





# Media literacy

2005 > 2015 > 2025

Jubilee book to celebrate  
a decade of media literacy  
in the Netherlands

10

**Compilation, interviews and editing**

**Eva Bosgraaf** [peoplestories.nl](http://peoplestories.nl)

**Daniël Lechner** [eeep.nl](http://eeep.nl)

**Project management**

**Mimi van Dun** Netherlands Institute for Sound and Vision

**Supervision**

**Mary Berkhout** [mediawijzer.net](http://mediawijzer.net)

**John Leek** Netherlands Institute for Sound and Vision

**Production**

**Louis Hilgers** [educos.nl](http://educos.nl)

**Design**

**Judith Eurlings** [querydesign.nl](http://querydesign.nl)



# Table of contents



|   |           |
|---|-----------|
| <b>Foreword</b>   | <b>6</b>  |
| <b>Milestones in media literacy 2005 &gt; 2015</b>          | <b>10</b> |
| <b>Iconic innovations 2005 &gt; 2015</b>                    | <b>16</b> |
| <b>Maarten Steinbuch</b><br>Life in a robotized world       | <b>18</b> |
| <b>Hans Schnitzler</b><br>Awaken from the digital slumber!  | <b>22</b> |
| <b>Daniël Brinckmann</b><br>Improving on reality            | <b>26</b> |
| <b>Imar de Vries</b><br>New media: a phenomenon of all eras | <b>30</b> |
| <b>Ger van Drunen</b><br>New media for a new way of working | <b>34</b> |
| <b>MoBen</b><br>Technology makes us more human              | <b>38</b> |
| <b>Reinout te Brake</b><br>Fun and games for a better world | <b>42</b> |
| <b>Renee Hobbs</b><br>United and subversive                 | <b>46</b> |
| <b>Kieron O'Hara</b><br>We have a right to our own data     | <b>50</b> |
| <b>Marinka Copier</b><br>Our culture needs complex games    | <b>54</b> |
| <b>Corien van Berlo</b><br>Enjoying technology              | <b>58</b> |

|   |            |
|---|------------|
| <b>Dadara</b><br>A like for life                                      | <b>62</b>  |
| <b>Howard Gardner</b><br>Setting values for the digital world         | <b>66</b>  |
| <b>Robert-Reinder Nederhoed</b><br>Democratic payments                | <b>70</b>  |
| <b>0xDUDE</b><br>The internet is not as safe as we think              | <b>74</b>  |
| <b>Sonny Mathura</b><br>The media literate school                     | <b>78</b>  |
| <b>Howard Rheingold</b><br>Determining the future of the web together | <b>82</b>  |
| <b>Martijn de Groot</b><br>Measuring who you are                      | <b>86</b>  |
| <b>Bart Robben</b><br>The connecting power of stories                 | <b>90</b>  |
| <b>Mitchel Resnick</b><br>Those who can code can create               | <b>94</b>  |
| <b>R. David Lankes</b><br>The beating heart of the media society      | <b>98</b>  |
| <b>Media literacy 2015 &gt; 2025</b>                                  | <b>102</b> |
| <b>Network partners Mediawijzer.net</b>                               | <b>104</b> |

**Credits** Roy Wanders Photography (black & white images) / Michiel van Nieuwkerk (portrait of Hans Schnitzler) / Bart van Overbeeke (portrait of Maarten Steinbuch) / CityU Hong Kong (portrait of MoBen) / Jorrit Lousberg (photos on pages 12, 14, 108) / Jørgen Koopmanschap (photo on page 112) / Aad van der Drift (interview with Mitchel Resnick) / Translation: Duo Vertaalburo

**Printing** PrintSupport4U

**Contact** Mediawijzer.net / info@mediawijzer.net  
www.mediawijzer.net / www.mediawijsheid.nl  
Twitter @mediawijzer

**ISBN/EAN** 978-90-79190-08-9



Jan Müller

Chairman of Mediawijzer.net steering group

Managing Director of Netherlands Institute for Sound and Vision

## Foreword

### Jan Müller

**During our interview with Renee Hobbs, we put it to her that the main purpose of this book is to look ahead to the next decade. She responds with a rather sobering suggestion. ‘Before you can look ahead, you need to look back at the past.’ Hobbs is an authority on *media literacy*. She is a co-founder of the National Association for Media Literacy Education in the USA and the author of the much discussed manifesto on *Digital and Media Literacy: A Plan of Action* published in 2010, which – as the title suggests – takes an active, progressive approach to media literacy. Towards the end of the interview, Hobbs surprises us once again with an unexpected revolutionary appeal. ‘It is of vital importance that we gain more activists over the next ten years. Markets operate at their best when consumers are not too critical and blindly consume everything that is on offer. Media literacy therefore needs to be subversive. It’s okay for the industry to be a little afraid of us.’ She also states that ‘as a professional in media literacy, you shouldn’t be afraid of fighting the media community.’**


#### **Ten years of media literacy: looking back**

Let’s return to the past and examine how a decade of media literacy has been brought about. There have been many great achievements since this knowledge domain was introduced by the Council for Culture in 2005 and Mediawijzer.net was set up a few years later. The Netherlands is now a much more media literate country thanks to the contributions of the five key partners of Mediawijzer.net (Stichting Kennisnet, the National Library of the Netherlands, ECP, NTR, and Netherlands Institute for Sound and Vision), together with more than a thousand network partners and several hundred media coaches, who have been brought on board in the meantime. This book begins by highlighting several notable milestones in media literacy, spanning from 2005 to 2015. It also presents an overview of iconic innovations.

When we dig a little deeper, we see that the first decade focused primarily on what technology and technical developments in the media have brought us. We also see their influence on society and our personal lives. Looking back, it is clear that media literacy – as though a technological concept in itself – had to develop over the first ten years from an idea to a fully-fledged knowledge domain; from discussions on technological developments and what is possible to a much more contemplative view: What is not possible? The focus is on new realism rather than technological optimism. It is this period that we are entering now.

#### **A prelude to the coming decade**

Let’s turn to the future. Hobbs encourages us to take a more activist, subversive approach. How can we do this after ten years of collaborating on the development and embedding of media literacy in teaching and education? In our view, this starts by purposefully distancing ourselves from day-to-day issues and being open to new angles and unexpected perspectives. For this book we contacted twenty-one distinguished artists, scientists, business owners, developers, philosophers, and a hacker. They work in a diverse range of sectors, from health care to education, from home automation to robotics, and from bitcoin trading to the television industry. Fifteen of them are Dutch, four are American, one is British, and the last is a Frenchman. All twenty-one of them work outside the Mediawijzer.net network but are at the heart of our media society. Some of them were unfamiliar with the term ‘media literacy’ but they all have their own vision on developments in media and technology and their significance for us as human beings and as a society.



Their ideas allow us to ponder the ‘new media literacy’ that will be required in the coming decade, based on the inspiring, refreshing, and sometimes even unsettling messages they give us.

### From pessimism to optimism

Our interviewees seem to be divided into two schools of thought. The experts in the first school of thought focus on the dark side of the media in general and the internet in particular. They wonder if there is a sufficiently effective code of ethics in the digital domain, and highlight the undesired side effects that are associated with digital media. Proponents of this first school of thought – let’s call them critical observers – seek footholds in autonomy, in knowledge and understanding, in what can be controlled. Here, media literacy means wisdom with regard to media and their use in the lives of individuals. At the most pessimistic end of the spectrum is the philosopher Hans Schnitzler who predicts that we will be ‘chained to a monstrous agglomeration of devices’ in ten years’ time.

The experts in the second school of thought have a much more positive outlook. They make think that digital media enrich our lives, and that media literacy provides ‘value’ to media users. This second school of thought – the optimistic significance seekers – is much more inclined to see and praise the achievements of media literacy: the extent to which an understanding of media and the ways in which they work help us develop as social individuals. This group believes the coming ten years will bring about a more experienced media user; a media literate person who is increasingly capable of using media to enrich their life.

Those interviewees on the more optimistic side of the spectrum use terms such as ‘sustainable’, ‘self-determination’, ‘meaningful’, and ‘democratic’. At the most optimistic end we find Maarten Steinbuch, a professor of Robotics, who believes we can expect a wonderful future full of ultra-intelligent robots.

At the middle of the spectrum we find a group of interviewees who believe in a better and more appealing media society, but only if we take an active, critical, and purposeful approach to shaping it. Internet visionary Howard Rheingold expresses this group’s vision in words. ‘We are approaching a critical point. If we throw in the towel now, we will lose the control we have over the internet and it will become an increasingly inhumane place. Alternatively, if enough people have sufficient energy to focus and work on the tradition that has made the internet great, we can look forward to a fantastic future.’

### Ten years of media literacy

This book presents the inspiring stories of people who have one thing in common: they are passionate about the significance of media in the future. This passion defines both their work and their personal lives, consuming all their waking hours, hence our delight at being able to talk to these experts about media literacy and their vision of the future. We balance a remembrance of the past and the development of media literacy with the, at times, unsettling issues they raise. At the end of this book, we examine these issues once again, and their importance for the future of media literacy.

I hope you enjoy reading this book and draw great inspiration from it.



Ten years of  
media literacy

# Milestones in media literacy 2005 > 2015

Over the past ten years, the five key partners and more than a thousand network partners of Mediawijzer.net have turned the Netherlands into a much more media literate country. Together they have set up numerous projects, organized workshops, conducted studies, written publications, given advice, developed teaching materials, and built games for a range of different groups. This overview highlights the milestones of the past decade.

The Council for Culture presents its advisory report *Mediawijsheid – De ontwikkeling van nieuw burgerschap (Media literacy – The development of a new citizenship)*.

National MediaCoach Training launched.

Opening of the media literacy pavilion at the Sound and Vision Experience.

- Introduction of MediaMasters, a media literacy game for primary schools.
- Launch of [www.mediaopvoeding.nl](http://www.mediaopvoeding.nl) by Ouders Online.

- Publication of *De Mediawijzer 2013*, an in-depth handbook for media literacy professionals.
- Start of Mediawijs.be, the Flemish Knowledge Centre for Media Literacy.

- 1000th network partner joins Mediawijzer.net.
- Right to Media Literacy, most successful campaign during the Week of Media Literacy.
- Opening of Media Ukkie Land – Sound and Vision pavilion for 4-6 year olds and their parents.
- More than a thousand media coaches trained in the Netherlands.

2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 >



Mediawijzer.net founded by the five key partners: Kennisnet, Netherlands Institute for Sound and Vision, the Association of Public Libraries (now: Koninklijke Bibliotheek, the National Library of the Netherlands), ECP Platform for the Information Society, and broadcaster NTR.

- Launch of public libraries as House of Media Literacy.
- Publication of *Handboek Mediawijsheid op School* by Mijn Kind Online.

- Launch of the Media Literacy Competence Model.
- Foundation of Stichting Mediawijsheidscholen.

- Publication of the *Monitor Jeugd & Media*.
- Fiftieth media literacy project co-funded by Mediawijzer.net.
- Platform Onderwijs2032 recommends including media literacy as a core subject in schools.
- Introduction of Toolbox Media Education by NJi.
- More than 100,000 children from primary schools (years 7 and 8) sign up for MediaMasters.





**MediaMasters**  
2015



YouTube NL

My Comment Festival



Workshops volgen bij Beeld en Geluid



My Comment Festival

Abonneren 475

+ Toevoegen aan Delen Meer

25 weergaven

7 0

My Comment Festival 2015

# Iconic innovations 2005 > 2015

Twitter



Instagram



Google Glass



Periscope



Kickstarter



Oculus Rift



2005

2006

2007

2008

2009

2010

2011

2012

2013

2014

2015



YouTube



iPhone



YouTube

App Store



Siri



Ello





Maarten Steinbuch is a professor of *Control Systems Technology* at Eindhoven University of Technology. His work involves developing care robots and self-driving cars. Steinbuch and his team have twice been crowned champions of the Robot Soccer World Cup.

