, so that they could efficiently be appointed to their proper station in life, whether manager or worker, and so the educational resources could be allocated accordingly. It is painfully ironic that one of the founders of modern education believed schools could do little to change a student's abilities. Although by now we all seem to believe that education has

the power to change lives or as Mandela once put it “The most powerful weapon to change the world.”, Thorndikian rankings are still at the core of our educational systems today. From our earliest grades, we are sorted according to how we perform on a standardized curriculum designed for the average student, with rewards and opportunities for those who exceed the average, and constraints and condescension heaped upon those who lag behind.

Exposing the error of averagian thinking

The power of averagian thinking has led many to ignore contrary observations. Fortunately, over the last decades the voice of the individualist has become louder and louder in a variety of fields, revealing the unjust and dangerous use of the average.

During WWII many airplanes crashed due to what were perceived as human errors. This lasted until a bright young scientist decided to research individual measures of pilots, finding that no one pilot was found to have the exact measures of the “Average Man”. After altering cockpits to fit the various different physical measures of pilots, like their arm length and height, significantly fewer airplanes crashed. A comparable finding was done in the field of neuroscience. Where after measuring thousands of brains to map the average brain, it was found that not one brain looked like this average brain. This means that doing research or, even worse, executing brain surgery based on the average brain will never give the desired result. Based on avagerian insights it was long believed that the walking reflex of babies that can be seen in the first weeks after birth and just before they actually start to walk, had to do with key neurological processes. This belief was so strong that doctors told the parents of children that had the reflex for a longer period after birth than the average child, that they probably had a neurological problem. It was only after a young scientist decided to dive into the individual cases, that it was found that the absence of the reflex had to do with the relative chubbiness of the babies’ thighs which naturally differs per child. Last but not least, several well known companies like Google, Deloitte and Microsoft found that ranking their (potential) employees on only one scale, like diploma’s or monetary targets, seriously reduced their companies overall results and they missed out on great talent. Microsoft even refers to the period in which they used “stack ranking” of employees as “the lost decade”.

Resetting the way we think about individuals

In 2003 Molenaar introduced the notion of “the ergodic switch”, stating that the fatal flaw of avegerians is the assumption that you can understand individuals by ignoring their individuality. The ergodic theory is a physics theory stating that you are allowed to make predictions about individual particles if 1) every member of the group is identical and 2) will remain the same in the future. It is easy to see this doesn’t apply to individual people, but what is the practical consequence of this ergodic switch? Imagine you want

to reduce the amount of errors you make in typing by changing the speed of typing. Using the averaging approach you find that faster typing is associated with less errors. This group level conclusion, however, is of course not applicable on the individual level - speeding up your typing won't lead to less errors. On the contrary it will cause you to make more errors. Hence, the ergodic switch. "This is how we ended up with an average body that matches no man's body, brain models that match no person's brain, standardized medical therapies that target no bodies physiology, financial credit policies that penalize credit worthy individuals, college admission strategies that filter out promising students, and hiring policies that overlook exceptional talents." (p.65) The important learning here is that social scientist that seek to draw conclusions on the individual level should first analyze individual cases and then aggregate, to prevent the averagerian error.

The principles of individuality

This is an interesting and helpful notion for social scientist, but how can we as learners and workers change our averagerian thinking in practice? For this, Rose elaborates on three principles of individuality: the jaggedness principle, the context principle and the pathways principle.

The *jaggedness principle* holds that we cannot apply one-dimensional thinking to understand something that is complex or *jagged*. Something is *jagged* if it 1) consists of multiple dimensions and 2) the dimensions are relatively independent (weakly correlated). It has been found that most of both physical and mental characteristics are jagged, which means that Galton's idea that a person is either imbecile, mediocre or superior in general is false. It also means that it is hard to conclude if one person is bigger or smarter than another person, and that this sort of statement is mostly uninteresting since it doesn't go into detail about what dimensions are different and how much. The bigger person can still have shorter arms and the smarter person can still have less arithmetic skills. This principle leaves Rose to conclude that "*the real difficulty is not finding new ways to distinguish talent - it is getting rid of the one-dimensional blinders that prevented us from seeing it all along.*" (p. 94)

The *context principle* holds that traits are a myth and should always be seen in context. Although appointing traits and characteristics to people is a natural psychological and mostly unconscious process, Rose proposes that we should instead use if-then-reasoning. For example IF Jack is at work, THEN he shows mostly introvert behaviour. Remembering that we only see others we interact with in a certain context will help us to be more compassionate and understanding, but also to match people and context for the sake of their work and learning efficiency and happiness.

The pathways principle holds that there is not a single, normal pathway for any type of human development - biological, mental, moral or professional. This means 1) that in all

pathways of life and for any given goal, there are many, equally valid ways to reach the same outcome and 2) that the particular pathway that is optimal for you depends on your own individuality. This is the principle that will help us to redesign education past Thorndike's goals and to consider the pace and ways in which various people are learning. For this, an important notion is that although there are many pathways, many still can be identified as 'webs of development' meaning to describe several pathways and their interrelations in order to support various people in their development.

The consequences for work

Emphasizing three different cases Rose demonstrates that even in industries or countries where it seems like following the averagarian model is the only profitable way to do things - or, at the very least, the best way - applying the principles of individuality can produce just as good if not better results. Rose notes that adopting an individualistic approach doesn't mean to replicate what these companies are doing. Individuality demands that you think about what the principles mean for your particular company. He states, that it is possible for any company to implement these principles, and that when they really invest in individuals, their employees will become loyal, driven, passionate and more productive.

The consequences for education

Those who claim our educational system is broken for not acknowledging talent in a broad scope are fundamentally wrong. It is working perfectly fine for the goal it was designed for by Thorndike. Regardless of what schools, colleges and universities see as their mission today, the system on which they are built was designed for sorting purposes.

For this, we need to rethink and redesign educational system as a whole. Already in 1980 Bloom - another influential figure in the field of Education - argued that by demanding that our students learn at one fixed pace, we are artificially impairing the ability of many to learn and succeed. However, Bloom also concluded that it would be prohibitively complex and expensive to convert or fixed-pace standardized education system into a flexible-paced one. Fortunately, with the state of technology today, it is rather easy to support a flexible-paced system that aims to develop each and every single individual to become valuable citizens and loving, happy people. Moreover, with the current pace of technological developments it can be expected that this new system can be available to everyone for low - or even - no costs.

In conclusion, we no longer have any excuses to not fundamentally change the design of our educational system, all necessary knowledge to rethink and recreate this system is available and in the process we will only learn more and more about individual pathways, the influences of context and our own jaggedness. Fortunately for the developing countries they won't have to convert the old averagarian system, they can

start right away with acknowledging each and every child as a talented individual and provide them with the necessary education to flourish, in order to really change their lives and, together, change the world.

By Alette Baartmans, December 2016

