

Autism and the predictive brain: absolute thinking in a relative world

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Back cover text

You often hear talk about the sensory issues when people are discussing autism. But what if the brain does not process stimuli at all? We teach children with autism to link particular emotions to certain facial expressions, but what if there are no emotions to be read from the human face? What if the understanding of human behaviour is primarily a matter of unconsciously predicting what people are going to do? Would the classic social skills training given to children, adolescents and adults with autism actually serve any purpose?

Recent research has shown that the classic ideas about how the human brain works, based on the computer metaphor of input, processing and output, are no longer tenable. A brain that first needs to process incoming information about the world before it can react has no chance of survival in the volatile, uncertain, complex and ambiguous environment of modern society. What you need is a brain that predicts the world quickly and unconsciously, while taking proper account of the context.

In this book, Peter Vermeulen investigates what these new insights mean for autism. The discovery of the predictive brain not only sheds new light on autism per se, but also leads to the inevitable conclusion that many of the current interventions used in connection with autism urgently need revising.

The book in a nutshell:

Chapter 1: The predictive brain

- The brain sits deep in a dark cavity in the skull and has no direct contact with the outside world. The brain cannot see, hear, smell or taste. All it can do is process electrochemical signals. To know something about the world outside and (in order to survive) also about the body in which it is contained, the brain must work with the signals it receives through the senses.
- The signals provided by the senses are highly unreliable. The same signal can be produced by different causes in the outside world. In other words, the signals are a source of great



uncertainty. What's more, these signals are transmitted much too slowly to allow the brain to react quickly enough to what is happening in the world.

- For this reason, the brain prefers not to wait for signals from the senses before it acts. Perception therefore starts in the brain, not in the senses. The brain makes unconscious and super-fast predictions about the world. These predictions are based on what the brain already knows about that world. Such predictions are therefore essentially smart guesses based on what is likely and plausible in the given context.
- The brain asks for feedback from the senses about the predictions it has made. If this feedback shows that one of the predictions was wrong, the brain takes action to reduce the difference between what it expected to happen and what actually happened. The brain does this either by adjusting its internal model or by taking action that alters the sensory input, so that it once again agrees with the model.
- The brain therefore seeks to minimise the number and extent of its prediction errors. Fewer errors mean fewer surprises, which in turn means less work for the brain. The brain does not, however, attempt to reduce every prediction error. Its decision in this respect is based to an important extent on the level of trust and certainty it has about the relevant sensory input and its own model of the world.
- Both in terms of how it makes predictions and deals with prediction errors, the brain works in a highly context-sensitive way.

Chapter 2: The predictive brain and autism

- The predictive capacity of an autistic brain differs from that of a non-autistic brain.
- The process of predicting the world and dealing with prediction errors is much less context-sensitive in people with autism than in people without autism.
- The models used by the autistic brain to predict the world are absolute and therefore insufficiently contextual.
- The autistic brain takes prediction errors seriously, even when there is no need to do so. Unexpected deviations from what is predicted that are coincidental and exceptional, so that they can usually be ignored by people without autism, are seen by people with autism as a reason for adjusting the model and therefore the future predictions they will make based on that model.
- It seems that in certain situations, particularly when uncertainty is a factor, people with autism trust their brains less than they trust the input they are receiving from their senses. An autistic brain regards sensory input as being more informationally correct than the models of the world that the brain has at its disposal. Every prediction error allows the brain to learn more about the world. However, an autistic brain processes such errors in absolute terms, rather than seeing them as being relative. All deviations from what is expected are regarded as being important, at all times and in all places.
- This continuous attributing of too much weight to prediction errors ensures that the predictive models in an autistic brain become so specific that they are actually useless for attempting to predict the world. As a result, the number of prediction errors systematically increases, creating a vicious circle of hypervigilance for a world full of volatility and unpredictability.