## Maarten Steinbuch

### Life in a robotized world

**Maarten Steinbuch is an optimist. ‘Call me naive, but I believe in the power of being connected to one another through the internet and new technology. Of course, any new technology can be used for malevolent purposes. Personally, however, I am strongly convinced that the future could be very bright.’ Highly-intelligent robots will be an integral part of this future, he believes.**

#### No more traffic jams

Steinbuch explains how fast developments in robotics are progressing. ‘Ten years ago we started building our soccer robots. The first ones were not exactly a success. Every two minutes they’d come to a standstill in the field, for instance due to Wi-Fi problems. A year later, these problems had been resolved and their recognition of the ball had also greatly improved. They were able to move towards the ball and push it forwards. However, they were still unable to move backwards. These days they can move dynamically, pass the ball around, and tackle one another. They really work as a team. Developments are moving at a rapid pace.’ And Steinbuch also predicts that they will get even faster in the next few years.

‘The American futurist Ray Kurzweil calls this the “*Law of Accelerating Returns*”. This means that we are not developing in a linear fashion but in an exponential fashion. Once things are moving quickly, they will only accelerate even further.’ Steinbuch tells us about the future of self-driving cars, one of the main focal points of his research. ‘Children born today will never have to take a driving test. Cars will be so advanced in the future that you only have to get in and say where you want to go.’

The transition to self-driving cars also has other advantages: ‘They will be more efficient so fewer will be required. All you have to do is call up a free car via an app and it will take you to your destination. Consequently, we will only need ten per cent of the current number of cars being driven. This eliminates the problems of parking and traffic jams.’ Steinbuch’s face lights up as he says this. He cannot wait for his predictions to become reality.

#### Robot dog

At his laboratory in Eindhoven, Steinbuch always keeps one eye on the human element. ‘A while ago, I developed a robotic arm for a man suffering from paraplegia. Once the man had been using the arm for a while, I asked him what he thought of it. With tears in his eyes he told me that he had become less dependent upon his carers. This really touched me. Once again, I realized that technology is there to help us and serve us, and not the other way around.’ Steinbuch emphasizes that this should always remain a priority. ‘We must always think about whether we are developing the right things. We must therefore also listen carefully to people with critical opinions on new technology’.

#### *‘People are the starting point.’*

Developers of robots need to realize that people feel uncomfortable with the idea of a robot in their lives. ‘When you tell people they’ll have a robot dog in future to keep them company, they all say, “Oh, but that’s so impersonal!” Yet if you give someone a robot dog to play with, they’re hooked in no time at all. If you allow people to gradually get used to robot technology, they’ll have no problem embracing it. People often have more of a child-like curiosity within them than they themselves are aware of. However, in order to appeal to that curiosity, you have to start with the person and not with the technology. People are the starting point.’



## Life in a robotized world

### Replacing doctors

In the future, the relationship between humans and robots will be very different from how it is right now. 'At present, people still look down on robots. "Look, what a cute robot!" we think. However, in ten years' time we'll be looking up to them, as we'll then have robots that are just as smart as us. In thirty years' time, a single robot will be just as intelligent as the entire human race. And they won't just be for the happy few; billions of people worldwide will have a robot like this.'

As a matter of fact, humans will be relegated to second place. 'A lot of patients already know more about their problems than their GPs. After all, you can read all about it on the internet. In ten years' time, your smartphone will tell you exactly what is wrong with you and what you need to do without seeing a doctor.'

*'In ten years' time,  
we'll no longer need GPs or lawyers.'*

If you go to court, your smartphone will gather all the relevant case law and tell you how to argue your case. Will we still need GPs and lawyers in ten years' time? I very much doubt it. It is very important for us to carefully consider how we want to deal with this. The world will change in ways that is difficult to imagine.'

### Oath

The question of how we humans will be able to continue controlling robots once they have become smarter than us is one that Steinbuch considers crucial. 'There will come a time when we can no longer cut off the power. Robots will be smarter than us. We will have to train engineers to include ethics in the coding when developing robotics. This is something we need to think about and talk about as a society now. Communication about what we do and do not want robots to do is essential. We designers need to be aware of the social consequences of our technological inventions.' Steinbuch elaborates on this in the teaching of his students. 'Here at the university we have introduced an oath that students must take before they are given their certificate. As part of the oath, they must promise to always treat humans and animals in good faith.' Nevertheless, the users themselves also have a part to play. According to Steinbuch, users devote more thought to what they actually expect from the technology. Developers and users of robotics need to talk to one another. In principle, I believe everyone is capable of doing so, but you do need to look beyond your own boundaries and prejudices.'

'Perhaps this should even become part of the school curriculum. We could call it "technological citizenship". Primary school children would learn how to relate to the technology they use every day. I don't think this subject would be an unnecessary luxury. In a world in which we are increasingly concerned with what technology can do for us and how it affects us, we must also learn to talk about what we as humans expect from this technology.'





Hans Schnitzler is a philosopher and the author of the book *Het digitale proletariaat*, in which he paints a gloomy picture of the future. We are increasingly becoming slaves to digital technologies that exhaust and numb our minds. Profit-hungry internet companies are capitalizing upon our attention, friendships, and emotions.

## Hans Schnitzler

### Awaken from the digital slumber!

Many people have high expectations of the Internet of Things. Smart refrigerators, self-driving cars, and handy smartwatches all have the purpose of making life more comfortable, bringing greater convenience. Hans Schnitzler has a different view. He predicts that, in ten years' time, we will be 'chained to a monstrous agglomeration of devices' that communicate with each other and with unknown third parties. 'This means that we will be attached to the internet more than ever in a much more subtle and invisible way than is currently the case.'

#### Tyranny

'Google top man Eric Schmidt tells us "The internet must be all and nothing at the same time." It must be so integrated within our daily lives that we are scarcely conscious any more that we're attached to a system. Mark my words, the friction between us and our clever gadgets and technological artefacts will become less and less.' Schnitzler believes it will become increasingly difficult to escape from this system. 'Health insurance companies are already saying "tell us all about yourself and we'll offer you a discount on your premiums". However, those discounts are dependent on their liking what you tell them. Health insurance companies are therefore gaining the power to force their customers to conform to the prevailing concept of health. If you don't walk at least 10,000 steps a day, you can expect a higher premium. This creates a type of compulsion, increasingly steering us in a certain direction. Those wanting to escape from this soft tyranny will be forced to pay a high price. In ten years' time, it will cost you to withdraw from this world of *data mining* and *profiling*.'

#### Soma

Our future digital society shows many analogies with Aldous Huxley's *Brave New World*. This novel describes a perfectly organized society made possible by flawless technology. Everything is arranged for you, but at a price: the loss of your identity and individuality. To nip resistance in the bud, the state supplies a drug called Soma that makes you forget all your worries. Schnitzler sees this world coming ever closer: 'Apple, Microsoft, and Samsung want us to believe that everything will be wonderful, without any flaws or problems at all. Technology will make life so much easier! For this very reason, it will be extremely difficult to resist this digital slumber; the easy option has great appeal. In this respect, I think the scenario painted by Huxley in *Brave New World* is a lot more realistic than that set out by Orwell in 1984. Orwell describes a very old-fashioned, oppressive form of tyranny, which I don't see happening in our future. It will instead be more of an insidious danger, with everyone hooked on a digital soma. Although I can't predict exactly what form this digital soma will take, I am sure it will be particularly well-tailored to our personal preferences and desires.' There are already signs of this development visible in present-day technology. 'If you're looking for a way through Amsterdam city centre, most satellite navigation systems will always lead you around the ring of canals. Apparently there are certain algorithms dictating that you have to go around the canals. You are literally being steered by technology. Google and Facebook also frequently show you things they claim are good for you. This channelling of desires that are already within you will only be further strengthened. This is the terrifying phenomenon of the digital echoing well in which your own dreams and desires are constantly echoed back to you, and through which you are slowly indoctrinated by your own desires.'

This will lead to a tremendous degree of conformism and an even greater level of cultural poverty. As Huxley succinctly puts it, “the liberty to be inefficient” and the “freedom to be a round peg in a square hole” are at stake. Non-conformism will be a luxury that comes at a very high price.’

### Herd instinct

Nevertheless, Schnitzler also expects a counter-movement of people who wish to consciously remove themselves from this digital compulsion. ‘A study was conducted by Intel among a group of 12,000 young people. The majority of them considered technology to be too overpowering. This sounds reassuring, but it also emerged that these same youngsters also want technology to do more for them while being less visible. This is fully in keeping with the innovations we now see emerging: technology must become less and less visible so that it causes the least amount of friction possible. If this technology later becomes completely integrated in our lives in a somatic sense, I’m not sure whether the resistance you still see now will be sustained.

‘The French philosopher Bernard Stiegler argues that we are prosthetic, imperfect beings who have always needed technology to survive. The human condition is a technological condition. What you now see happening is an increasing externalization of our mental shortcomings in particular. We are increasingly capable of overcoming our mental imperfections through technology. Technology makes us believe that we are gods who can do and achieve anything. The majority of people – the digital herd who allow themselves to be milked dry – consider this to be a formidable blessing.’

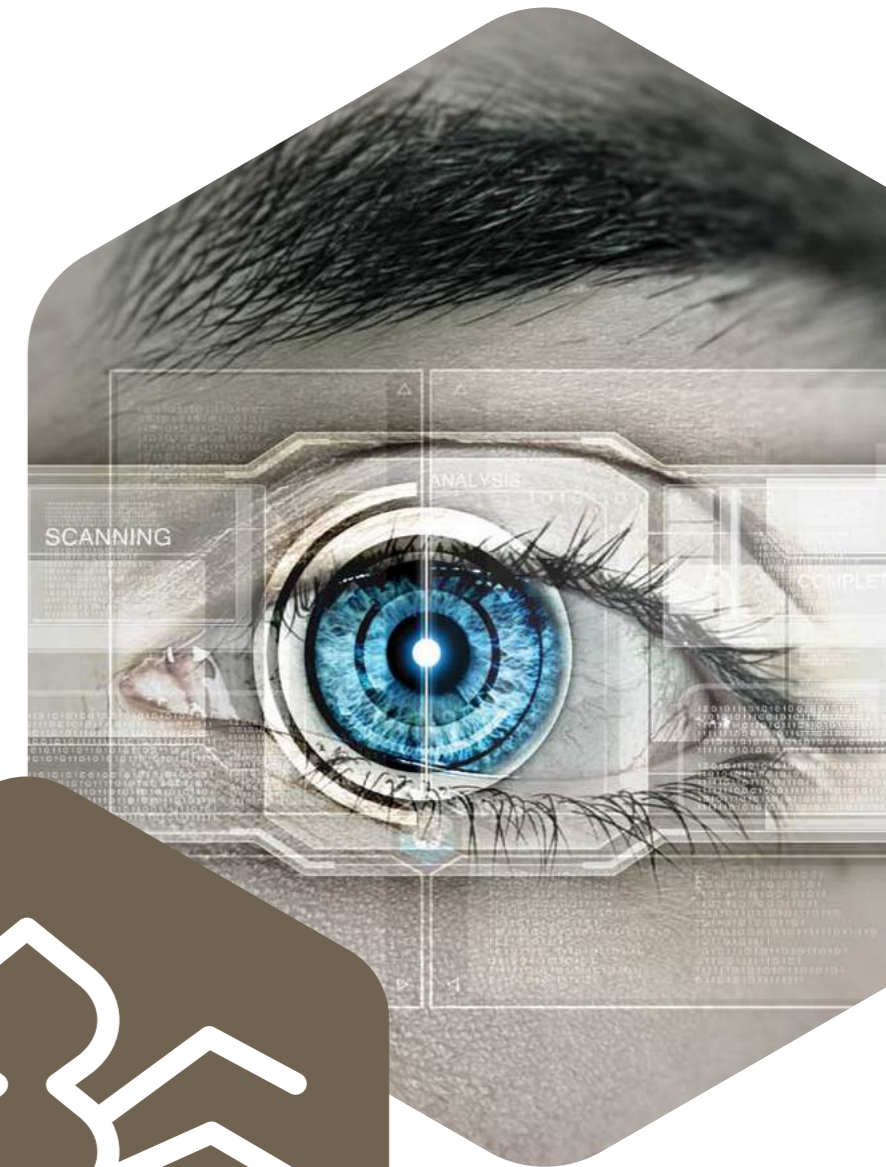
### Upwardly mobile

Is there no sprinkle of hope? ‘Yes, there is’, Schnitzler reassures us. ‘The technology is the problem but it can also be the solution. What is now a poison needs to be turned back into a medicine, and there are opportunities to do so. The infrastructure of the internet is based on the fact that everyone can take part. Anyone can add something or share something; whether for altruistic reasons or just because they want to. The trouble is that there are all sorts of commercial parties constantly watching us and steering us in a particular direction. You must therefore either learn to program or expect to be programmed yourself. So open that black box!’

