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Anders Ericsson & Robert Pool. **Peak: How All of Us Can Achieve Extraordinary Things**. London: Vintage, 2016, €10.99, 307 pp, ISBN 978 0 009 59847 3

Anders Ericsson & Robert Pool. **Piek: Haal het beste uit jezelf**. Houten: Spectrum, 2016, €10,00, 335 pp, ISBN 978 90 00 35757 4

Cal Newport. **Deep Work: Rules for Focused Success in a Distracted World**. London: Piatkus, 2016, €16.99, 296 pp, ISBN 978 0 349 41190 3

Cal Newport. **Diep werk: Werken met aandacht in een wereld vol afleiding**. Amsterdam/Antwerpen: Business Contact, 2016, €19,99, 268 pp, ISBN 978 90 470 0932 0

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OPTIMIZATION OF PROFESSIONALIZATION

Human beings are unique among all living organisms in that their primary adaptive specialization does not require some particular physical form or skill or fit in an ecological niche, but rather in identification with the process of adaptation itself – in the process of learning. We are thus the learning species, and our survival depends on our ability to adapt not only in the reactive sense of fitting into the physical and social worlds, but in the proactive sense of creating and shaping those worlds. (Kolb, 1984, *Experiential Learning: Experience as The Source of Learning and Development*, p. 1)

Professionalization refers, strictly speaking, to the development of professionalism. As such the concept can pertain to workers (i.e., professionals) as well as to occupations (i.e., professions). Permanent professionalization has the ability to contribute to the quality of living (together), that is, to the humanisation of the world. This is especially true when we view professionalism

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as an occupational means to realize humanitarian values like health, justice, inclusion, and participation under complex circumstances, as opposed to reducing professionalism to a power strategy employed by an occupational group. It then becomes important to optimize processes of professionalization, which are in essence learning processes. Two recent publications offer valuable guidance for such optimization.¹

Learning to learn

The classic conception of human nature is captured in the name we gave ourselves as a species, *Homo sapiens*. [...] We call ourselves 'knowing man' because we see ourselves as distinguished from our ancestors by our vast amount of knowledge. But perhaps a better way to see ourselves would be as *Homo exercens*, or 'practicing man,' the species that takes control of its life through practice and makes of itself what it will. (Ericsson & Pool, 2016, p. 258)

Talent is highly overrated. That is the optimistic message of Anders Ericsson in *Peak: How All of Us Can Achieve Extraordinary Things*, based on a vast amount of scientific research into peak performances in several fields, including science, arts, and sports. Nature barely plays a role in our capacity to perform, generally speaking. Of course, physical length plays an important role in sports like baseball or gymnastics. But take for instance perfect pitch, the capacity to identify the pitch of musical notes and other sounds. This seemingly miraculous gift turns out to be related to the musical surroundings in which people grow up. Furthermore, it is more common among people who speak a so-called tonal language. As it turns out, this capacity can be developed by virtually every person, provided a – surprisingly simple – training is offered at the right age. Later on it is not impossible to develop this capacity, but it does become more difficult.

Mastery never appeared out of the blue, to quote a German saying. That is the reverse of this optimistic message. But perhaps this is a blessing in disguise, for happiness is closely connected to activities, according to Aristotle. For a growing number of people nowadays, learning and working are particularly important means of self-realization. But this requires some effort, like the activating energy required to start a chemical reaction. According to Ericsson, merely gaining experience is certainly insufficient to (further) develop our capacities. Research even suggests that recently graduated medics perform better than colleagues with more professional experience. The same applies to naive training, that is to say merely performing and repeating activities, regardless of how much time we invest. We can certainly achieve an acceptable level of performance this way, but our level won't progress further or may even diminish gradually. Years and years of

practice – like playing a musical instrument or analysing chess games – are indeed necessary but not sufficient for a peak performance. The well-known ten-thousand-hours rule is misleading, not only because it is just a gross estimate of the average time required, but especially because it neglects the importance of deliberate practice. But if we dedicate ourselves to such practice, we can indeed improve our performance significantly, as research has shown repeatedly.

Deliberate practice is more than just purposeful practice.² However, purposeful practice contains many valuable elements.

