Madam Rector Magnificus, highly educated professors,

dear colleagues, dear friends, dear family,

One of the smartest decisions parents can make is to choose the right children. I am the proud father of a sweet, smart, cute daughter, who - mostly - listens to the name Eva. She turned ten this year. When you're 10, you're not really a kid anymore. A teenager's almost grown up. That means your own pocket money, going to bed later, sometimes deciding about the food and holiday destinations, and above all: deciding for yourself which dress to wear. Even if Daddy doesn't really agree.

But also: thinking about the future. Because: secondary education is in sight, so important choices have to be made. What do I want to be later, anyway? And how do I become one? Which school should I go to? Can I do that? These are very important questions, and just as in countless other families, they are often discussed at the kitchen table in our home. My wife Désirée and I try to give wise advice during these conversations, but above all we try to listen carefully. And so we learned from our daughter that it is quite difficult for today's children to choose a good course for the future.

The sociologist in me knows that this is partly due to longer-term social and economic trends. The globalisation of the economy, the flexibilisation of the labour market and the immigration of migrant workers make many people uncertain about their future. As a result of the expansion of education in recent decades, more and more people have become increasingly highly educated and have become forced into the labour market. As a result, people more often (at least temporarily) end up in a job below their level or in a job for which they have not learned.

A number of recent developments further increase uncertainty. There has been an increase in the social fight against inequalities in the labour market. There are new jobs, which were not previously thought to be possible. Who knew in 1995 that nowadays, as an *online influencer,* you can earn a real Lamborghini in no time?

And there's automation. Artificial intelligence and robot technology will lead to job losses and the creation of new jobs. Most of the jobs that remain will change fundamentally, and therefore require different skills. There's no good guarantee that what you're learning at school now will be needed later.

So today's youth has a challenge. But also for governments these are uncertain times. After all, how should our leaders shape society and its institutions in order to best prepare today's children for tomorrow's society and the labour market? What policy should be pursued now? And how do we care for the most vulnerable children? Which buttons can governments use?

These are big, important questions. In this speech I try to show how I want my chair to contribute to answering these questions. It then helps to make these big questions a little smaller. I start the search by discussing why some people are, and others are, less successful in the labour market.

I will then talk about the importance of making the right choices, about the (government) policy that tries to influence those choices, and about why that policy sometimes does not work.

I then show how my research programme aims to contribute to a better understanding of the underlying mechanisms and underlying explanations, and thus to a higher effectiveness of that policy.

I shall conclude with a number of general conclusions.

What determines a person's success on the labour market?

Scientists have been studying for decades how differences in labour market success can be explained. Whether someone is able to find a job is determined by a tangle of personal circumstances and external factors. In order to organise the abundance of individual statements in a clear way, scientists use the concept of *employability*, which means 'the ability to become and remain meaningfully and sustainably active in the labour market'.

Research into the most important explanations of employability shows time and time again that certain personal characteristics are very important. To be productive worker bees, people must first and foremost **have skills that are in demand**. Classical labour market economics theories and numerous studies show that skills do indeed determine a person's job opportunities, productivity, and income. At ROA, we have a long tradition of researching the relationship between skills and labour productivity. I also contributed to the development of this field. With Rolf van der Velden and Jim Allen, for example, I investigated why people who work below their level of education earn slightly less than people with a comparable level of education who do work at the right level: this is partly because they actually have fewer cognitive skills.

Skills are therefore very important. But this isn't the whole story. Economic, epidemiological and health-sociological research convincingly shows that there is another important explanation for employability: people must also **be healthy, of body and of mind**. Healthy people are more productive and better able to use their skills. People who are ill or disabled - or people who look unhealthy - are less likely to find work, are often valued less highly by employers, and are more likely to leave the labour market prematurely.

A skillful spirit...

Therefore, in order to participate in the labour market and in society, people must at least have relevant skills, as well as being vital and healthy. But how do you gather those skills? And how do you get vital and healthy? Let's see what science can teach us about this.

There is a lot of research into the ways in which people get the right, desired skills, and at a good level. Partly we learn skills at work, but first and foremost also at school.

During the first twenty years of our lives, the education system provides us with a wide range of skills, and it continuously tests these skills in order to sort us out across different educational flows. In the Netherlands, which skills we have finally learned when we enter the labour market depends very much on the educational stream in which we are sorted:

in general training streams, the emphasis is mainly on general skills; in vocational education, vocational skills are mainly taught.

The level at which we then develop these skills depends on the level of secondary education. Of course, the sorting is not perfect. As we all know, there are great differences in skills between people with the same level of education reached, and there is an overlap between people with different levels of education. This figure illustrates this. These are stylized figures from the PIAAC study: a kind of cito test for adults. The test measures their arithmetic and language skills directly. Research in more than 30 countries shows that the better educated you are, the more skilled you are. But there is great overlap, and the smartest people with a low degree are more skilled than the average person with a high level of education.

We learn these skills at school because it is very efficient: for many key skills, the sooner you learn them, the better. Therefore, questions about skills needed in the workplace quickly become questions about education.