*‘Either learn to program or expect to be programmed yourself.’*

Teach children to code so that they can recapture their sovereignty, build their own apps, or install a network. This new skill will also help them gain insight into how all the technology we use is created. If you understand how it works, you are in a better position to defend yourself.’

This is why Schnitzler advocates the inclusion of not only coding in the school curriculum but also philosophy of technology. ‘We must teach youngsters to understand how we relate to our technological artefacts. After all, technology is a very creative, upwardly mobile force that makes plenty of things possible. However, there is a risk of overplaying your hand. Due to the speed with which we are overwhelmed with new innovations, we are now barely capable of integrating them into our lives in a meaningful fashion. We chase after them like digital worker ants, causing disruption. We lose sight of the full picture. Once you are able to recognize this, you are also better able to resist this digital slumber.’





Daniël Brinckmann is a co-founder of Coolminds, a company that develops virtual reality applications for the health care, education, and cultural sectors. Coolmind's mission is to 'virtually make life a better reality'. Brinckmann's own specialization is developing applications for Virtual Reality Exposure Therapy (VRET).

## Daniël Brinckmann Improving on reality

In 2013, Daniël Brinckmann was one of the first Dutchmen to try out the Oculus Rift virtual reality headset. 'The first time I put the goggles on, I found myself on a rollercoaster ride. It was unbelievable. I hurtled and plunged around the virtual track and sped around the corners. Although I was just sitting on a chair, when I took the goggles off I really felt nauseous.' Brinckmann realized that virtual reality had to be the next step for the applications his company develops. 'The experience was so intense. I wanted to create something amazing with it.'

### Crossroads

In recent years, Coolminds has developed a range of virtual reality applications. One of them helps people learn how to deal with agoraphobia. 'You are given a pair of virtual reality goggles to put on, showing a film of a busy crossroads in the city. The goggles allow you to look 360 degrees around you so that you feel as though you're really standing there. First you first see the crossroads at a quiet time during the day, when there are few people around. The practitioner then asks you how you feel and explains what you can do to calm yourself down. Once you have gained sufficient self-confidence, you watch a film shot at a busier time. Someone at the crossroads may even approach you to ask you a simple question. As the practitioner can see exactly where you are, he or she can continually coach you in each situation. All the while, you will have a feeling of security as you know in the back of your mind that you're in a safe environment. This allows you to keep on practising until you feel up to facing the crossroads in real life. And it often turns out to be easier to deal with.' This is one of the many applications made possible by virtual reality. Coolminds also created the application Into D'mentia, which enables carers of people suffering from Alzheimer's disease to experience what it's like to suffer from the illness.



### Dinosaurs

The development of the Oculus Rift all started with a Kickstarter crowdfunding campaign. In 2013, the first prototype was made available to developers. 'At present, there are only 160,000 of them in circulation, but the consumer version will be available for purchase from 2016. From then on, we are sure to hear more and more about them.' Brinckmann bases his expectations of the significance of virtual reality in the future on its use by the gaming and porn industries. 'If these two sectors start to make use of a certain type of technology, then you know for sure it will be huge. The Oculus Rift has been embraced by both sectors, so there is no shadow of a doubt that virtual reality will really take off, including in domains other than gaming and pornography.'

*'We will start to hear more and more about virtual reality from 2016 onwards.'*



Cheaper versions of the virtual reality devices are already available on the market, such as the Google Cardboard and Mattel's View-Master, which is a remake of the toy that became so popular fifty years ago. 'These are simple devices that make virtual reality accessible for everyone. For just twenty or so euros, pounds, or dollars you can use the devices to watch lifelike dinosaurs saunter through your living room.'



Brinckmann expects that in ten years' time you'll even be able to touch the virtual world. '3D printers will be so fast that they'll be able to print objects while you watch them. This makes the virtual world tangible. Exposure therapies already exist for people with arachnophobia. They can experience a virtual spider crawling along their arm. In the future, tangible spiders will pop out of a 3D printer connected to the virtual reality goggles.'

Virtual reality technology itself is also set to change over the next ten years. 'Goggles will no longer be needed as the technology will be embedded in a lens that is inserted into the eye. We will have a constant heads-up display similar to the ones now found in the windscreens of advanced cars. The lens will communicate with your mobile phone so that you'll be able to see augmented reality whenever you want. You'll be able to experience your dream holiday, for example, while sitting in the train.'

### On the farm

Virtual reality will mainly be used for entertainment purposes. 'People will use virtual reality in the same way that we now watch television and play computer games: slouched on the sofa, totally immersed in another world.' However, virtual reality can also provide opportunities for shared experiences and social interactions. 'You and your friends will all be able to "attend" the same concert. Just put on your goggles and enjoy the performance together. This is the very reason why Facebook has bought up the Oculus Rift. In the future we can expect people to contact their Facebook friends using virtual reality.'

Brinckmann believes the use of virtual reality for serious purposes will be even more valuable than the social applications. 'Professionals such as pilots and soldiers currently use virtual reality to prepare themselves for difficult situations in their line of work,' he explains. 'The police and the health-care sector are also working on incorporating its use. In future, the technology will be available for everyone.'



Everyone will have a pair of goggles and you'll only need to obtain a 360° 3D camera to start working on the content. We will be entering an era of creation. The fact of the matter is that it is much easier to use virtual reality to create content that has an impact on people than any other type of media.' This offers unprecedented opportunities in fields such as education. 'Teachers can easily create educational experiences for their pupils.'

*'Teachers can use virtual reality to easily create educational experiences for their pupils.'*

Children living in the heart of a big city who have never seen a cow can take a virtual stroll on a farm. All the teacher has to do is take their camera along and visit the farm.'

### Architects

Brinckmann is a developer on a mission. It is for good reason that Coolminds works on creating applications that improve people's lives by offering them experiences they would not otherwise have. Brinckmann is keen to ensure that virtual reality is also used in sectors other than the porn and game industries. People themselves also have a responsibility in this regard. 'Any technology that comes onto the market can be used for malevolent purposes. If you only use virtual reality to become more and more immersed in your game then that's fine, but you might ask yourself whether this will lead to a better world. It's clear to me that virtual reality can also be used intelligently.'

When you come across a new technology, just try and think about how you could use it for beneficial purposes instead of simply doing what others have decided for you. We can be the architects of a better world if we can only stop ourselves from being guided by entertainment in this way.' Brinckmann also sees a role for education. 'Coding is currently a hot topic,' he says, 'but not everyone needs to be able to do it. A change in attitude is more important. Young people should be taught how fantastic it is to be able to create meaningful and enriching content based on ethical principles.'





Imar de Vries is a university lecturer at Utrecht University's department of New Media & Digital Culture. In his internationally acclaimed book *Tantalisingly Close* (2008), he explains how people have been projecting their dreams and desires onto the latest media technologies of the era for centuries.

## Imar de Vries

### New media: a phenomenon of all eras

**Looking ahead to the next ten years as a media literacy network is a good thing. But to what extent is this based on the assumption that the world will change drastically over the coming decade? The springing up of spectacular new media technologies has been a constant feature of all eras, just like the thought that everything would change as a result of them.**

#### A better view

In the photo below, we see Sergey Brin wearing the Google Glass. These glasses were introduced by Brin as a medium that literally gives you a better view of the world. When we look through these glasses, we receive extra information about what we can see. This suggests that we can view the world in a better, more attractive, and more magical way.



As the author Nicholas Carr has already told us in his blog *Roughtype*, history tells us that this type of desire is nothing new. Carr shows us the above painting dating back to the 18th century, in which we see a woman from a respectable background carrying a 'Claude glass' in her hand.

Through the Claude glass, the world appeared a little more magical, romantic, and attractive, just like looking through a lens with Vaseline smeared around the edges. This technology was used at the time for the same reason we now use the Google Glass: people wanted technology to provide them with a better way to see and marvel at the world around them.

This is what we are trying to reconstruct as part of our media history research at Utrecht University. Thinking about current media is something that has a history. It is essential to understand this history in order to be able to talk about the future. What is actually new about today's media, which are so often presented as being brand new? Further investigation reveals that things that are regarded as radical innovations are often not that new at all. The idea of having to constantly do things better, faster, and differently has been proven throughout history to be an expression based on one and the same western belief in progress. *If it's new it must be better.*

#### Angels

Here we see a painting produced by John Gast in 1872 entitled *American Progress*. The painting celebrates the conquest of the so-called 'wild' west, where European civilization is starting to take over and the original inhabitants are being driven away. On the right-hand side of the canvas, we see that typical characteristics of a civilized society have already been introduced: efficient farming methods, steam trains, ships, and stagecoaches. In the middle we see an angelic apparition that symbolizes progress. And what is she holding in her hands? A telegraph cable.



The message of this painting is that out of all types of progress, the most important one is new communication technology. Thanks to a splendid piece of work by John Durham Peters entitled *Speaking into the Air*, my research taught me that the glorification of communication technology is often depicted in the form of angels. After all, they are the ultimate messengers who, without physical constraints or limitation of distance, are in contact with one another, with heaven, and with God. It was long thought that the telegraph transformed us into demigods, able to communicate without loss of time or the need to travel.

### Hope

The painting *American Progress* expresses a hope for a better future. At the start of the twentieth century, the German philosopher Ernst Bloch argued in his book *Das Prinzip Hoffnung* that the ability to hope is one of the most fundamental human characteristics: there will come a time when the world will be a better place; a time when life will get better.

This principle of hope is something that is repeatedly referred to in media history, from a strategic, commercial, and aesthetic angle. Below we can see a postcard from the series *The year 2000*, a series dating back to 1900 in which the French artist Villemard gave us his vision of what the world would look like a hundred years later. The illustration depicts the bridging of time and distance. The scene expresses the hope and desire of soon being able to not only hear one another but also see one another. More than a hundred years later, this dream was brought to life with the introduction of Facetime on the iPhone 4s under the slogan: Finally you can see who you're talking to. The word 'finally' underlines the suggestion that this was a long cherished dream that has now come true.



### Whooping cough

The picture below comes from the Twitter organization itself and illustrates the traffic on Twitter immediately after the Fukushima disaster. The caption reads: 'The world embraced Japan during the earthquake and tsunami on 11 March 2011.' Here, this new communication technology is associated with a worthy cause such as global solidarity. Thanks to new media, the world has been transformed into a global village, as McLuhan puts it. However, the longing for some sort of sublime human connection is nothing new.