- For a start, purposeful practice requires well-defined, specific goals derived from a more general goal.
- Purposeful practice also requires focus and attention, supported by a well-defined plan. Beginners are not able to practice in a focused way for a long time, and should not try to do so. As soon as the focus diminishes they should end the training. Sufficient rest and sleep are necessary. In due time the capacity to practice focused for a longer time will improve.
- Purposeful practice also requires specific feedback. A good teacher is necessary from the start, and gradually a still better one becomes essential. However, we must increasingly develop an ability to critically assess our own performances. One way or another, feedback is required in order to know whether we are making any progress and which aspects of our performance require attention in order to realize our goals.
- Purposeful practice especially requires leaving one's comfort zone, by continually raising the bar. (The same line of thought is found in other scholars of learning processes; such as in Vygotsky's zone of proximal development or Vermunt's constructive friction.) We challenge ourselves, try to do something which we are not capable of, and practice over and over again, at the same time paying attention to the way we do it, at what points we fail and how we can improve our performance. In that way we can push beyond our presumed limits, usually by trying it in a slightly different way than we were used to.
- Purposeful practice therefore requires that we remain motivated to practice, that is, to work hard. The conviction that we can succeed is essential. In due time the acquired competence itself can become a part of the motivation: practicing is no longer primarily an effort but first and foremost an investment in our new identity. If we experience a blockade or a relapse, we may promise ourselves that we can quit our practice as soon as we have overcome this blockade or have regained our previous level of performance, which of course is only a trick to keep ourselves going. Besides, developing new habits (for instance training schedules) and organizing stimulating responses are important to remain motivated.

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Purposeful practice is an excellent means for improving our performance. However, according to Ericsson deliberate practice is more than that.

Ericsson conducted a study that is as simple as it is intriguing. It is a well-established fact that our short-term memory is limited to about seven units. Ericsson challenged one of his subjects to learn to memorize random digit series. He started with a series of five digits. Every second a digit was read aloud and afterwards the subject had to reproduce the series correctly. If he succeeded, then the next series would contain one more digit. If he failed the series was reduced by two digits. Sometimes Ericsson deliberately varied, for instance by reducing the speed of reading a little or by increasing substantially the number of digits read aloud. Because of these variations the subject developed a more positive image of his capacities, realizing that it would be possible to surmount a perceived hurdle. After two hundred sessions, the subject proved capable of reproducing series of eighty digits. Later, other subjects even memorized series of hundreds of digits. What happened was of course not a miraculous extension of the capacity of the short-term memory. Rather the subjects learned how to circumvent its inherent limitations with the help of their long-term memory, by making use of mnemonic structures. The first subject, for instance, was a sportsman who had associated random numbers in a meaningful way with running times.

Ericsson therefore concluded that mental models play a crucial role in the improvement of performance. This is corroborated by research on blindfolded chess. Grandmasters are much better at memorising positions from chess games than other chess players, but not if the pieces are positioned randomly on the chess board. Recognizing meaningful patterns plays a crucial role in memorizing, just as a sentence can be memorized easier than a random series of words. A large part of deliberate practice consists of developing increasingly efficient mental representations, also in the case of physical capabilities. Mental representations (e.g., monitoring, recognizing, signalling, organizing, analysing, interpreting, diagnosing, understanding, memorizing, deciding, planning, solving) are conceptual structures in our long-term memory which enable us to process large amounts of information within a short time frame, and therefore to respond quickly and effectively in particular situations. Peak performers are distinguished from other people by the quality and the quantity of their mental representations. Excellent musicians for instance possess a detailed and rich representation of how the music should sound and what they should do in order to play it that way.

Deliberate practice is aimed at developing effective mental representations as a foundation for better performance. While actual practice is the only way to develop such mental representations,

these representations are in turn helpful to improve deliberate practice: it is a mutual reinforcement of doing and thinking. Favourable conditions for deliberate practice are clear performance indicators, strong competition, and a long tradition in the development of the required skills by training practices under the supervision of teachers, trainers or coaches. This applies for instance to musical training. In most areas we don't exactly know what distinguishes experts from others. Social work, for instance, has been characterized as an ill-structured domain. Where such favourable conditions are absent, we can apply the principles of deliberate practice to develop the most effective training exercises. This boils down to purposeful practice plus some additions: finding out who might be considered peak performers, and what makes them so good, and then developing training exercises to become as good as they are.

Deliberate practice can be applied in parenting as well as in education. In doing so, the focus is on improving performance and therefore skills. Knowledge, in this approach, is not an end in itself but a means. Interactive educational programmes in which participants are actively encouraged to develop mental representations appear to be more effective than traditional programmes focused on transferring knowledge. Of course participants in such interactive programmes acquire knowledge nevertheless, but it is knowledge that is meaningfully connected to and through mental representations. Research in the field of physics has shown that students and experts differ in problem solving, not so much in quantitative but mainly in qualitative respects, that is to say in terms of underlying mental representations.