If we want to prepare children properly for the future, two questions about education are important. Firstly, what skills should children learn at school? This is the subject of ongoing debate. Nowadays, at least, mathematics and writing skills are important to us, but should we also teach our children German and French and English? Or Chinese? Or a programming language? And what about statistics? Citizenship skills? Creativity?

Which mix we choose is mainly a political choice. Advice is regularly given in favour of educational reforms, for example in opinions such as Education2032 or Curriculum.nu. These are important questions that have become even more important in the context of the advancing automation of work.

A second important question is, what determines the extent to which children learn these skills? There are big differences between children. This figure shows, for example, how mathematics skills at the age of 15 are distributed among the population of school-age children in different educational tracks. We see a similar pattern here: spread within tracks, overlap between the tracks.

The figures in the figures will hopefully not really surprise anyone: they are familiar facts. But how exactly to *explain* these well-known differences is the subject of scientific discussion.

We often assume nowadays that differences in acquired skills can at least partly be explained by *the different choices that* parents and children make. This figure illustrates the importance of opting for a good, appropriate educational flow in secondary education. But the spread within the tracks and the overlap between the tracks suggest that other choices are also relevant. For example, the choice of a good primary school, with an educational philosophy that works. The choice of a profile that suits you. But also: the choice to do a summer school, to watch less television, or to do homework for longer. Or the choice to take tutoring in mathematics or chemistry, if you're not good at it. Because choices are so important, many education policies aim to influence the choices of parents and children.

... in a healthy body body

A second important predictor of a person's success in the labour market is, as has been said, someone's health. But when is someone healthy? In order to answer that question, we must first agree on exactly what 'health' is. The classic definition comes from the World Health Organization, which in 1948 defines health as "a state of complete physical, mental and social well being, and not merely the absence of disease or infirmity". (WHO, 2006).

But that's very ambitious. If we use this definition, hardly anyone is healthy! Moreover, if we want to explain differences in emplyability, this definition falls short. A more useful approach can be found in the recent health scientific work of general practitioner and scientist Machteld Huber, who uses the concept of positive health. This concerns six aspects of health, including physical condition and mental wellbeing, but also quality of life, meaning, participation and daily functioning. This interpretation does not focus on (un)health, but on "people themselves, on their resilience and on what makes their lives meaningful".

In practice, there are major health differences between people. It makes a lot of difference when you're born, and where. A toddler born in the Netherlands 50 years ago had a much lower life expectancy than a comparable toddler born today. However, a child born here in Maastricht this year lives on average almost two years shorter than a child born in Bussum or Middelburg.

The differences in health that are currently the main focus of the policy debate are the differences in socio-economic background. This figure illustrates that people with a higher education are more likely to feel healthy. People with a lower level of education are more likely to suffer from all kinds of ailments. For example, they are more likely to have certain types of cancer, suffer from cardiovascular diseases and have a more frequent stroke. For almost all ailments and disorders, the higher the level of education, the lower the chance.

These figures are not new either. However, even in this case it is not necessarily clear how the observed differences can best be explained. Here, too, we often assume that part of the health differences between people can be explained by the choices they make themselves. By choosing a healthy lifestyle, people can actively contribute to their vitality and health.

But how do you do that? On social media and in the lifestyle sections of magazines there is undoubtedly a lot of sensible talk, but there is also a lot of nonsense. Then sitting is suddenly the new smoking, or drinking the new bread. However, science is quite unambiguous. Firstly, a healthy diet is - quite literally - a matter of life and death. That means: eating in moderation, drinking enough water, being economical with certain fats, red meat, sugar, and salt, and eating many low-fat dairy products, legumes, nuts, fish, and green vegetables. Such a diet reduces the risk of various forms of cancer and is good for the heart, blood and blood vessels. In addition: do not smoke, do not use drugs, and drink alcohol in moderation at the most. Thirdly, rest. This means: sufficient, but not too long sleep, regular relaxation, and regular mindfulness or yoga. Good sexual health is also crucial: in order to stay healthy, it is wise to enjoy safe, fine sex. And finally, but perhaps most importantly: sports, sports, sports. An adult should exercise moderately intensively for 150 minutes per week (or 75 minutes in high intensity) and should also exercise power regularly.

A healthy lifestyle helps to become and stay healthy and vital. Yet many Dutch people have a very unhealthy lifestyle.

ON-SCREEN EXAMPLES

A once learned unhealthy lifestyle is difficult to change as an adult. It is better to have a good lifestyle as a child, especially since health at a young age is an important predictor of health in later life.

Parents are therefore advised to teach their children a healthy lifestyle. But there are big differences in lifestyle between families. People with low incomes or a lower level of education have unhealthy lifestyles. In order to provide equal opportunities for all children, the government also sees a responsibility for itself to contribute actively to children's health. The school seems to be the best place to teach children the right lifestyle; Dutch schools are therefore very busy influencing the lifestyle of their students. The Healthy School Programme, for example, has been in existence for some years now, with the aim of contributing to "more health gains, fewer health inequalities and better educational performance". Many schools are part of this.