Below is a picture of the global telegraph network from 1912. The picture expresses the same desire to be jointly connected to one another. There was the same level of awe and wonder then as there is now. At the time, people said about the telegraph network: 'The possibilities are endless. It will bring about radical changes to the way in which we live and work. These new means of communication will change everything and we will need to reconsider how we do things.' If you had read these words without an explanation, you might well have thought the writer was referring to the unprecedented opportunities offered by social media, the internet, and mobile technology. However, for our great-grandparents, the rollout of the telegraph network was just as fascinating and incredible as broadband, 4G, and smartphones were a few short years ago. And people then were just as likely to complain about the side effects as people today. 'The only extra news we now hear is that some important person or other in Australia has contracted whooping cough.'

### Mundaneum

Another example is our supreme access to information. We are currently all under the spell of Google and Wikipedia. These tools help us find out everything we could ever wish to know. This technology is completely new: Wikipedia has a thousand times more entries than the Encyclopædia Britannica, whilst Google offers access to an unprecedented 30 trillion web pages. Nevertheless, the desire for omniscience is nothing new at all.

At the beginning of the twentieth century, together with Henri La Fontaine, the Belgian Paul Otlet founded the League of Nations, the precursor to the United Nations. He believed that the more information we share with one another, the closer we will be to achieving world peace. In order to achieve this, he built the Mundaneum in Brussels – an enormous hall housing millions of index cards containing facts, information, and data. If you had a question, you only had to contact the Mundaneum for an answer.



In 1934, Otlet wrote a book about it, entitled *Traité de Documentation*. He claimed that if we were to bring together universal information that is comprehensive and quickly accessible, we would become 'all-powerful, all-knowing, like God Himself'.

### Enlightenment

All of this raises the question: if we have seen this all before and we keep seeing it time and again, why do we still keep wanting to believe in these types of stories? It's because we want to forget that it isn't really new at all. We consciously forget because we want to believe in the notion that things will get better; that new technology will give us something that will improve our daily lives and make it more enjoyable. In his book *The Digital Sublime*, Vincent Mosco calls this 'a belief in the sublime'. He refers to the grand stories about new media technologies and the unprecedented opportunities they offer as 'myths'. This doesn't make them any more or less true. These myths lift us out of the banality of everyday life and offer us access to another, more beautiful reality, a reality characterized by the promise of the sublime. The sublime is gradually transformed into that which technology can bring us: Something overwhelming, overpowering, like a great sense of togetherness, and enlightenment on earth – and it's all thanks to new technology. Let us first become aware of how these myths appeal to us, and then we will finally have an even greater understanding of how new media shape our lives.



Ger van Drunen calls himself a *Corporate Disorganizer*. As part of his consultancy to companies, he purposefully creates confusion by denouncing working patterns that have become ingrained. According to Van Drunen, a little disorganization leads to greater enjoyment on the work floor and contributes to the development of talent. In his role as ‘Systempreneur,’ he underlines the importance of new media technologies to create new ways of working and collaboration.

## Ger van Drunen

### New media for a new way of working

**Ger van Drunen is critical of the way in which many companies have been using information technology in recent years. ‘Over the past few years, working people have become measurable,’ he says. ‘They have become cogs in a machine, and real-time dashboards can be used to find out exactly what they have been doing at any given time of the day and what their output is.’ According to Van Drunen, this makes employees extremely unhappy.**

#### Stressed

‘There is too much emphasis on what can be measured. I tell people to just let go. Not everything that can be measured is necessarily valuable or of importance. With a monitoring approach, employees are primarily judged on what they do not achieve. That’s asking for trouble! If you really want to demotivate employees, all you have to do is focus on what they’re not doing right. For too long, IT has been used to keep tabs on employees. This has created a climate in which employees dare not make any mistakes, resulting in a whole spectrum of adverse side effects. Employees no longer dare to be innovative. They are afraid of being proactive, and, consequently, the working environment has become stressed.’

*‘Employees no longer dare to be innovative.’*

Van Drunen hopes that information and communication technology will be used differently in the next ten years. ‘We will need to devise a different work structure for the future. Technology can help us achieve this.’

#### Acceleration

At the same time, developments in information and communication technology also present new challenges. ‘In the past, several generations used to work in the same company, which always led to tension,’ Van Drunen explains. However, in our current media society, these tensions have been amplified. ‘Most businesses are run by people from the “pre-Google” era. New employees join the company, and they have all grown up with Google and are very adept at using new technologies.’ This leads to a generational conflict that is frustrating for both groups. ‘The older generation has a sense of technological failure and inferiority. One moment they are proud of having just sent an e-mail with an attachment, and the next moment a younger employee pipes up: “Just send it via WeTransfer and then we’ll Skype about it, okay?” The older generation panics at the idea.’

In addition to this, new technology has also helped speed up the labour process. ‘People from the “pre-Google” era are accustomed to long-running projects and lengthy learning curves. When you started a project, you evaluated the results after three years, and only then looked at whether something needed to be changed. Nowadays, new initiatives are given no more than a six-month chance, and during that time you need to assess the value of the project as well as your own role within it.’ According to Van Drunen, a large part of this acceleration is due to the media revolution, which has brought great momentum to all aspects of business. ‘Insight into revenues, sales figures, usability, and team collaborations can be obtained much faster with the use of increasingly sophisticated tools.’ Van Drunen claims that all these changes have created a situation in which older employees are ‘primarily focused on survival in the workplace rather than making an active contribution’.

It cuts both ways, however, as the *'digital natives'* are not becoming happier either. They feel misunderstood and unable to say their piece. We therefore see many companies struggling to retain young talent. Newcomers suddenly have to revert back from WhatsApp to e-mail and from YouTube to Word and feel dissatisfied and disillusioned as a result. They feel inhibited in their opportunities for creativity and communication.'

### HoloLens

This lack of creative opportunities is significant. Van Drunen quotes a study showing that the number of disruptive innovations in the Netherlands has fallen by six per cent. 'I have no idea how this was measured. I also wonder whether this can be expressed as a percentage at all. However, I do recognize the general idea. In a culture in which everything has to be done within strict parameters, people are not given the opportunity to develop themselves and come up with fantastic ideas. All of us are confined to open-plan offices. Workers are like battery hens; not one of them would dare freely scuttle around. If you are cooped up for long enough, you automatically develop an attitude in which you think "I just have to do what's asked of me". You need to give people the space to innovate and to do their jobs better.'

Van Drunen refers to the start-up culture that high-tech companies like Google and Apple are trying to maintain at any cost. 'These companies just keep on growing and growing, but they are doing everything they can to avoid becoming gigantic, stifling "molochs". They take a different approach to how they deal with people and resources, encouraging a mindset of innovation and creativity and working with smaller, agile teams. They have smaller office areas, with more flexible, multifunctional workspaces. And they also have a different IT infrastructure. They allow their employees to use the technology of their choice based on what works for them. Goodbye intranet, welcome App Store.'

*'Goodbye intranet, welcome App Store.'*

Van Drunen himself helps Dutch companies become more aligned with the model of a start-up. We are implementing a *disruptive* innovation of the workplace and company processes of one of my clients. We have dismantled the office landscape and set up flexible working areas instead. We also make use of the beehive model. Employees travel around the world, but can always connect online and talk about what's happening, whether they are in Tokyo or Berlin. This creates a constant global interaction.'

'It's common knowledge that the best ideas are born at the photocopier, the coffee machine, or in the smokers' corner. Our job is to ensure that people can interact from there with others in the company, so that everyone is always connected to what is happening in the company, wherever it occurs. Connecting ideas and initiatives is what it's all about.' Van Drunen believes new technologies can help support these processes. 'For example, I expect great things from virtual reality applications like the HoloLens,' he says. 'I can really see it being used as a tool that makes it easier for people to interact with one another about content, irrespective of where they are. That way, you can immediately share with colleagues the idea that popped into your head at the coffee machine in a visually convincing manner.'



### Coaching

'We need to move away from the idea that innovation comes from a laboratory. Innovation starts with people.' But you do have to give people the right tools, warns Van Drunen. 'Young employees feel a need for advanced technology to help them realize their potential. Of course, there's also a certain appeal to working with state-of-the-art media. Let's say you're a talented young designer. Where would you prefer to work? At a company that allows you to work with the latest tools? Or a company where you would have to work with outdated software?'

*'Technology holds a certain fascination, particularly for younger employees.'*

Technology holds a certain fascination, particularly for younger employees, and this is something that companies need to address.' However, many companies do little in this regard; usually because the managers themselves often stem from the pre-Google generation. 'Agile working is the trend of the moment, so managers organize their staff into squads and tribes. This is a great development, but the teams do need to be able to work with one another. And this is where new media are needed. Before talking to you, I was unfamiliar with the term "media literacy". But after your explanation, I think that Dutch businesses could do with being more media literate.'



It is not only instrumental skills that are required. 'It's not just about media skills. The younger and older generations have no idea how to communicate with one another when it comes to differences in the use of media. Younger people quickly become frustrated and the older generation starts to panic. It would be great if the different generations could learn to discuss their drives, motivations, and objections with each other. I see this as a task for schools. Yes, you need to teach young people IT skills but you also need to teach them how to constructively coach and encourage others who might be less IT literate and possibly slower to learn.'





Maurice Benayoun is a media artist and a professor at the Université Paris 8 and the City University of Hong Kong. ‘MoBen’ has created much talked-about pieces of media art around the world. He gained his PhD from the Sorbonne, with the highest distinction, on the basis of his blog about art and new media, causing a real sensation in the academic world.

## MoBen

### Technology makes us more human

‘Some people say that technology dehumanizes us. They seem to believe that it destroys everything we are, which is nonsense! In fact, we can use technology to make the world more and more human. It’s only people that can make digital creations and build crazy machines. It’s only humans that can produce technology. This is not always a positive thing, as “human” does not automatically mean “good”. I’m simply stating a fact. We need to understand the mediatization of our culture, which is not the same as fighting against it. We need to understand why we are using more and more media, what this will lead to, and how we can survive in an increasingly mediatized society.’

#### 7,000,000,000 Big Brothers



In his work of art entitled *Watch out! Eyes of the City*, MoBen placed a box with a peephole in various locations without further explanation. People couldn’t resist peering inside, and saw the instructions: *Send out a text with a positive message into the world.* What they did not realize was that while they were doing so, their eye was being filmed and projected onto a large screen somewhere else.

‘We are all like Big Brother. We want to know everything, such as how much politicians earn, and what celebrities look like naked. We use Facebook to try to find out everything about our neighbours. We want control. At the same time, we also adjust our own behaviour. We no longer post anything truthful on Facebook. Our status updates merely need to be *believable*. In this way, we all create a fake version of the world. Instead of just one Big Brother, we have turned into 7,000,000,000 Big Brothers. But it doesn’t have to be this way. We create the world ourselves. We live in the world we deserve. The question is: is that really the world we want?’

#### Maieutic Engine

‘Nowadays, everyone sees personalized adverts. You might look for a camera using an internet search engine just once, but you are then bombarded with adverts for cameras for months on end.’ As a counterpart to this, MoBen developed the ‘maieutic engine’ in collaboration with a number of French museums. The name refers to the ‘Socratic method,’ also known as maieutics – a discussion method named after the philosopher Socrates. This search engine shows you pictures of works of art and, on the basis of the ratings you give them, shows you other works of art that broaden your horizon, tastes, and interests.

#### Mechanics of Emotions

In his work of art entitled *Mechanics of Emotions*, MoBen provides an alternative to the economic visualization of the world.