Chapter 3: The predictive brain and sensory processing in autism

- There is a difference between sensitivity (the threshold value for stimuli) and reactivity (the strength of the reaction to stimuli).
- An autistic brain is neither more nor less sensitive to stimuli than a non-autistic brain, but reacts to those stimuli more strongly. Strictly speaking, the sensory peculiarities in autism are not really sensory at all, because they take place in the limbic system of the emotional brain.
- An autistic brain is insufficiently able to place unexpected sensory input in the right context. Instead, it will deal in absolute terms with any prediction errors. As a result, people with autism sometimes react too strongly (hyperreactivity), but sometimes also too feebly (hyporeactivity) to sensory input.
- Low-stimulus is not the same as autism-friendly. The avoidance of stimuli in the long term can actually make hyperreactivity worse. The correct exposure to stimuli is what needs to be sought.
- The sensory overload that people with autism often experience is the result of a vicious circle in which their brain finds itself and in which uncertainty and its related stress play a key role.
- The way to approach hyperreactivity is to try and break this vicious circle. This requires a focus not on the stimuli, but on the brain itself. The aim is to reduce the number of prediction errors by making the stimuli more predictable. This requires us to press the context button, so that the brain can correctly assess the weight and importance of unexpected sensory information. Above all, it is necessary to try and provide greater certainty and calm in the mind of the person with autism. This can be achieved through targeted distraction (via flow-activities), by giving them a good feeling about themselves, and by increasing their optimism and self-confidence when dealing with stimuli. This offers greater benefits over time than the superficial treatment of symptoms through the reduction or removal of stimuli.
- It is not necessary to turn the environment of the person with autism into a low-stimulus environment. It is much more important to give people with autism control over their own sensory environment.
- Self-stimulation or stimming is functional: it is the brain's reaction to sensory overload. As long as self-stimulation does not cause any harm to the person with autism or the environment, there is no reason to try and reduce or eliminate this practice. On the contrary, it is important to give it a place in the sensory strategy for the person concerned.
- In general, the autistic brain reacts weakly (hyporeactivity) to the signals of its own body (interoception). The autistic brain finds it difficult to detect these signals and correctly interpret their context. There is a possible connection here with stress and anxiety, and a problem with finding the right balance between attention for the exterior world and the person's interior world. Reducing stress, helping people with autism to learn how to read the signals of their own body and to know when to press the context button are all recommended techniques for dealing with this situation.

Chapter 4: The predictive brain and navigation in social traffic

- The social world is an open system. It is not possible to predict human behaviour on the basis of fixed and absolute laws and rules. People are even more unpredictable than bouncing tennis balls.

- That being said, it is still necessary to attempt to predict this behaviour, if we wish to respond quickly and effectively to others. Social interactions take place so rapidly that there is no time to first analyse the behaviour of others and then attempt to understand it.
- For this reason, the human brain has learned how to unconsciously make use of context in order to make the social world more predictable.
 - On the basis of context, we predict how people will move. This is useful to prevent us from constantly bumping into each other.
 - On the basis of context, we guess what people are going to do and say. This is useful to avoid unpleasant surprises.
 - On the basis of context, we estimate what other people want, think and feel. This is known as Theory of Mind, but is actually Prediction of Mind. It can be useful for tricking someone. Or for comforting someone.
- This predictive process largely takes place unconsciously. It is fast and intuitive. Conscious thought is scarcely involved. The predictions are not intended to be exact. They are simply expectations of what might happen.
- People with autism can also predict behaviour and mental states, such as emotions, but they are not able to do this quickly, intuitively and unconsciously. They need more time and, above all, more training and repetition.
- If it is pointed out to them, people with autism can also make use of context to predict human behaviour, but they have a tendency to approach the predictive process in absolute terms. They can learn social rules, but apply them very strictly. They also find it difficult to distinguish between what is important in the context and what is not important. The ability to do this is necessary to be able to know if a social rule is applicable and whether or not you need to apply it.
- Ordinary variations in the behaviour and emotions of other people confuse people with autism. They give too much weight to these variations. This hinders their learning of flexible and generalizable empathic models.
- Because of their tendency to think absolutely, the social world is full of prediction errors for people with autism. Dealing with other people confuses them and costs them a great deal of energy. Social interaction is hard work for the autistic brain.
- We can support the social functioning of people with autism if we:
 - press the context button, in order to clarify the context and the elements in it that are important;
 - help them to learn how to deal with contextual variations in social rules and how people react in social situations;
 - compensate for their reduced ability to predict human behaviour by making our own behaviour more predictable.

Chapter 5: The predictive mind and communication

- In order to communicate effectively, the brain needs to make numerous predictions: is someone going to say something, what are they going to say, when will it be my turn to say something, etc.?