And there are numerous other projects and programmes running at the crossroads of health and education. The National Prevention Agreement concluded in 2018, for example, aims to reduce smoking, excessive alcohol consumption and obesity among children. There is Jongeren Op Gezond Gewicht, Sport en Bewegen in de Buurt, and Jong Leren Eten. There are regional initiatives such as the Limburg Healthy Primary School of the Future. And Everything is Health.

Health, education, and work: a research programme

Education therefore seems to be crucial for a good healthy lifestyle as well as for the acquisition of the right skills. In my research programme, I want to investigate how education can, with effective policy, contribute to the learning of the right skills and the

right lifestyle, in order to prepare children for tomorrow's society. That's not so new in itself. These seem to be two separate processes, and thus two separate areas of research. But the crux of the matter is that these processes affect each other. Better performing children have a healthier lifestyle. A healthy lifestyle, on the other hand, provides a better memory and increases the ability to learn. In other words, the healthier children are, the easier they learn. And the smarter children are, the healthier they are. It is therefore logical to understand these processes together. That's what I'm trying to do with my chair. A lot of research has been done here, but there is still a lot to be done. In policy circles, the idea that both processes influence each other is not yet a given. I want to change that.

The explanatory model I have sketched so far is shown here. The model shows that I assume that people are more productive the more they have the right skills and are healthier in body and mind.

But also that health and educational performance during childhood are decisive for outcomes later on. In addition, I assume that the educational performance and health of young people strongly influence each other, and that both skills and health can be directly influenced by targeted policy incentives.

The model presented is extremely simple. This is not surprising: a model is always a simplified representation of reality. A good rule for theories is that a model should be as simple as possible, but as complex as necessary. However simple, this theoretical model combines insights from sociology, education and labour market economics, and social epidemiology. Nevertheless, the attentive listener will hopefully notice that this model is not complex enough. As can be seen from the above, parents play a crucial role in both processes. However, these parents do not (yet) play a role in this theoretical model. That's not for nothing. That's gonna be important later.

For the time being, it is important to note that this simple model justifies many policy interventions, both in terms of health and learning outcomes. And also that we do not yet know very well whether and to what extent interventions in education work, and why or not. For example, the collected national and international research on health interventions in education does not provide a clear picture of what works, and for whom.

For a Professor of Health, Education and Work at a multidisciplinary department of a School of Business and Economics enough to do, therefore. Such a professor would be able to study in an appropriate way what works, and what does not. He or she could take advantage of recent developments in the availability of good, reliable data. And he or she could analyse these data using the most modern research techniques in order to determine the effects of policies, and even to model different effects on different groups.

This was, in a nutshell, the research programme that I laid down in the description of my chair a year and a half ago, when I started thinking about my goals. This programme - partly inspired and funded by the Alles is Gezondheid programme - is still an important pillar of my research line. Together with professors Maria Jansen and Tim Huijts and PhD student Lisanne Vonk, I will be actively studying the effects of the Healthy School on the lifestyles and educational performance of children in vo and po over the coming years. In addition, with PhD student Vaida Jukneviciute, we will investigate the complex relationship between socio-economic status, lifestyles, and student health in different policy contexts. In this programme, I am making an explicit link with my long-running lines of research into how children learn the skills that will later enable them to participate in society and in the labour market.

Further theoretical considerations

But I also want to contribute to the systematic growth of knowledge. After all, many systematic overview studies conclude that interventions sometimes work, sometimes do not work, without explaining why. To explain those differences, the story as told so far is not finished. The simple theoretical model I have outlined above has two major shortcomings. First of all, as already mentioned, it is not complete. Important factors - such as parents - have not yet been included. Of course, this can be easily remedied by extending the model. We'll do it in a minute. A second issue is perhaps more important. The model only shows *how* we assume that children's skills and health are related to other factors. However, it does not show *why*.

This requires additional theoretical assumptions that explain why we expect these relationships. In this context, one theory in particular, which you all know, is very influential. It's the so-called human capital theory. Economists may recognize in part of the story as I have told it so far, assumptions and elements from that theory. Sociologists call this theory - in a slightly modified form - rational choice theory.

To explain human action, this theory makes a number of assumptions. It is assumed, for example, that the differences observed (in this case in terms of health, skills and productivity) between people are the result of **individual choices**. To understand how people choose, theory assumes that people **act rationally**, weigh up costs and benefits, and try to maximize their utility as much as possible. This, in turn, presupposes that individuals **are capable** of making deliberate, targeted choices and **responding to stimuli.**

It is difficult to overestimate the importance of this theory, as it is one of the most influential social science theories available. Human capital theory began as a simple model of labour market economics, intended to explain why workers who have spent longer in education are more productive and have a higher income, and was soon applied to explain why people go to school. But the core of the theory is so versatile, that it can explain many different phenomena.