Incidentally, Ericsson does acknowledge that nature initially may play a role in skills development, but stresses that this difference is soon overcome through the required dedication. Even for scientific research, the required intelligence might well be overestimated, given all the educational hurdles that need to be overcome before actually being able to start conducting research. Remarkably, there does not appear to be any correlation between intelligence and one's capacity to play chess. The dedication required to develop capacities also provides a good explanation for the extraordinary performances of so-called prodigies and savants.

Ericsson presents an optimistic message. Human beings are actually very flexible, and we have not yet reached the limits of our capabilities. In virtually every domain, our achievements can improve significantly if we practice in the right way, and absolute limits to our performances have yet to be demonstrated. According to Ericsson, we should rise above the myth that our capabilities are limited by nature. Quite intriguingly, he concludes by saying that the actions undertaken to push the boundaries of one's domain do not differ significantly from the actions undertaken to

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reach these boundaries. It boils down to refining and modifying the mental representations as the foundation for improving performance by ways of focused practice and hard work. According to Ericsson, performing at such a high level leads to a state of flow: an invaluable feeling of happiness that only a few ever experience.

This optimism is counterbalanced by a strong measure of realism. Human plasticity diminishes during life, although this varies depending on the particular skill. Much can be trained for, but probably not everything, as demonstrated repeatedly by simple but elegant research into self-declared wine experts. And acquired skills wither away if not maintained properly: use it or lose it. There are also indications that some capacities compete with each other, so that strengthening one capacity may be at the expense of another. Furthermore, mental representations are domain-specific. Learning to memorise series of digits does not lead to an improvement of the memory for other matters. There is therefore no such thing as the development of a general skill. (So much for the idea of transfer, that is, the ability to apply competences in one domain to another.) Even getting used to the discomfort of practicing is domain-specific. Runners do get used to the pain that accompanies the exercise of their sport, but that does not mean that their general threshold for pain increases. And of course, spending much time acquiring a specific capacity reduces the time left over for the acquisition of other capacities. These are reasons enough to set our priorities straight, in learning and especially in living. Aristotle at least provides some valuable clues on how to do so.

Learning while working, working while learning

Whether you approach the activity of going deep from the perspective of neuroscience, psychology, or lofty philosophy, these paths all seem to lead back to a connection between depth and meaning. It's as if our species has evolved into one that flourishes in depth and wallows in shallowness, becoming what we might call *Homo sapiens deepensis*. (Newport, 2016, p. 92)

The book *Deep Work: Rules for Focused Success in a Distracted World* by Cal Newport is both a complement and a pendant to the reviewed book by Ericsson, to whom Newport refers regularly. Whereas Ericsson stresses that work can become a way of learning, Newport posits that learning is a kind of deep work. Ericsson starts from the intrinsic motivation to become truly good in some domain, while Newport points to the economic need for distinctive expertise in a globalizing world, although he also acknowledges the intrinsic value of deep work. Ericsson reveals the essence of the development of expertise, while Newport primarily focuses on the conditions for deep work by contemporary knowledge workers.

Newport coins the concept of 'deep work' for what he envisions: professional activities at the peak of our cognitive capacities, performed in a state of undistracted concentration. He signals a harsh contrast with the shallow work mode of most of today's knowledge workers and their fragmented attention. Newport identifies the pressure to be permanently available – especially through digital communication but for instance also in open workspaces and for project meetings – as the most important cause. He also mentions the pitfall that many knowledge workers, lacking clear criteria for the productivity and the value of their work, revert to an obsolete industrial criterion: being busy, that is to say doing a lot in a very visible way. Newport is concerned that the capacity for deep work will be lost, while the need for it is greater than ever.

Contemporary information economics is based on quickly changing complex systems. Like other authors, Newport predicts a growing digital dichotomy in society. More and more people will lose their job, while a steadily shrinking group becomes increasingly (economically) valuable. This group of winners in today's economy consists of three categories: owners and investors who have access to capital, those who are the best in what they do, and those who are capable of operating intelligent machines in a proper and creative way. Information economics is all about two core skills: the ability to learn complicated things quickly, and the ability to work at peak level in terms of both pace and outcome. Both skills are based on the capacity to perform deep work. For work of great value is the product of substantial time investment and intense concentration.

Although Newport acknowledges that there will always be exceptions, he emphasises that in general the capacity to perform deep work is crucial to the sustainable (economic) value of individuals. On the one hand in order to master complicated matters quickly, on the other to be able to perform distinctive work in a market based on global competition between knowledge workers. The author additionally underscores that a deep life is also a good life. A thoughtful regulation of one's attention leads to experiencing the world as rich in meaning and value. Furthermore, the utmost effort to accomplish something difficult and valuable leads to a state of flow. People therefore find it easier to enjoy work (especially deep work) than leisure, because of the inherent challenges, objectives, and feedback.