- Once again, making such predictions is not an exact science. We do not know precisely what someone is going to say, but we estimate what will probably be said or shown on the basis of the context.
- Because we can make these predictions, we are less troubled by the distortion of speech sounds in noisy situations or when someone pronounces words differently from what we are used to.
- These predictions also make it possible to answer a question directly or to respond almost instantly to what someone has said. Likewise, they allow us to read fluently, without the need to devote attention to each individual word.
- When our conversation partners use unusual turns of phrase or unexpected words, prediction errors will result. We are surprised by what has been said. People with autism are less surprised, which suggests that they make fewer predictions when communicating.
- When an autistic brain does predict and expects something in communication, it has a tendency to rely on the first or most dominant meaning it has learnt. An autistic brain applies these meanings absolutely and finds it difficult to anticipate different meanings that would allow it to select the most likely meaning in the context, especially when it is not easy to discern.
- That being said, at times the autistic brain is nevertheless able to free itself from its absolute approach and can show flexibility in language and communication, but only if we press the context button and give people with autism sufficient time to respond. In these circumstances, the autistic brain will need to think consciously, whereas a non-autistic brain works quickly, unconsciously and intuitively.

Introduction chapter

When talking about autism, you often hear people attribute the condition to the disrupted processing of sensory stimuli. But what if the brain does not process stimuli at all?

We teach children with autism to link particular emotions to certain facial expressions, but what if there are no emotions to be read from the human face?

What if the understanding of human behaviour is primarily a matter of unconsciously predicting what people are going to do? Would the classic social skills training given to children, adolescents and adults with autism actually serve any purpose?

We read everywhere that people with autism require greater predictability in their life than people without autism, but is that really the case?

In the coaching of children, adolescents and adults with autism, use is often made of a five stage process: Events > Thoughts > Feelings > Behaviour > Result. But what if thoughts do not follow events but actually precede them? And what if feelings are actually predictions about how you need to react in the immediate future, rather than a response to what has just happened?

Many strategies, methods and interventions that are currently used for children, adolescents and adults with autism are based on classic ideas about how the brain functions, drawing on the 'computer' metaphor of input, processing and output. In other words, a brain that works in accordance with the principle of stimulus → response or event → processing → reaction.

Recent scientific research has shown that this classic view of the brain's functioning is no longer tenable. We now know that the brain does not function in the manner we had previously assumed. The new

insights about how the brain actually works are truly remarkable and shed a completely different light on what is happening inside our head. What's more, these insights are not only remarkable but also slightly shocking, because they go completely against our intuition. Although we feel that our brain is an organ that reacts to what happens in the outside world, that is not the case. In reality, the brain predicts what it thinks is going to happen in the world, so that we can better react to events when they occur.

Although these neurological insights are relatively recent in scientific terms, they are by no means brand new. Scientists first made this breakthrough in the 1990s, more than 20 years ago. Since then, the theory of the predictive brain has been used to develop applications in various fields, including medicine. I will give examples of this in the chapter on sensory problems in autism. The theory of the predictive brain has likewise made its entrance into the world of psychology and psychiatry, where it has resulted in refreshing new ideas in relation to matters like emotional regulation and hallucinations, ideas that are applied to better understand and treat a variety of mental conditions, such as psychosis and post-traumatic stress. Yet although this new knowledge about the predictive brain dates from around the turn of the 21st century, it is only now starting to make its presence felt in the world of autism. Even so, the application of this knowledge still remains largely confined to research projects in university laboratories. As a Fleming, I am proud that Flemish research teams are leading the way in this field and setting their stamp on the study of the predictive brain in autism. However, it is disappointing that beyond these few teams knowledge of how the autistic brain makes its predictions is largely *terra incognita*: unknown territory. Most people with autism, as well as the parents of autistic children, teachers, therapists, helpers, carers and autism-coaches, have never even heard of the theory of the predictive mind and know nothing about what it can mean for our understanding of autism. It is for these people that this book is intended. I have tried to describe and explain the most recent insights relating to the predictive brain and its potential impact on our approach to autism.

This is my third book on autistic thinking and the mechanisms that function in the autistic brain. For more than 30 years, I have attempted to build a bridge between scientific research into autism (in particular, brain research) and actual practice. I have tried to simplify and translate the content of scientific articles that are often incomprehensible for the ordinary public, in the hope that this will inspire everyone connected with autism and provide them with new ideas that will allow them to look at and, above all, deal with autism in a different and better way.