The American economist and Nobel Prize winner Gary Becker in particular has done a lot to make this plausible. The theory has been used to explain regularities in the areas of time use, crime, addiction, discrimination, family formation, marriages, divorces, and fertility. This makes it one of the most important theories of economic science and empirical-theoretical sociology. Here it is used, among other things, to show why parents from higher social strata make different choices for the education of their children than parents from lower social strata. And it is used - whether or not in a slightly modified form - to explain, for example, why people sometimes have unhealthy lifestyles.

Rational choice theory owes its unprecedented scientific and social success mainly to its incomparable explanatory power. I, too, have been using the rational theory of choice throughout my sociological life. In my dissertation (which I wrote for Ariana Need and Wout Ultee and defended in Nijmegen in 2011) I investigated, for example, whether

choices that women make regarding pregnancy and sexual health can be influenced by rewarding or punishing certain choices through the law. But also in my work on the role of skills in education and in the labour market, human capital theory is constantly playing an important role.

But there's something else going on. The rational choice theory has been as popular as ever with administrators and policymakers since the early 1990s. For example, Baker (2006) rightly notes that rational choice theory is often implicitly present in policy aimed at changing unhealthy lifestyles. Rational choice theory is probably so popular among policymakers because it gives them clear, simple, and unambiguous guidelines for policy; but perhaps also because it allows them to interpret the behaviour of individuals in a normative way. After all, rational choice theory interprets people's behaviour mainly as the consequences of a personal choice, and places the responsibility for these choices in the hands of the individual. Someone who makes the wrong decision is to blame.

Sociologists have always criticised the way in which my colleagues and I use this theory. Paul Schnabel criticised my dissertation in NRC Handelsblad by claiming that the complex reality of pregnancy cannot be captured by such a simple theory, and that we learn nothing useful from this approach. Many colleagues call the rational choice theory paternalistic, patriarchal, and bourgeois. In fact, I have always set aside these ideological comments: after all, theory offers a reasonable explanation for observed phenomena, and that is what a scientific theory should do.

However, there is also more fundamental, scientific criticism of the assumptions of the theory to be formulated. And I've been increasingly impressed by that. Sociologists such as Boudon have for some time been giving well-founded, substantive criticism to the restrictive assumption that people act mainly in a goal-orientated manner. Insights from psychology and behavioural economics also convincingly show that people are often not rational at all, but sometimes irrational in a predictable way. This type of research undermines the core of rational choice theory.

In addition, a number of recent empirical research findings suggest that the way in which that core is worked out to explain different phenomena is likely to need to be adapted. An example.

The figure shows that the theory assumes that more skills are associated with higher productivity of employees. We recognize in this the most classical hypothesis of the human capital tradition. Research suggests that this hypothesis may not be able to explain some phenomena properly. In many Western countries, the economy as a whole has become increasingly productive, and the average level of education has invariably risen over the last few decades. But the hourly wages of higher educated employees have been stagnating for years. This may mean that more skills do not necessarily lead to higher wages, and perhaps not to higher productivity either. But if so, why should children and their parents invest in more education? This suggests that **other mechanisms** play a role, in addition to or perhaps instead of the rational considerations that it is useful to invest in skills.

In addition, the rational choice theory places too much emphasis on the individual. Differences between groups can be explained by pointing out differences between the individuals in these groups. A true treasure trove of research shows that people's behaviour and choices are also influenced by other factors, such as their parents, social environment, institutions, or laws. Choosing in context, that's what my promoter Ariana Need called it in her inaugural speech (2010). A good explanation model takes into account the **different levels** at which explanations can work.

My own recent work with PhD students Alexander Dicks and Lynn van Vugt also makes modest cracks in the rational approach to choice. Together with a large international consortium, we are conducting research into vulnerable young people who are sidelined early in their lives. We are trying to find out what kind of interventions these young people can use to help them back to work or to go to school. What is striking about international research is that in all countries there is a very hard core of these young people, which can hardly be activated by policy incentives, if at all. The statistical analyses of our data and the many conversations Alexander and I had with youth workers in Limburg show that these young people are often happy to work, but have to contend with problems that

prevent them from finding or keeping a job. These are often complex and multifaceted problems that have many **different, mutually influencing causes**.

The favourite explanatory theory of economists and empirical-theoretical sociologists therefore has important shortcomings. Does that mean the theory has to go with the old trash? No: people are really able to make rational choices and human behaviour can really be influenced by stimuli. But we have to conclude that this theory is not complex enough to understand the relationships between health, education, and work. In order to shape policy more effectively, the underlying explanatory theory needs to be adapted and made more complex. And we know that with our common sense as well. Because many important choices are not made by us, but for us. After all, which child really chooses his or her own lifestyle? And do we really just go to that school that makes us as productive a worker as possible? Most of the time we follow what our parents teach us, or what our friends do.

My Florentine teacher and dear friend, the recently deceased professor Jaap Dronkers, therefore often said with a wink: making choices is important, but the most sensible choice that can be made for yourself as a child is the choice for the right parents.