*Mechanics of Emotions* is not concerned with share prices and currency rates but with the feelings of people in various locations around the world. 'The world is not a *global village*, as McLuhan says, but a *global body*. We are all connected by the internet to one central nervous system. Each device acts as a nerve ending. As every individual is connected with every other individual, we are all affected by the feelings of others. Events in Syria also affect me. Instead of visualizing the financial developments in the world, we should capture the emotional developments. We need to look at people rather than money. People must take top priority.'

### Sustainability

'Eighty per cent of what people do on an iPhone 6 couldn't have been done on the iPhone 1. Does this mean that what they can now do is so much better or more important than what they did on the iPhone 1? No, of course it doesn't. The creators of media applications don't develop the technologies we need; they develop the technologies they are able to. In France, people are currently calling for a committee to be set up to keep applications off the market if they are not sustainable. Applications designed to last just three years should be prohibited by that committee. Only those applications made to last ten to twenty years should be allowed onto the market.'

### 77,000 m<sup>2</sup>

Standing 484 metres tall, the ICC Tower in Hong Kong is one of the tallest buildings in the world. At the initiative of MoBen's School of Creative Media, the tower is transformed each evening into the world's largest video display, measuring 77,000 square metres. As part of this 'Open Sky Project,' artists from around the world project their digital artwork onto the tower. 'It's not that a screen has been attached to the tower. The screen IS the tower. What I wanted to express with this is that, in today's world, the city itself has become the medium. Current technology can turn anything, literally anything at all – a person, a car, a building – into a medium. We need to seize this opportunity with both hands. In many modern cities, we only see advertising screens and neon adverts. Just think of Times Square in New York, which bombards passers-by with commercial messages. Modern technology can change this. We can turn the city into a place of inspiration.'

### Snow White

With *Rev'Som*, MoBen designed an installation that can read stories to children before they go to sleep. The name of the installation refers to both the French word for dream, *rêve*, and the word for sleep, *sommeil*. The installation measures the child's heart rate and breathing and accordingly adjusts both the content of the story and the tone and volume with which it is read to lull the child to sleep.



'The underlying idea is that we can use technology to create an idyllic world. While the onlookers just marvel at this amazing technology, the robot simply concentrates on telling delightful bedtime stories. On the other hand, these stories do not have the same value as the fairy tales we used to read aloud. Fairy tales like Snow White explain real life issues, hard truths, and tough lessons. They prepare us for the harsh world outside. Modern technology no longer does this. Instead, it simply amazes us with technical ingenuity. Adaptive technology should have a greater focus on social actions rather than just being based on technological possibilities.'

### Tunnel

In his installation *The Tunnel Under the Atlantic*, MoBen created a virtual connection between Paris and Montreal. 'Many people saw it as an ode to technology. They thought I'd made the tunnel to show what is technically possible. I actually did it for completely different reasons! People were able to send a message through the tunnel to the other side of the ocean. What they didn't know is that it would take five days to receive an answer. It had long been possible to communicate with one another in *real-time* through video calls, but I wanted to make them wait. And people came back. Every single day, in fact! They didn't know why they kept coming back, or even what they were waiting for. The tunnel illustrates how easily people allow themselves to get carried away by technology. How easily they do things when technology is involved, without asking themselves why.'

*'The tunnel illustrates how easily people allow themselves to get carried away by technology.'*





Reinout te Brake is an entrepreneur and an investor in the gaming industry. He is recognized around the world as one of the leading visionaries in the world of games. His ideas and opinions affect which games are brought onto the market and which don't make it. Personally, he never plays games. The screen on his iPhone has been cracked for months.

## Reinout te Brake

### Fun and games for a better world

**Of all the people we interviewed for this book, Reinout te Brake is closest to the action. He is involved in the development of games involving millions and sometimes tens of millions of euros. His mission is to ensure that good games are brought onto the market.**

#### Gaming fun

'A good game is a game that is played by a lot of people. For instance, in terms of quality, I wouldn't call Flappy Bird a good game, but it was played by a huge number of people. That was all due to the game's design. By that, I don't mean what it looks like, but rather how a game element can trigger people to keep playing it all day long. We once created a word game ourselves called Ruzzle. It attracted fifty million players in no time. There are now almost a hundred million people playing it and that number continues to grow.' However, the number of players is not the only criterion. 'I would never make a game similar to Grand Theft Auto, nor would I make one involving Kim Kardashian. I look for games that are played by the masses because they are *fun* to play.' Serious games could also be made more fun. 'Many games are built for training purposes; for example, for surgeons or soldiers.'

*'Games must be fun to play.'*

That's all well and good, but if you want people to play these types of games, they must be fun to play. That way, people will keep playing them and keep practising. Gaming has to be fun.'

#### Poor education

'I only had two mistakes in my primary school leaving assessment test, so I started secondary school at the highest level. Within a year, I had dropped down from the top level to the fourth level, which must have been a record,' Te Brake chuckles. 'When I left school and started work, I learned how important it is to find your own path.' Today's education system doesn't stimulate this skill, he believes. 'Nowadays, children have to make all sorts of decisions about their future at an early age, but the support they get for this is minimal.' In any case, it wasn't education that got him his job as game producer. 'I'm completely self-taught. I had to learn about starting up a business, dealing with business owners, scouting for new games – all by myself. Fortunately, there are several professional training courses these days that do cover entrepreneurship, but schools themselves are still lagging behind. School curricula do not cover what today's children will be doing in tomorrow's society; certainly with regard to all the new digital technological developments.' Te Brake therefore welcomes the attention that is being devoted to coding in education. 'I'm a great supporter of *coding for kids*. Digital technology forms the basis of almost everything we do during the day. Children need to learn to understand this technology and be able to use it. At the moment, we are clearly missing the boat in this regard here in the Netherlands.'







### Acceleration

'A decade ago, I'd tell my solicitor and lawyer friends that I was working in the gaming industry, and their response would be pretty dismissive: "Oh yeah, games". Now, some of them even work for my company. Back then, games were still very simple, two-dimensional, and made in Flash. A lot has changed since then. Whereas you used to have to pay twenty euros to download a game, they are now streamed and *free to play*. Everything is in motion. Earlier this week, I was speaking to a TV producer about how we could merge gaming and television. Early in 2016, we will be launching a pilot project, which is a fantastic development! I'm fascinated by how things like music, games, and television can come together.'

We ask Te Brake to look into his crystal ball. 'I've always been quite cautious when it comes to future predictions, but there are many things I can already see happening. Only recently, I was in Mallorca with eighty game developers. They showed us a trailer and everyone sat there open-mouthed. The game characters were so realistic, they could have been real actors. It was brilliant, so lifelike. You don't need any actors at all. The acting profession could be facing its final curtain.'

'We are also becoming more involved in virtual reality. Soon I'll be broadcasting as I walk through the city and game elements will be added as I go. I'll then invite my friends to come and play. Technology really is becoming very advanced. Eventually, we'll no longer just watch films; we'll be starring in them. Things we used to think a decade ago might come along in fifty years' time are happening right now. There's been a period of huge acceleration, and it's still ongoing.'

*'The acceleration is still ongoing.'*

### Dinosaurs

We ask Te Brake what these developments mean for media literacy. 'Media literacy? Not my field at all. No interest in it.' We mention the Council of Culture and Te Brake sinks dejectedly into his chair. 'Critical participation in the media society is just a leisure activity for the elite two per cent. The masses watch *The Voice* and use Facebook, and it is the masses that influence things. I get so tired of the whole discussion about the public broadcasting corporations making better news programmes than the commercial broadcasters. That's simply not the case any more. The elite is losing its hold over the media. It is increasingly us, ordinary people, who create the media. This is already true for today's successful games. Take *Minecraft*, for example, in which players create their own content. On a platform like *Sporcle* people can create their own quizzes. And let's not forget YouTube. Media is infotainment and can be made by everyone for everyone.' Te Brake urges us to think more in terms of possibilities. 'The government, the schools, the Council of Culture, all those organization have their eyes firmly shut to today's reality. They're dinosaurs. They focus solely on the media of the past. Far too little attention is being paid to the question of what is possible. The policymakers need to invest more in brainstorming with people who really do know what it's all about. People with the expertise to answer the question: in which direction is the media heading and how can we use it to optimum effect? Technology will play an increasingly pivotal role in future society. I would very much like to see the Netherlands offer my children the facilities to make the most of it.'

### More human

'I don't really care either way about technology itself.' Te Brake's cracked smartphone screen speaks volumes. 'But I do like people. I believe in people. I see people using new technology to do things together, and it gives me such a warm feeling.' As an example, he mentions the charitable projects *Give Me Shelter* and the *Culibus*. 'These are wonderful projects but they don't make adequate use of technology. I've been able to help them with good, scalable apps. Gaming is my profession. I can't change that, but I can try to create a world around it, in which life is more fun and more human. These days you can't open a newspaper without reading about a building being blown up. But the world does have a more human side to it. A nicer, more enjoyable side – to which I'm happy to contribute.'



Renee Hobbs is a professor as well as the director of the Media Education Lab at Temple University and a co-founder of the National Association for Media Literacy Education in the USA. In 1998, she published the article ‘The Seven Great Debates in Media Literacy Education,’ an article that set the tone for international discussions on media literacy. In 2010, she published the much-discussed manifesto on *Digital and Media Literacy: A Plan of Action*.

## Renee Hobbs United and subversive

At the start of the interview, Renee enthusiastically compliments us on the activities of Mediawijzer.net. ‘You have more than a thousand network partners, so many activities on various fronts and levels, and such a high reflective capacity of your professionals. Mediawijzer.net is fantastic! Congratulations on your anniversary!’ During the conversation, however, it becomes clear that we still have a lot to do.

### Elephant


Renee starts talking with a reference to Kathleen Tyner’s article *The Media Education Elephant*, published in 1991, in which Tyner retells an Indian folk tale. Six blind men come into contact with an elephant. One of them holds its trunk and says “it’s a tree trunk!” Another touches its chest and concludes “it’s a wall!” Tyner then draws a parallel in the article with the field of media literacy. A distinction can be made between various movements, she writes, each with their own ideas of what media literacy entails. The most important of these movements are the protectionist movement (focused on protection), the democratic movement (focused on participation), and the technological movement (focused on user skills). Each of these movements focuses inwards, according to Tyner, and puts media literacy on a par with what they themselves do, without regard for the other movements. ‘In response to the article, we organized a conference in 1993 with a view to building bridges,’ Hobbs tells us. ‘Much has happened since then. But the wretched elephant is still there.’ Overcoming differences and building bridges are some of the main tasks of media literacy.



‘There are currently a number of different groups in the US. First of all, there’s the *participatory culture people*, who continue building on the ideas of the group centered around Henri Jenkins. Then there’s the *connected learning people*. They stress the necessity of educational innovation in a mediatized network society. And lastly, you have the *information literacy people*. These are the librarians who focus on teaching search skills.’ Hobbs advises us to also identify the different movements here in the Netherlands. ‘Find out where there is consensus within your network and where there is dissensus, and document your findings. It is a start to drawing up a list of common values and principles.’

### History

We tell Hobbs about the aim of this book: to look ahead to the next ten years. ‘Before you can look ahead, you need to look back at the past,’ Hobbs tells us. She asks us whether we have documented the history of our network; whether there is a chronicle relating to the history of media training, media literacy, and media education in the Netherlands. We have to admit that we don’t have such a standard reference work in this country. ‘It’s great that you want this book to inspire your network to reflect on the future, but that reflection needs to be anchored in a shared history. You need to know where you have come from in order to figure out the direction you want to take.’