Where does my interest (some people in my environment call it an obsession) in autistic thinking come from? It comes from my belief that autistic thinking is the key to understanding autism as a whole. Although autism can be diagnosed on the basis of behavioural criteria – in other words, how someone acts and reacts – in my opinion there is no such thing as autistic behaviour. Just as there is no such thing that we could meaningfully describe as Flemish behaviour, old-age behaviour, day-tripper behaviour, etc. I fully agree with Barry Prizant, one of the leading autism pioneers, when he says that the only kind of behaviour that exists is human behaviour. Barry is fully aware that animals also display behaviour, but what he means is that there is no form of behaviour seen in people with autism that is not also seen in people without autism. As a result, I am firmly convinced that the diagnostic criteria for autism do not actually relate to autism per se, but to the results of autism. What typifies autism most tellingly is the way the autistic brain works.

I wrote my first book on this subject a quarter of a century ago, in 1996. It was called *This is the title*. In that book, I tried to explain autistic thinking through the medium of jokes and artificial intelligence. At the back of the book that you now have in your hands, I have again reproduced the final table from *This*

is the title, since the table in question is a kind of summary of the 1996 book as a whole. Back then, my description of autistic thinking was inspired primarily by the work of Uta Frith and her ideas relating to weak central coherence (a term that I replaced by the simpler 'coherent thinking'). The core argument of *This is the title* was that the autistic brain finds it difficult to see coherence, so that it is less good at 'guessing' the essential nature of things and events.

Of course, science has not been standing still since 1996. Quite the reverse. Since the turn of the century, the number of publications relating to autism has increased exponentially. The result of this explosion of autism research led to cracks appearing in the three existing major theories about the autistic brain: Theory of Mind, Executive Functions and Central Coherence. I thought that I was able to see a red thread running through all these research studies, a thread that could help to paper over the cracks in the three major theories and even link them together. This was the concept of 'context'. Please do not get the idea that I believed I had made some kind of major breakthrough. The idea of a reduced sensitivity to context in people with autism had already been suggested by Uta Frith. In fact, it was part of her original theory about weak central coherence in autism. Frith thought that there were two key aspects to this weak central coherence: firstly, an inability to see the greater whole in a coherent way; secondly, an inability to sense and use context. Most research up to that time had concentrated on the first of these two aspects (detail orientation), but it was becoming increasingly clear that this was not where the core of the problem was to be found, but rather in context sensitivity. During a meal with Uta and her husband Chris in a London restaurant, her enthusiasm persuaded me to write a second book on this relatively unexplored second aspect. It took a year to complete, but in 2009 I was able to submit my manuscript for publication. The result was *Autism as context blindness*, a book that has since been translated into six languages and won a number of prizes in the United States. (Thanks, Uta!)

Once again, however, science continued to take great strides forwards. And just as well that it did! Less than three years after the publication of *Autism as context blindness* an article¹ appeared in a scientific journal, in which for the very first time the connection was made between autism and a new theory of brain function, which argued that perception involves the alignment of expectations with incoming sensory information. For me, the message was clear: I could start all over again...

As had been the case when I was writing *Autism as context blindness*, I started again to read all kinds of scientific articles on the subject of the human brain, but especially those that made no mention of autism. It often pays dividends to look beyond your own field of expertise and see what you can learn from other disciplines. After all, it is difficult to be truly innovative if you never move out of your comfort zone.

I was astonished by what I read in these new articles. My faith in my existing knowledge about the human brain was shaken to its foundations. Matters that my many years of study and practical experience had convinced me were true, were now shown to be false, or at least not in agreement with the new discoveries made by neurological scientists since the 1990s. Contrary to what I had thought and what I had written in my book *Autism as context blindness*, it now seemed that perception is not a process through which the world becomes known to us through the senses. More recent brain research had demonstrated that perception is a process for which 90% of the activity originates *inside* the brain

¹Pellicano & Burr (2012).

itself, a process in which the senses do not play an initiating role, but only come into play in a more limited (but not unimportant) way at a later stage. In other words, I learned that perception is a construction of the brain, a kind of self-generated illusion. Perception is not therefore an attempt to obtain the most accurate possible image of the world, but is a double-check (sometimes thorough, sometimes rudimentary) of an image or model of the world that the brain already has. In short, the brain does not receive the world; the brain predicts the world.