A weighty case

In order to be able to implement truly effective health and education policies, it is important to better understand the processes behind the differences between children that we observe and to incorporate them into policy interventions.

An example. Obesity among children is a growing problem in many Western countries. Obesity in children is associated with type 2 diabetes and cardiovascular disease, and also predicts weight and health problems in later life. Therefore, letting children eat less sweets and healthier food is a sensible policy, on which the Healthy School also makes a major effort. But how do you do that effectively? Rational choice theory dictates that it would be wise to directly influence children's dietary choices, for example through price incentives or better information provision.

We can learn from a recent case from the United States about the problems that can arise in this respect. In the summer of 2019, a free app was introduced that aims to help children between 8 and 17 make healthy lifestyle choices. This app, called Kurbo, works with the so-called traffic light diet (Eppstein et al., 1985). Children can see on their phones if the food they eat is good for them. Food that makes you fat gets a red light. Healthy eating gets a green light. Sounds sensible. However, the possible profit that can be made with such apps is very limited.

Experts doubt the effectiveness of the app überhaubt. That shouldn't surprise you. First of all, there are physical limitations. This diet will - if it works - work differently for different children. For, although on average people lose weight when they start dieting, they differ quite a bit in the way their bodies react to a diet. In addition, there are doubts about the extent to which traffic lights lead to a change in behaviour. Children (just like adults) have difficulty controlling their eating impulses. Children who have once learned to eat sweets will not easily be able to resist the temptation of sweets in the house.

But the Kurbo app is causing tremendous anger among parents and experts, and a petition to banish the app from the app store was signed more than a hundred thousand times in America. Parents are afraid that the app could provoke undesirable eating behaviour and eating disorders. And that's not unjustified. Children can see their inability to leave candy standing, as a character weakness, as failure. It is easy to imagine that the use of the app could lead to feelings of guilt among children as it is not possible to leave red light food on. Indeed, research shows that this type of diet is strongly associated with problematic eating behaviour, but also with psychiatric eating disorders (such as bulimia and anorexia) in later life.

Interventions that want to manipulate children to eat differently will therefore be ineffective, and may also cause children to feel unjustly guilty. So don't. So what's the solution? Well, it is very obvious to look much more closely at the social context of children. Research into the social determinants of health gives indications for better interventions. Children with boyfriends and girlfriends are more sporty. Children eat healthier as their friends eat healthier.

But especially the parents play a crucial role. Children are more likely to have a healthy weight if parents do not put unhealthy foods on hold. Often parents buy food because they like it themselves, or because they are used to buying it. According to the rational theory of choice, it then makes sense to influence parents' buying behaviour, through price incentives or, for example, through idealistic advertising. Or by a traffic light system in shops, such as the NutriScore that is now being advocated in the Netherlands. Systematic research shows that these kinds of stimuli work in part. But also that even benevolent parents have to fight an unfair fight, for example against the commercial interests of the food industry, which does its best to also bring unhealthy products to the child with deliberate advertising. Or against cultural codes, which prescribe that drinking alcohol is cool, or is part of a party. Really effective policy should also be able to understand the structural and societal side of the problem.

A better explanation, more understanding

This example shows that explanations for differences between children should not be confined to the individual, but should look for explanations and causes on several levels. I suggest at least four analytical levels should be undivided.

First, the *nano level of* the human body. In principle, health and vitality have a physical basis, which can only be partly influenced by choices. Exciting recent developments in epigenetic research teach us a great deal about the way in which diseases, but also all kinds of factors related to physical limitations, have a partly epigenetic basis, which develop according to the circumstances. The epigenetic features - which turn genes on or off - which, for example, predict obesity, can be suppressed under the right conditions.

The second level of explanation is the *micro level of* the individual actions and behaviours. Here it is logical to supplement the core assumptions of rational choice theory where necessary with the assumption that people are sometimes irrational in predictable ways. For example, insights from behavioural economics can teach us how *nudging* can effectively encourage people to behave in a socially desirable way. This is a promising field

of research, but more research is needed to determine whether and under what circumstances nudging contributes to changing towards healthier lifestyles.

Thirdly, the *meso level* of the immediate social environment. Parents, classmates, friends, and the wider social network that children have is critical to their health outcomes.

But as I said, that's not the whole story. By focusing on the individual body and the immediate environment of children, we ignore the broader social context in which health differences are produced. So we have to take into account a *macro level*. As I said, it makes a lot of difference where you grow up. For example, many researchers point out that there is a strong link between social inequalities and health inequalities between people. Harvard's political sociologist Jason Beckfield also points to institutional factors that contribute to the explanation of health inequalities in societies, such as the neoliberal restructuring of social policy, the welfare state, and the political and social integration of minority groups.

Thus, at least four analytical levels are important to explain health differences: a nano level (bodies), a micro level (individuals), a meso level (social environment), and a macro level (geographical units). A similar argument can be made for the explanation of skills differences. On the one hand, it is very obvious - and perhaps reassuring - to interpret differences in acquired skills as consequences of individual choices. But here too, physical, social and societal factors play an important role.