In this context, Hobbs also points out one of the downsides of the growth of media literacy networks. 'It's wonderful to see how media literacy is gaining in importance. At the moment, around thirty per cent of all American schools devote attention to media literacy, but more and more other parties are also joining the cause, which can have a paralysing effect. So many new opinions and perspectives emerge that veterans feel threatened and newcomers feel overwhelmed.'

*'You need to know where you have come from in order to figure out the direction you want to take.'*

### Beijing

There is also a need for bridges to be built between thinkers and doers, between researchers and practitioners. Hobbs tells us about her previous week's visit to the Communication University of China, a higher education institute offering journalism training. 'I was very impressed with the collaboration between academics and practitioners in the field. A group of five researchers were working closely with a primary school in the neighbourhood. They visited almost every day to help the school develop a reflexive teaching practice. They had been doing this for five years already, during which time they also developed teaching guidelines for media literacy. For all those involved, it was a labour of love without recompense. For a year now, however, the project has received financial support from the Beijing municipality. The government there also realizes the growing importance of media literacy. As a result, the researchers and teachers no longer have to pursue this collaboration in their free time. There should be more of this type of cooperation in both the USA and the Netherlands and it should also be given financial support.'

### Dreams

We ask Hobbs to take a look into the future. 'My crystal ball has a light side and a dark side. I'll show you the light side first of all. The power of the present media magnates will start to crumble.'

New forces are emerging, creating more scope for entrepreneurship, small-scale initiatives, and people with fresh ideas. The media of the future will be more unpredictable, more diverse, and more exciting. In the optimistic side of my crystal ball, the media will be better than it is at present. However, the dark side of my crystal ball brings less good news. New applications, like those related to virtual reality and 3D, will have an even greater appeal than they do now. The constant demand for new consumer goods will only increase in the future. People will continue to dream about the next big thing, in the hope of making their life better and more exciting. You can see this happening already with the Google Cardboard, for example. But there is no escape from the cycle of disappointment in technology. There will always be new products appearing on the market aimed at stirring up new desires. My fear for the next ten years is that this process will continue to accelerate.'

### Activism

Hobbs ends the interview on a passionate note. 'It is of vital importance that we gain more activists over the next ten years. Granted, the media offer great fun. I really enjoy them myself. But we mustn't forget that there are economic and political structures in existence that don't want consumers to think about anything. Markets operate at their best when consumers are not too critical and blindly consume everything that is on offer. Media literacy therefore needs to be subversive. It's okay for the industry to be a little afraid of us. It is difficult to achieve this, though, as they usually just ignore us. One person who does manage to elicit reactions from the media industry is Anita Sarkeesian. The blogs and vlogs in which she addresses the homophobia, sexism, and glorification of violence in video games have caused a great deal of commotion. As a professional in media literacy, you shouldn't be afraid of fighting the media community.'

*'It's okay for the industry to be a little afraid of us.'*



**United and  
subversive**



Kieron O'Hara is a computer scientist at the University of Southampton. In 2008, he wrote the book *The Spy in the Coffee Machine: The End of Privacy as We Know It*. He acts as an adviser to the UK government in the field of Big Data and privacy. He finds computers boring; 'They are just like Puritan missionaries in the Sahara: they undoubtedly do good work, but that doesn't make them interesting.'

## Kieron O'Hara

### We have a right to our own data

**Kieron O'Hara is a man of many talents. Not only does he know everything there is to know about digital technology, but he is also an expert on political theory. After writing *The Spy in the Coffee Machine*, he wrote another book on political conservatism. We ask him whether there is a connection. 'The two books certainly relate to each other,' O'Hara confirms. 'The biggest opponents of data collection by internet companies are conservative sceptics. They define privacy as the right to be left alone. The Schmidts, Zuckerbergs, Brins, and Pages of the world just don't leave us alone. They pursue profit and power by gathering as much information about us as possible, which they then justify with an unbridled belief in a better world. Conservatives are very wary of these types of utopian visions.'**

#### Shock

We ask O'Hara how the world has changed since 2008, the year in which *The Spy in the Coffee Machine* was published (and Mediawijzer.net was founded). 'All of us underestimated the growth of social networks. The amount of personal data being collected is unimaginable. The general public is now also aware of this. In lectures, I often paint a sombre picture and afterwards people come up to me and say "Kieron, it's even worse than you describe!" The revelations made by Snowden have shocked the world.'



We ask O'Hara whether Big Data could also bring anything good this coming decade. 'Of course! There is always an optimistic scenario. Let's not rule it out in advance. If Big Data were to be used in the public interest, it would have tremendous potential. But a lot of things would need to be improved. One of the biggest problems is that the officials responsible for government data are unable to make it available in an effective manner. They place the wrong data online in the wrong way, which is a shame because it would be quite useful to have information about bus stops and potholes in the road.' O'Hara continues with a call for action. 'The government could take the *Government Information (Public Access) Act* a bit more seriously, but officials have no idea what to do with Big Data.' One of the things officials should do is give us more insight into our personal data, he argues. 'I vote and pay taxes, which is why we have public access to government information. In practice though, this is restricted to insight into general administrative data. The government actually holds a lot of personal information about me, but unfortunately it's impossible to request it anywhere.'

#### Bolivia

An even greater problem is the use of Big Data to personalize information. 'Sartre said that we could choose to live our lives in freedom. That may have been true then, but it's no longer the case. We live our lives based on the recommendations put to us.' This limits what we do immensely. 'We lose the added value of different types and forms of interaction.' O'Hara himself tries to avoid the YouLoop as much as possible. 'I don't read anything online. I buy *The Economist* and read it from cover to cover. This enables me to read articles about the Bolivian coal industry, of all things. I would never have seen anything like this online.'

*'I would never have read anything about the Bolivian coal industry online.'*

O'Hara is not a social media user, either. 'I haven't joined Facebook and I don't have a LinkedIn account. I know this makes me a bit of a hermit and that I miss out on a lot.' O'Hara is willing to make this sacrifice. 'My favourite media tool is my ballpoint pen. It's the most important tool I have with which to protect my privacy.'

### Self-determination

O'Hara explains why there are not more people taking a stand against the penchant of companies in Silicon Valley to collect personal information. 'Huxley's *Brave New World* has become a reality. People have all the material things they could wish for. The world is a safe, nurturing, and ideal place. Autonomy is no longer as important as it used to be. Let's be honest: nine times out of ten, personalized information is very useful. Eventually, you lose your autonomy, but that's a long way in the future. It's not as though money is being stolen from you or it instantly makes you ill.' This does not mean we can allow the majority of people to fall prey to technological determinism. 'People who are not interested in these matters also have their own rights and others therefore have to stand up for them.'

We ask O'Hara who this should be. Pressure groups such as Bits of Freedom? Or media literacy professionals? O'Hara firmly rejects these options. 'We citizens are not taken seriously at all by the high-tech giants. My only hope is the European Court of Justice. It's the only body currently standing up for the digital rights of citizens and the only body that can turn the tide in future.'

O'Hara deplores the arrogance of Silicon Valley. 'It doesn't require huge changes to create a better, more respectful digital world. All they have to do is give users a bit more insight into their own data, collect slightly less data, and give users more of a say.' O'Hara advocates 'informational self-determination' – a term first coined in 1983 by the German Supreme Court. Every individual must have the right to decide for themselves which personal data is collected and with whom this is shared.

### Pub

In this regard, O'Hara is pinning his hope on *data portability*. 'If the right to transfer data is enforced by the European Court, this would be a real *game changer*. Social networks are based on three principles: 1) The bigger, the better; 2) Easy to enter; 3) Difficult to leave. Transferable data would put an end to the last one.' O'Hara explains the absurdity of the current situation as follows: 'Imagine going to the pub one evening. You meet some friendly people and have an interesting conversation. At some point later in the evening, you decide you want to go home. "That's fine," says the bartender, "as long as you delete your memories and forget your new friends." That's absurd! And yet that's exactly how social networks function. If you delete your account, you've lost all the contact you've had with your friends and everything you've shared with them.' The right to transfer your data from one social network to another would make it much easier to make the switch. 'Wouldn't it be great if you could take all your personal information with you from Facebook to Ello, the social network that has promised to never collect any data on you?'

*'The right to transfer data would be a real game changer.'*

**We have  
a right to  
our own data**



Marinka Copier is a game scientist and the director of the Creative Technology Expertise Centre at HKU University of the Arts in Utrecht. She also runs the Society of Play, an organization that develops *mixed reality* games. In one of these games, participants take themselves and their smartphones off into the woods, where they make their own rules, creating new games each time. She herself plays all sorts of games, with the exception of serious games because ‘they’re no fun at all’.

## Marinka Copier

### Our culture needs complex games

**Marinka Copier doesn't beat around the bush. 'Most games are very simplistic. They essentially focus on just three things: searching, finding, and hitting.' She believes games should be able to provide a more fun, enriching, and educational experience. 'The unique thing about games, when compared to television for instance, is that they directly control your behaviour. In a game you have to do something. Games therefore have a serious impact on who you are. They shape your personality.'**

#### Linear

According to Copier, game makers take this responsibility too lightly. ‘They only concentrate on building something that is fun and have no concern for the effects of the behaviour they are promoting.’ This is something they should be doing because the behaviour required from games is usually quite simplistic. ‘Almost all games are linear. The scripts are fixed and the number of strategies is limited. It is clear what you need to do, how you need to do it, and when you have done it properly.’

This is logical, in Copier's view, as, until recently, the technology behind the games didn't offer many possibilities. ‘We must not forget that gaming is a very young discipline. The technology is still in its infancy. The spectacular graphics of some games make them look amazing, but this somewhat masks the fact that the architecture of game platforms offers little room for incorporating complexity, creativity, and interactivity.’

#### Boring

This is where media literacy comes in. ‘As a player, it's good to be aware of how your behaviour is steered by the developers of the games you play. They force you to do certain things a certain way, without giving you time to think about it. The average shooting game, for instance, gives players very few alternatives. *You either shoot or you die.* Offering a ceasefire, reading up on international politics from your camp bed in the evening, or deserting are options that are just not available.’ This makes the game world much simpler than reality. Although this can be great fun, relaxing, and even captivating, there is a hidden danger, Copier says, as games shape your personality. She quotes the Dutch historian Johan Huizinga who concludes in his book *Homo ludens, a study of the play-element in culture* that games and culture are inextricably linked to one another. Culture places boundaries on how games are played in a particular society, but the reverse is also true, with culture being shaped by the games that are played. Copier believes that the simplistic games that we currently play form a threat to our culture. ‘Simplistic games result in a boring culture.’

*‘Many games give you very few alternatives. You either shoot or you die.’*





**Our culture  
needs complex  
games**

**Real world**

Copier expects to see improvements in the next few years. 'In so-called *sandbox games* like Minecraft, players have far greater autonomy. They don't simply proceed through successive levels in linear worlds but are able to create their own worlds. These *open world* games incorporate an aspect of media literacy: you have to think about what you want your game character to do, make, and build.'

Today, games are being developed at lightning speed. 'A game like World of Warcraft set the tone by continuously offering players new content. The next step in this development is *user-generated content* games. We are moving towards games that are more like a user platform than a game, in which players can not only create their own content, but also develop the way the game is played.'

However, the most important development concerns games that make use of the real world around us. 'Developments relating to virtual reality and *the Internet of Things* are further blurring the boundary between the digital world and physical world. Gaming is becoming less of an indoor activity you do at your console and increasingly something you can do outdoors.' By integrating reality into games, the games can be made more complex. 'In computer games, every decor has to be programmed. If you use the real world, then all you need is a photo or a *real-time* camera image. This saves on a lot of programming and results in game worlds that can be just as complex as the real world itself. As soon as you open your front door and put on your VR goggles, you enter one *big sandbox* game. The real world can be played in a great many ways.'