As if this was not already enough to digest, the new theories about brain function also suggested that the distinction traditionally made between perceiving, thinking, feeling and acting was no longer quite so important as had previously been thought. Like many others, I had believed, for example, that emotion and cognition, feeling and thinking, were engaged in non-stop competition to determine the nature of our outward behaviour. Perhaps you are familiar with the theory of the three types of brain people are supposed to possess: the reptile brain, the animal brain and the human brain? Since it first emerged in the 1960s, this triune model was used to explain the sometimes surprising results of the interaction between these three different parts of the brain. But none of it is true! We now know that feelings, thoughts and behaviour are just three different techniques the brain uses to deal with its own prediction errors. All three serve the same purpose and they work together.

Fortunately, there was one element of brain theory that was not consigned to the dustbin by the new discoveries, and that was the importance of context. Even in the revolutionary theory of the predictive brain, context continues to play a leading – one might even say a starring – role. For that reason, I considered using *Context blindness 2.0* as the sub-title for this new book of mine, but eventually decided upon a more neutral term, a term that is synonymous with context blindness but is not a reference to a disorder or a handicap and is more neurodiversity-affirmative: *Absolute thinking in a relative world*. At the end of the book, you will be able to read why I now think that this is the correct definition of autism. In this sense, the present book is not an updated version of *Autism as context blindness*. Both books do, however, complement each other.

In our modern-day VUCA world, you will find it hard to survive with a brain that reacts passively; what you need is a brain that actively creates and predicts. VUCA is a term devised by the Army War College, a military academy in the United States, and first came into use towards the end of the Cold War era. The ending of this war between the supposedly free and capitalist West and the authoritarian and communist East did not make the world an easier place to live in. The simple distinction between 'the good guys' and 'the bad guys', between friend and foe, had disappeared. International relations became more complex. This was reflected in the acronym VUCA, which stands for Volatile, Uncertain, Complex and Ambiguous. In other words, a world that is essentially unpredictable, at least to a significant degree. Nowadays, the term is not only known and used by politicians and military men, but is also a rising star in the firmament of management theory, particularly in books and training programmes that deal with strategic leadership. For this reason, the term VUCA can also be applied as a perfect metaphor to explain the functioning of the human brain. As you will read later in the book, the information about the world that the brain receives through the senses is always volatile, uncertain, complex and ambiguous. Put simply, the information provided by the senses to the brain is unreliable. The only way for the brain to deal with this unreliability and uncertainty is to take control of the process of perception and to become the director of its own experience. In other words, moving ahead of events instead of waiting for them to happen.

In the following pages, I have tried to explain the new theories relating to the predictive brain as simply and as understandably as possible. I have also made an attempt to summarise some of the more recent (and often highly technical) research studies about the predictive mind and autism. This was by no means an easy task. Of the three books I have written on the workings of the autistic brain, this is the one that has cost me the most blood, sweat and tears. The theory of the predictive brain is not easy to understand. In her column in *Trouw* (a Dutch language news magazine), Heleen Slagter², a neuroscientist at the Free University of Amsterdam, referred to this theory as 'the relativity theory of the cognitive sciences'. This was a doubly appropriate choice of words. Like Einstein's theory of relativity, the theory of the predictive brain is an absolute 'game-changer', a breakthrough that sheds a totally different light on the way the human brain works. And as with the theory of relativity, it is also fiendishly difficult to explain. For this reason, I have tried to steer a middle course between a clear and comprehensible summary and scientifically accurate explanation.

Even so, it is possible that some readers will still find some sections difficult to follow. To make certain things crystal clear, it was sometimes necessary for me to adopt a technical approach. My explanation of autism in light of the new theory is therefore not always a simple explanation. But that is hardly surprising. Autism is not – and has never been – a simple subject, and it is becoming increasingly complex all the time. In my book *Autisme is niet blauw, de smurfs wel* (Smurfs are blue, autism isn't), I referred to the trivialisation of knowledge relating to autism, which is often reduced to simple and banal one-liners like 'low-stimulus = autism-friendly'. I have now written *Autism and the predictive brain* for readers who want more nuanced and more scientifically grounded information. If you are looking for ready-made autism 'recipes' and cute metaphors, you will be disappointed.