We often pretend that anyone can become anything. But talent and learning ability are unevenly distributed. There's something to do with studying and practicing, but by no means everything can be done about it. Just as not every child has the talent to play soccer in the first of Ajax, not every child has a brilliant mathematician. In part, that has a physical cause. There are genetic and eipgenetic differences between children, which partly contribute to the explanation of school achievements. Social processes also play an important role in our educational outcomes. We often do what our friends do. Or our parents. Schools are also crucial, because the extent to which children learn skills partly depends on processes in the classroom, such as the learning environment, quality of teachers, didactics, curriculum development, and class composition (Hatti, 2008, in a

meta-study of 800 meta-studies). As far as our education is concerned, we are of course also influenced by structural social factors, such as education systems (Van der Werfhorst, 2014). My own research also shows this.

Objectives

This brings me to the core of my argument, and the mission of my chair. I want to explain how we can best prepare today's children for the future. I want to understand how they learn the right skills at school, but also how children can be and stay healthy. The theoretical model that I have used so far, and which is also the subject of many policies, is helpful but also too simple. To make this model more complex, it is necessary to bring together insights from a number of existing research lines and to combine theoretical insights. A theory should assume that people make decisions, but that their decisions are also shaped by their physical characteristics and the context in which individuals find themselves: the structures and cultures of the groups to which they belong, but also the invisible hand of the market, the whip of the state, the structure of society, and the invisible functions of the institutions.

Of course, a lot of research has been done into the factors that explain why some children are healthier than others, or why some children achieve better school results. It only becomes exciting when we assume that the factors at the different levels interact with each other, in order to collectively contribute to the explanation of differences between children. For example, we can investigate whether physical differences can explain why some interventions work for some children and not for others. Or look at social structures to explain why interventions in one country are effective but not in another. Over the next few years, I will be carrying out this type of research, in order to find out which education policy is promising and why.

The second task is to put the complexity of this matter on the public agenda. After all, the enormous popularity of the rational approach to choice does indeed have undesirable unintended consequences outside the academy. The great success and popularity of rational choice theory has led to a strong emphasis on individual explanations, with other,

structural explanations for differences often receiving little attention in the public, political and administrative debate. By also examining other explanations and showing what works, my research programme will hopefully have the desired side-effect that other policy measures will also be tried out.

How do I investigate this?

Good science starts with asking the right question. These can be descriptive questions about how reality works, but also questions about explanations for observed differences, or questions about causes and consequences. With my chair I want to answer the following questions:

1 To what extent are educational outcomes and the related mental and physical well-being of pupils explained by the interaction of their health, other personal characteristics, their social environment, their school characteristics, and the social and institutional structure in which they live?

2 What early risk factors predict children's health outcomes and educational performance, and thus provide important evidence for an effective prevention policy?

3 Which interventions work, which do not, for whom, and why?

I will answer these questions by doing what sociologists are good at: empirically testing different theoretical explanations in a demand-driven research programme, in order to achieve systematic knowledge growth. To this end, I do not want to assume in advance that people are rational, but are working on a more complex theory. I will connect relevant theoretical insights from sociology, behavioural, educational and labour market economics, social epidemiology, psychology, and medicine, epigenetics, and health sciences where necessary, in order to learn as much as possible from the insights and methods from the different fields through cross-fertilisation, and thus to achieve a greater

theoretical understanding. This requires a multidisciplinary approach. Fortunately, ROA is a multidisciplinary institute. My colleagues are adept at working with researchers from different disciplines. We are used to speaking each other's language and looking at other disciplines with an open mind. That's crucial.

Science is only science if we also test our theories against reality. This requires good data, and the availability of useful data is not self-evident in our field. In the area of children's health and education, too, the growth of knowledge in this area has long been held back by a lack of reliable, valid data. However, this has changed in recent years. With some pride I would like to mention that in Maastricht we play a national and international pioneering role in this. Together with Rolf van der Velden and Carla Haelermans and other colleagues at ROA and CBS for NRO, I developed the National Cohort Research on Education (NCO), one of the largest collections of data on education in Europe, in which we can follow almost all schoolgoing Dutch children throughout their school career. The Limburg Education Monitor, which contains a wealth of valuable information on learning achievements and educational processes, is also collected by colleagues in our faculty. And Maria Jansen, professor at FHML, is working with her team to ensure that health data that are held by different Municipal Health Centres can be accessed safely for research purposes. These data make it possible to test the shelf life of parts of the theory mentioned above.

It is very important to use the right methods for the proper testing of theories. My empirical research takes place in three ways, in which the research question is always leading for the choice of the research design. Firstly, I want to combine large databases based on registers, survey studies and field experiments with each other and to analyse them with predictive or explanatory analyses. This data will make it possible to carry out quantitative analyses to identify early risk factors in school performance and to further explore the role of health in the learning process. For example, the NCO with survey data on the lifestyle of children and their parents can investigate the role of risk behaviour in the prediction of later educational performance.