**Playful**

One of the things Copier develops together with the Society of Play is *geocaching games*, in which player involvement is both digital and physical. 'In our LARP (Live Action Role Playing) games, players not only take a magical sword with them but also their smartphone. This enables participants to contact one another and create their own game to a great extent. We create the framework, but give participants plenty of scope within it for their own creativity.' Copier has high expectations of the more complex games of the future. Society of Play's mission is to create 'a playful society and playful cultures'. By developing more intelligent and more enriching games, we can use 'the transforming power of the game to facilitate the development of a more social, greener, and more creative society.'

*'As a player you will have to discover your own genre.'*

Copier expects games to change even more in the future. 'A generation of game developers is emerging that has learned to design games in response to demand. They look at what types of players there are and develop games for each particular type. This will result in a much broader range of games. As a player, you will have to discover and get to know your own genre. A media literate gamer knows what games are on the market, is aware of how they steer your behaviour, and chooses a game that suits him or her.'





Corien van Berlo is the director of Smart Homes. This expert centre on home automation & smart living promotes the development and application of technology to improve the quality of life. Smart Homes has two model houses in Eindhoven and Alkmaar that are equipped with social robots, advanced energy management, and intelligent applications for health care.

## Corien van Berlo Enjoying technology

**Corien van Berlo is disappointed that home automation is often associated with illness and ageing. 'It's understandable but it's a shame. Technology should automatically become part of all life stages. Children should grow up in a safe and comfortable house with technology that makes life easier and more enjoyable. At school, e-learning is part of their curriculum, and when they are adults, they make use of electronic devices and solutions at home and at work. Technology becomes so integrated in our way of life that later, when extra support is needed, it becomes a logical step to switch from home automation to improve comfort to home automation for reasons of health care.'**

### Compartmentalization

At the moment, however, technology is not yet integrated into all stages of our lives in this way. As a result, people only really first become acquainted with home automation later in life, resulting in many negative associations. 'In this era of technology and media literacy, it is more important than ever to look beyond your own boundaries. We need to stop compartmentalizing things. That's difficult, as compartmentalization is also related to how our system works. Ministries are reluctant to consider the problems, issues, and opportunities faced by other ministries, even though it would often be possible to establish links between them. The way certain topics are considered at that top level is, at times, extremely limiting. Sometimes they aren't considered at all. I strongly believe that if you tackle education effectively, you also need to consider health care, living at home independently for longer, and ageing in general. We need to establish these links with a view to our future, in which ageing will play a greater role.'

'It was only really twenty years ago that we started becoming concerned about the ageing population. This development is currently causing us enormous headaches. Costs are soaring and there are not enough people to do the work. I often hear it said that technology will have a very important role in health care. That's topsy-turvy logic. If you make sure that technology and home automation are involved in all stages of your life, they won't suddenly become important when you get older. We all want to be self-sufficient, have control of our lives, and enjoy what we do. It's fine if you need some technological assistance, but this shouldn't be labelled as "care". These should be tools or instruments to enable you to enjoy life to the full.'

### Australia

Van Berlo has noticed in her line of work that people are often not addressed in the correct manner. 'Elderly people want to be approached as valuable people and not as "ill, weak, feeble, and frail". The negative connotations associated with care, home automation, and growing older prevail among the very people who could benefit.' In addition, we often use the wrong terminology. 'The word "care" has negative connotations. When you give people advice about getting older, they always think it's useful to know for their elderly neighbour or for later. And these are people who are 85 years old – our main target group! So who are we referring to when talking about health care and well-being? No one! People need smart technology but not "care". If you place the emphasis on living independently at home for longer, people will respond with greater enthusiasm. It's essential to provide good information using the right terminology.'





By way of an example, Van Berlo mentions the *all-in-one* PC. 'This is a touchscreen that shows you all the functions you need. Just one screen will allow elderly people to see who is at the door (a safety feature), control the lighting at home (promoting comfort), and video chat with family members in Australia (offering contact). This is all very useful, but if you were to refer to it as a health-care application, nobody would want it.'

### Video recorder

Automation of their home environment means that people can live independently for longer. Isn't it true that elderly people are more opposed to technology than to care itself? Van Berlo doesn't think so. 'However, the end result must fit in with their perception of the world. We are good at forcing things onto others because we think it's a good idea even though it might not be beneficial for that particular person. Many interesting things are being developed as part of a development drive.'

*'It's all about the power of simplicity.'*

Engineers and inventors have to ask themselves who they are developing a product for. Does it really have a function or is it just fun to make? It's all about the power of simplicity. A good example of over-the-top development is the video recorder. What did we need? A device with four buttons: on, off, record, and play. Instead, we were saddled with a complex machine with an incomprehensibly complicated remote control, which no one really wanted. It's all about the art of omission: knowing what to leave out. For example, I can turn everything in my house on and off with just one button. The lighting, heating, and music in my house are linked to one another and can be controlled remotely. It really makes my life easier and more enjoyable.'

### 1960s

And yet there are very few people who will make such relatively simple changes to their homes. Why is it that technology is still not a part of many people's lives? It doesn't help that we are quite conservative when it comes to living with technology, Van Berlo claims. 'A house is the biggest purchase you will make. Apparently, though, we think it's normal to only have a say about the kitchen and bathroom. Why not have a say about the infrastructure, the electricity wiring, and the meter cupboard? Our wiring is based on safety standards from the 1960s. Just look at all the equipment that has entered our homes since then, which we are still attaching to the very same wiring. If we all unquestioningly accept other people deciding how we should live, nothing will change.'

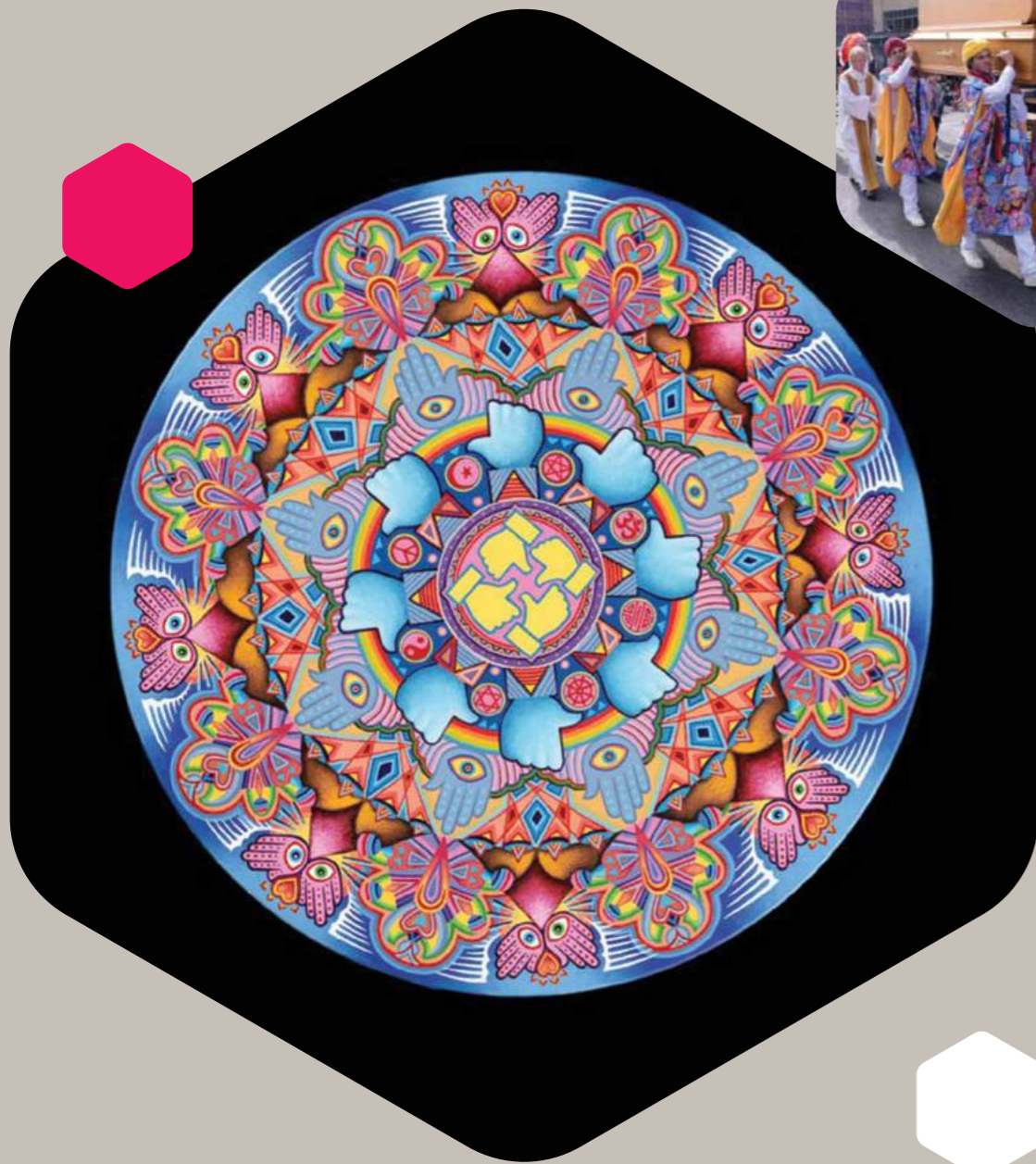
### Drone

We need to take our own share of the blame. Information is available; just look at the show homes of Smart Homes in Eindhoven and Alkmaar. There you can see just how comfortable, safe, and enjoyable your home could be using technology without being dependent upon others. The house in Alkmaar has been specially designed to take into account all the changes in the Social Support Act (WMO). Home automation can often be the key to living independently at home for longer; certainly in the future, as developments are progressing rapidly. Van Berlo expects an expansion of *the Internet of Things*. 'What we don't yet know is what the consequences will be later if we link everything together through the internet. At any rate, robots will certainly play a part in our lives.'

In collaboration with graduates from Eindhoven University of Technology, Smart Homes is busy developing robots and drones. Smart Homes is currently involved in the development of a drone that can help less able-bodied people pick things up and give them to others. This is quite unique at the moment, but Van Berlo doesn't expect it to stay that way for long. 'In the not too distant future, we will all have a drone flying through our homes that will make our life more pleasant, as well as a *personalized* robot that does exactly what suits you and what you need. It will be amazing.'

*'In the not too distant future, we will all have a drone flying through our homes.'*





Daniël Rozenberg, who works under the stage name Dadara, is a versatile illustrator, inspirer, and artist. He attracted international attention by creating a Facebook temple at the Burning Man festival and setting it alight on the last day. In the Netherlands, he laid the Like symbol to rest at a funeral service in Paradiso.

## Dadara

### A like for life

When we interview Dadara, he has just returned from a visit to Dismaland, the *'Bemusement Park'* set up by the street artist Banksy. There are no idyllic elves and dwarves wandering around at Dismaland. The park is full of artwork that reveals the hard reality of the 21st century. Dadara attended the park as a guest with Mundo, his ten-year-old son. He wore a T-shirt he had made himself printed with the word *Disnerrorist*, signifying Dadara's love-hate relationship with the media. He opposes the media as they are, whilst at the same time making full use of them..



#### Connected

'I've done a number of projects on social media, about how human relationships develop in the glimmer of our smartphones. Quite a few people labelled my projects as anti-social media. That's total bullshit. Social media exist and they will continue to shape our lives to an increasing extent. We are at the beginning of a social media era. If we start thinking about it now, this will determine how we deal with it in future.

You notice that some people embrace all types of new media without question. They think it's all fantastic. On the other hand, there is a group of people who reject all kinds of new technology out of hand. I believe that new types of social media can be used in a way that benefits you. Sometimes you need to be fully *connected*, and at other times totally *disconnected*.'