At the opposite end of the spectrum, scientists who read the book will no doubt occasionally sigh or even grumble to themselves at passages where I felt obliged to cut scientific corners in order to make a particular aspect more readily understandable. And they will, of course, be right. I have deliberately opted not to explain some elements of the predicative brain theory in full technical and scientific detail, preferring my own simplified version or omitting some things altogether. Readers who are interested in a more complete technical and scientific analysis will find references to the studies on which this book is based in the end notes³. These literature references are not only designed to indicate my gratitude to my many sources, but will also serve anyone who likes to know all the details and prefers to read the original material. I have reduced the current scientific knowledge about the predictive mind and its relationship to autism to the minimum that I thought was relevant for everyday practice and for the target groups I had in mind (which does not include scientists, but rather people with autism, the parents of autistic children and professionals). Although this book is not specifically intended as a practical guide, I have nonetheless tried to describe the new insights in such a way that they can help people to deal with the daily challenges of supporting people with autism. The discovery of the predictive brain not only sheds new light on autism *per se*, but also leads to the inevitable conclusion that many of the current interventions used in connection with autism urgently need revising. This opens the door for new interventions and strategies.

² 'Het brein voorspelt, corrigeert en voorspelt, de hele dag door'. Column by Heleen Slagter in *Trouw* on 1 February 2020.

³ To give one example of where I have simplified matters: Bayesian logic plays a prominent role in the story of the predictive brain, but I have chosen not to explain the nature of this logic nor how it affects the working of the brain.

As I have already mentioned, understanding the theory of the predictive brain is not easy. Moreover, the theory also makes you feel uneasy. It goes radically against your intuition about how your mind works. Although I am now used to this new way of looking at the human brain, certainly after writing this book, there are still occasions when I find it hard to accept what the new theory is telling me, because it is so totally different from what my own experience is telling me. It is a bit like the way we view the sun and the earth. Although we all know that the earth moves around the sun (and not the other way around), we still see the sun rise each morning and set each evening on the horizon, as though it – and not the earth – was moving. And it is exactly the same with the predictive brain theory. Even though I know that my perception is a construction of my brain and not a reflection of reality, I still cannot shake the feeling that I first process images that I receive from the outside world, in order to subsequently give them meaning. I find it difficult to believe that my feeling of hunger is a prediction of the approaching exhaustion of my energy reserves and not a response to an existing shortage of fuel (glycogen) in my system. Given this reluctance, it is perhaps no surprise that the writing of this book frequently led to intense discussions over breakfast, lunch and dinner in the Vermeulen household, such as the time when my wife said to me: 'So you think you can predict everything I am going to say? What nonsense!' After all the years we have been together, my wife knew exactly how I would respond. Which rather proved my point...

All I am trying to say is this: when you read the book, there will be moments when you are guaranteed to raise your eyebrows in amazement. Some of the things I write will seem incredible to you. They also seemed incredible to me, at first. But I can assure you that as time passes you will get used to this kind of experience, although your intuition, like mine, will continue to offer stubborn resistance.

Finally: I wrote this book during a period of great uncertainty and unpredictability. As with most of you, a seemingly insignificant but ultimately vicious (and virulent) virus turned my life upside down. Instead of travelling all around the world as normal, from a congress here to a workshop there and back again, everything came to a grinding halt in the early evening of a Friday in March 2020. Friday the thirteenth, no less! My agenda changed from something that was predictable for months in advance into a series of almost empty pages, littered with question marks about the future. The VUCA world had arrived in my life with a vengeance! But every cloud has a silver lining. To my way of thinking, the pandemic is an autistic experience that we can all share, whether we like it or not. Suddenly, we are all faced with the kinds of things that the autistic brain has to deal with day after day: unpredictability, uncertainty, models of the world that no longer seem to function (home is no longer only home, but also a place of work and a school), complex situations (what is 'essential' travel and what isn't?), confusion and lack of clarity (how exactly does that system with household 'bubbles' work?), etc., etc. The theory of the predictive brain teaches us that 'uncertainty' is the key word when attempting to describe autism. I hope that all of us, having learned from the pandemic what it means to experience life in a truly VUCA world, will henceforth be able to show greater understanding for autism and those who are affected by it. Above all, I hope that we will all realise that autism is much less 'different' than we think. None of us like uncertainty. We all want to live in a world where we can predict what will happen without making too many mistakes. How that works is something I will explain in the following chapter.