A second important form of research is the best possible testing of the effectiveness of policy. Determining causal relationships is one of the major challenges for this research.

In recent years, econometrics has worked hard on an extensive toolkit of methods and techniques that enable us to identify this type of relationship under reasonable assumptions. This so-called credibility revolution has triggered a veritable landslide in research, both in the economy and in the other social spheres (Gangl, 2010). This is important, because observed connections may indicate causation, but they do not "prove" it logically. Correlation does not equate to causality, as this figure seeks to show.

Where necessary and possible, I will apply experimental and quasi-experimental methods that help to better identify causal relationships. But - as I have said and written many times before - we must not absolve ourselves of the advantages of these causal methods, and we must not ignore the disadvantages. One of the major drawbacks of the emphasis on causal methods is that we therefore focus primarily on ***causes*** and not enough on ***explanations***. The credibility revolution places a strong emphasis on refined research methods, but is poor in theory. In most cases, human capital theory is implicitly present in the impact evaluation literature; too little attempt is made to interpret empirical findings in relation to underlying theoretical assumptions. This hinders the systematic growth of knowledge.

I therefore also intend to carry out **explanatory analyses** aimed at gaining a deeper insight into the causes behind the causes. The project uses quantitative analyses as well as qualitative research that can teach us how parents, children, teachers and school leaders understand core concepts such as health, educational success, labour market employability, how they experience interventions and how they interpret the objectives of those interventions.

It is clear that this programme can only succeed in cooperation with other civil society players. This primarily concerns schools. But schools don't operate in a vacuum. They are part of a broader social context, which influences their functioning. The National Prevention All-In-One Health Programme provides the necessary conditions for the research I want to carry out. As a broker, the programme can link various parties - municipalities, school boards, regional networks, pledgees - to my research.

By the way, we already have a lot of experience with this working method. Together with Raymond Montizaan and Marie-Christine Fregin, and colleagues in Maastricht, Oxford, Cambridge, Florence, Stockholm, Berlin, Tallinn, and Tilburg, I am currently investigating on behalf of the European Commission how technological developments affect the labour market of tomorrow. To this end, we work together with various national governments, but also with knowledge institutes, large companies such as IBM and Siemens, and trade unions. Here lies the knowledge about which skills are needed, which policy interventions may be effective, socially desirable, and politically feasible. Only by listening carefully to these players and working with them will we be able to ask and answer the right questions.

Finally...

What does this chair actually produce, and for whom? Firstly, my findings are relevant to my colleagues in the scientific forum. By making theories more complex and testing them well, I hope to contribute to the scientific knowledge and understanding of the complex relationships between skills, health, and outcomes.

But there are also social benefits. Because I focus directly on the evaluation of legislation, policy and institutions, my proposed research line provides knowledge that can be used to promote healthy behaviour and school performance among young people. School administrators and school leaders can use this knowledge to create policies aimed at reversing unhealthy lifestyles and improving school performance. Youth health care benefits from knowledge about effective interventions and can save costs and increase the effectiveness of its own interventions because risk groups can be identified more quickly. For municipalities, the implementation of an effective policy will lead to cost savings, because the pressure on benefits can be reduced by better labour market employability.

Enough potential revenue for governments, schools, and other social players, in other words. But what use is that to children, anyway? What do I offer Eva and her peers? Well, hopefully my research can contribute to better future prospects for children. But of course

there is much more. I have now spoken mainly about the ***usefulness*** of education and health. About the importance of being healthy and skilful for a future in the labour market. I think that's important, too. But I wouldn't argue that a future life as a productive worker is the only, if not the most important, reason to invest in your education and health as a child. Good health is valuable in itself; it is not for nothing that health is a human right. Being healthy and fit is just fine. The same goes for good education. Learning things and knowing is also fun, and knowledge in itself is worthwhile. I hope that my research program will help children to have a finer, healthier, richer, and more educative youth, and thus be able to face the future with confidence and good preparation.

... a word of thanks

An oration comes with a word of thanks. I am very grateful to the Rector Magnificus, Professor Rianne Letschert, the Executive Board of Maastricht University, the Dean of the School of Business and Economics, Professor Peter Møllgaard, professors and ROA directors Rolf van der Velden and Andries de Grip, and to the highly- and wealthily-educated members of the Appointments Committee for the trust they place in me.

Madam Rector, nine years ago, I came to the ROA from the Department of Sociology at Radboud University to study the connection between education and the labour market. When I applied, I was asked if I wasn't afraid to enter the lion's den as a sociologist at an economics faculty. I didn't really understand what that meant at the time. During that conversation I briefly got the uncanny feeling that the work between the economists could become challenging. But nothing could be further from the truth. What I found at the ROA was an extremely fine, professional, club of talented, original, and artisan researchers, who have an open mind, and who turned out to be very fine, warm and inspiring colleagues. I'm grateful to be able to work with these people. Rolf and Andries: thank you for your support, your inspiration, and your guidance. I am proud that, together with you and professors Frank Cörvers and Didier Fouarge, as a member of the Management Team, I can help to steer the course of the ROA and contribute to the national and international positioning of the institute.