A substantive part of the book is dedicated to developing rules (of life) for deep work. For, according to the author, the problem is not so much a matter of 'what' but of 'how'. Perhaps we should conclude that deep work is very simple (and in this sense not difficult) but not easy (and in this sense quite hard). Newport stresses that the rules have to be tailored to individual persons and

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their circumstances. Deep work can for instance be realized by a drastic retreat from all distraction (like a monk) but also by devoting every available moment in hectic everyday life to it (like a reporter). Neither approach will suit the majority of people, so we can opt for planning our deep work during certain periods (for instance summer holidays) or during fixed hours (for instance each morning). This is also possible for deep work that requires (intense) cooperation.

According to Newport, it all boils down to replacing good intentions by fixed routines that eventually require a minimum of will power. These routines not only determine when and for how long you work deeply, but also where and how. It is important to specify ambitious aims in terms of concrete targets. The author recommends drawing up a daily schedule based on blocks of half an hour, specifying the time to be spent on particular activities. That this schedule will usually need to be adjusted several times a day because of miscalculations or unpredicted obligations is not important: the point is to constantly be making deliberate choices for the most valuable activity, based on the motivation to perform deep work. He also recommends keeping track of how much time is effectively spent on deep work, along with a weekly evaluation. As a criterion for determining the shallowness or depth of the work he recommends a question: how many months would it take to teach a smart and recently graduated academic in my field, without specialized training, to do this work? He also recommends confronting your boss with the question: what percentage of my time should I dedicate to shallow work? He suggests that the (socially desirable) answer will be between thirty and fifty percent, which offers an excellent starting point for setting clear priorities in your activities.

Although Newport doesn't say so explicitly, the reader can deduce from his book that the concentration required for deep work demands a clear distinction between relaxation and distraction: distraction has to be actively avoided, just as relaxation has to be actively pursued. Both aspects show similarities with Ericsson's approach. Newport refers to Ericsson, who states that beginners can perform focused practice for about an hour a day while advanced individuals can practice for about four hours a day, to stress the importance of relaxation. A clear and well-defined completion of each workday at a fixed moment is crucial, including making an overview of everything that still has to be done and a global planning of when to do so. Moments of rest are crucial for the recovery of the ability to concentrate. Besides, decisions concerning large and complex amounts of information can better be left to our subconscious, which implies that 'dead time' is a precondition for productivity. It is therefore important, in Newport's view, to make deliberate choices on how to spend our leisure time, to give our ability to concentrate a chance to recover.

Another similarity with Ericsson's approach is that Newport stresses that the ability to concentrate is also something we can train. First of all, this implies resisting distractions. According to Newport, the internet and email are the biggest malefactors: hyper-connectedness is the great distractor. His most important advice is to regard network tools like a craftsman: purely as tools to be used for the higher goal of performing deep work. The same applies to email: it should be used selectively and effectively. The ability to focus can be stimulated by drastically reducing the scheduled time for a task in comparison to previous planning, and preferably to communicate the new deadline to others. Newport also recommends productive meditation. During activities that occupy your body but not your mind, like taking a shower or traveling, you can focus in a structured way on one specific and well-defined working problem. Of course this too is an ability that has to be learned. Newport points to the classic art of memorizing as a method for improving the ability to focus.

For Newport, today's information economy serves as the self-evident context of his discourse. He does not reflect critically on the growth of the digital dichotomy, for example. Still, he does not wholeheartedly welcome all economic and social developments. As we have seen, he regards digital communication tools and the pressure to permanently make use of them as the most important cause of today's shallowness. In a footnote he mentions the ridiculous assumption that an acquired familiarity with simplistic digital products for consumers – like so-called iPad-schools – can offer adequate preparation for the high-grade technologies of today's economy. He also makes some critical comments about today's internet-centrism. In the footsteps of Neil Postman, he signals a technopolitic culture in which the advantages of new technologies are no longer compared to the disadvantages. But Newport's critique is mainly aimed at the working conditions of knowledge workers and not at the wider social and global context. His book is above all an argument for old-fashioned traits such as craftsmanship, specialisation, and quality, also as a part of the good life, as a means of reversing the disenchantment of reality. He is aware of the importance of the good life, but this increasingly seems accessible to only a small elite of knowledge workers who can largely plan their working activities as they like, and consequently can optimize their productivity, their economic value, their self-realisation and their happiness. This elite can most certainly benefit from Newport's insights.

NOTES

- 1 Note for Dutch readers: Both publications are also available in Dutch translations.
- 2 Note for Dutch readers: the Dutch translation is less distinctive: *doelbewuste* versus *doelgerichte* training.