Dear ROA colleagues, you know I love working with you. I would like to say a special thank you to the people with whom I work intensively. Raymond, Didier, Melline, Marie-Christine and Maaike, with whom I try to study the future of work, education and social security in the Technequality project; and Carla, who has followed me so dynamically and skilfully as co-coordinator of the NCO. But also NCO colleagues Timo, Bas, Per, Sanne, and Madelon: you are a great team, and you do important work. Keep up the good work.

My friend Tim Huijts, with whom I have been working since 2002 and who always keeps me sharp. And the silent forces in the background make sure that things keep going: Esther, Mariëlle, and Miranda, Margot, Joyce and Melissa. A special word of thanks for my PhD students and PhD students: Alexander, Lynn, Marie, Marie-Christine, Lisanne, and Vaida. It is a privilege and a pleasure to work with you and to learn from you.

This profiling chair is paid for one fifth by the Sardes Foundation, from resources that come from the National Programme All is Health. I would like to thank the director of Sardes, Hermann van Holt, and the head of the programme Alles is Gezondheid, Karen van Ruiten, for the trust they have placed in me. A special word of thanks to Dr. Liesbeth van Welie, who approached me on behalf of Sardes over a sandwich at the Tribunal in February 2018 for this chair. Dear Liesbeth, without your creative ideas, continuous commitment and pleasant guidance, this chair would not have been there. Thank you for all your hard work, the wise words, and for your unwavering trust. I'm very grateful to you.

Like all scientists, I stand on the shoulders of giants. Numerous people have contributed to my development as a scientist and academic. In addition to the people already mentioned, I would like to mention my promoters Ariana Need and Wout Ultee, who trained me to be a researcher, and who, together with the other teachers in Nijmegen, taught me arithmetic and writing again. Nan-Dirk de Graaf did the same, who also invited me to Oxford and made me feel at home there. Besides Tim also my other good friends in science: Giedo Jansen, Hans Paardenkooper, and Roxanne Korthals.

And especially Jaap Dronkers. My scientific career started with Jaap and his wife Tonny in Florence, with a research internship at the EUI. Jaap's chair is empty today. Tonny, I know

you're watching over the Internet. I would like to thank you very much for the beautiful time under the Florentine sun.

Jaap said: the best decision you can make as a child is to choose the right parents. Now, of course, you can't pick your parents. But, Mom and Dad, if I had a choice, I would have chosen you. Thank you for all your support, and for all you've taught and taught me. You're the finest people I know, and my great examples.

Dear Eva, I started my speech with a story about you and your future. In the coming years, we will be making many choices together: about the large school, choice of profile, and a further education. About candy, food, drinks, sports. And about dresses. I'm sure we'll talk a lot about it and, knowing you, you'll undoubtedly try to convince Mom and Dad of your right with a lot of good, careful arguments. And you'll be able to do that more and more often. Experience shows that Daddy's highly-skilled arguments do not necessarily carry weight in our conversations. I don't know if this reason will change that. That's fine: you can make your own choices. But I do hope for one thing: now that you've seen with your own eyes that Daddy also needs to wear a nice dress, I hope you'll at least take my opinion about dresses a little more seriously in the future. For the rest, I'm very proud of you. Don't worry about the future. Everything's gonna be okay.

Dear Désirée, the last word of thanks is for you. The most important choice you can make in life is to choose a good partner. And how well I've done that! Thank you, for everything. I know that living with an academic is never boring, and not always easy. Without your continued support, I wouldn't be here today. Thank you for your patience, your humour, and your love. You're my hero.

Final word

Madam Rector, I'm finishing up. I've been trying to tell you what I want to do as a professor of Health, Education and Work in the coming years, and how. I am proud to hold this office, and firmly believe that it is sweet and honourable to be able to work as a scientist in our society. This is not even so simple these days: science is under increasing pressure.

Scientists are regularly attacked by stakeholders who do not want our nuances and facts, or who see social sciences as a continuation of an ideological directional struggle by other means.

And we are faced with austerity measures, a very high workload, and ongoing uncertainty about the future. That has consequences. Scientific personnel are under enormous pressure and a lot of young talent is leaving the academy.

Although scientists in general still enjoy a great deal of trust, we have lost prestige among some of the people. I get that somewhere. Scientists often tell us what people don't want to hear. We nuance statements that are too simple, refute myths, and show that sometimes people are just wrong. That sometimes makes us unwelcome messengers. And sometimes people get angry.

Yet science is now more relevant than ever. At a time when politicians are eager to turn reality around, when quality journalism is under pressure, and when truth and lies can no longer be distinguished on social media, science has an important social task. Scientists do not have a monopoly on truth, but through structural and systematic research they are able to tell the most honest, least prejudiced story. We'll tell you what you don't want, but you need to hear. That's very important. After all, individual choices and public policy must be based on a good understanding of social reality.

And that reality cannot be ignored with impunity.

I said.