*'Real life is a hundred thousand times more amazing than social media.'*

#### Fatter

'I'm certainly not against social media. However, I do wonder whether they actually add anything to our real lives. Are we gradually just transferring our lives to social media, getting fatter and fatter, with little arms and little legs, as we never tear ourselves away from our screens? Will we end up thinking "I don't have to go on holiday because I have an Oculus Rift"? I see an ever increasing gap between people made more aware by media, people who can find anything and share their knowledge with others, and people who become increasingly stupid through mindless channel-hopping and pointless internet surfing. We used to have just a few channels to flick through, but now you can flit endlessly from one bit of nonsense to another.'

#### Altar

At the Burning Man festival, Dadara erected a life-size altar featuring a large golden Facebook 'Like' thumb on top. Some of the visitors applauded it as an ode to the new world of connectivity through social media.



Others went ballistic at such a level of homage to the vanity and volatility of Facebook. 'The intensity of the reactions shows just how much we are affected by the change in culture caused by social media. Everyone has an opinion on it.' At the end of the festival, Dadara set fire to the thumb. It led to an e-mail conversation with Justin Rosenstein, one of Facebook's leading figures. Rosenstein was responsible for introducing the 'Like' button to Facebook. In their e-mail exchange, Rosenstein indicated he also wanted to reflect on the values in, and gain greater insight into, the realm of social media.

### Throw out your TV

'I spend a lot of time with my son, and I also develop several art projects each year. People ask me how I do it all, and I tell them: Step 1 is to throw your TV out of your house. Then you'll see how much you can achieve. None of my friends or colleagues have a television any more. People who still have one say, "Yes, I've still got one but I don't watch it much now." They're like alcoholics who say, "Yes, but I don't drink as much now..."' We ask Dadara why he still has a Facebook account. 'It's obvious, really. Things happen on Facebook that you can't or don't want to miss.'

### Monoculture

Dadara was recently in San Francisco, a city in danger of social dislocation as a result of an invasion of overpaid workers from internet companies. 'It seems to be that Silicon Valley is run by nerds. I wonder how much they take social considerations into account when making their decisions – the more spiritual side of things. There seems to be a monoculture, and that's never a good thing. The only thing that seems to matter is how quickly one can get rich. I read somewhere that it used to take twenty years on average for promising new companies to achieve a turnover of a million dollars. It now only takes eighteen months. Start-ups are popping up out of the ground everywhere. If you're not successful within a year, the plug is pulled out. It's very difficult to develop a long-term vision.'

### Spark

'I've discovered a lot of really great music through my friends. An internet search engine tells you that if you like one thing, you'll also like certain other things. I could have thought of that myself. If you like three new wave albums, you're probably going to like a fourth as well. But if someone I consider special, whose opinion I value, tells me to try listening to something I don't usually listen to at all, like flamenco or classical music, then I think I should at least give it a try. That's how I've come to discover some amazing things.'

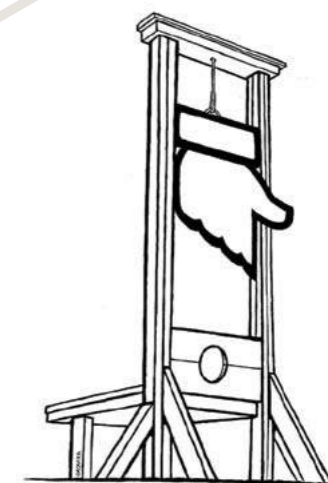


Dadara also talks about the first time he met the woman who would become the mother of his son Mundo. 'I met her at a party. I don't know why I did it but I slapped a cream pie in her face. She looked at me disapprovingly, as if to say "what's so clever about this?" To make it up to her I then licked her face clean. That spark, that look, is not something you get via social media. On social media, logarithms tell you you're a ninety per cent match with someone, but it's not the same. It's purely mechanical, based on noughts and ones. There's no chemistry at all.'



### Magic

'Life is all about magic, though it's not easy to find. You sometime almost have to die to find it. Many people seem to think you can just take a pill, or put on a VR headset, and you'll find magic. If life isn't interesting enough, people just surf through Facebook or swipe through Tinder looking for magic. In my opinion, that's only diluted magic. Instant magic, like a packet of instant soup. Just stir it three times and you've created magic. Whatever. Perhaps if you've never seen magic before, you might think there's more magic in social media than in real life. But I've experienced some really special things, and I know that they took effort. For example, it was a huge job to make the Facebook thumb and drag it along to the Burning Man festival. I don't mind making that kind of effort for things, because I know it's the only way to achieve things.'





Howard Gardner is a professor of educational psychology at Harvard. He is known for being the founder of the multiple intelligences model, which in turn inspired Sir Ken Robinson's TED talk on *Why Schools Kill Creativity*. Gardner's research on young people and digital media is being conducted as part of the Youth and Participatory Politics programme financed by the MacArthur Foundation.

## Howard Gardner

### Setting values for the digital world

**The emergence of digital media – computers, the internet, social media, virtual reality, intelligent robots, and related phenomena – has left its mark on our era just as much as the birth of writing and the invention of the printing press did in their eras. However, digital media seem to have more downsides and undesirable side effects, which is why it is important to understand the development of digital media and give it a push in the right direction wherever possible.**

#### The app generation

Most people over the age of forty grew up without computers playing a central role in their lives. You could call them 'digital immigrants'. Most young people, on the other hand, have completely integrated digital media into their lives, we could call them 'digital natives'. Our own research, conducted in collaboration with Carrie James, Katie Davis, and others, focuses on the use of social media among the digital natives. When we tried to describe what makes the current generation of young people unique, we discovered how applicable the metaphor of the 'app' was. An app is an application that makes it possible to carry out a task quickly, reliably, and without problems. Almost everyone appreciates the convenience provided by apps.

*'There is a big difference between apps that make things possible and apps that make you dependent.'*

Nevertheless, as Davis and I touch upon in our book *The App Generation*, there is a big difference between apps that *facilitate* and apps that make their users *dependent*. The first type of app helps us to work efficiently and to shape our plans and ideas. On the other hand, there are also apps that limit your possibilities; you relinquish your autonomy as it were to the developers of these apps.

Wherever possible, we should encourage the development and use of supporting apps and discourage those apps that limit us.

#### Complex

If we take a broader look at the life tasks of people in the present digital world, there are five areas in which today's digital media exert significant influence:

- 1) The formation of a personal identity
- 2) The right to privacy
- 3) Determining who or what is reliable
- 4) Defining intellectual property
- 5) Participation in communities, varying in size from a network of family, friends, and neighbours to contact with the whole world (insofar as this can be achieved through digital media).

These issues were far less complex prior to the digital era. The older generation believed it had found answers and solutions to these issues that would remain valid and useful for a long time to come. However, the expansion of digital media has made these issues urgent and complex once again. Countless new tasks and challenges have been created. The toughest of these challenges may well be the reconsideration of the values required when immersed in a digital world.

Whether we are talking about bits or megabytes, technologies are always neutral with respect to values. You can use a pencil to write a poem or to poke someone in the eye. Nuclear energy can be used to promote the growth of industry or to raze cities to the ground. So the big question is: How can all of us set values that help guide us through life in the digital world in the next ten years? I believe there are three possible answers.

### Bible

The first answer would be to simply adopt the values from the traditional domains dating from prior to the digital era: family, culture, and religion. I certainly don't want to dismiss these sources out of hand, but in my view, these traditional sources of values cannot provide an adequate response to the challenges and opportunities presented by digital media. Neither the Bible nor the American Constitution foresaw Facebook and Twitter; and neither the Bible nor the Constitution provide answers for a digital future.

### Code

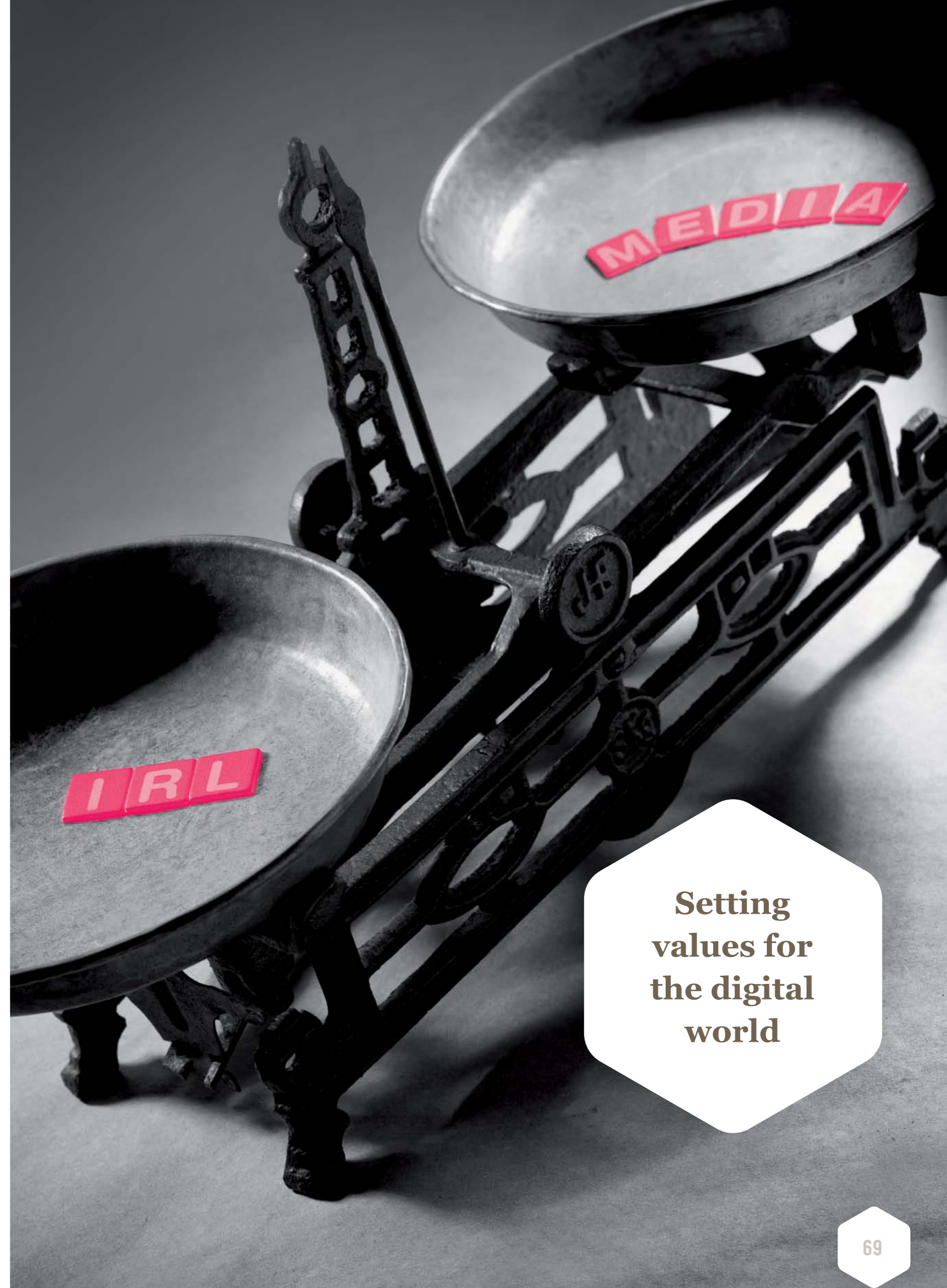
Another answer could be that the values are encapsulated in the media and technology themselves. This point of view is expressed by Lawrence Lessig in his book *Code and Other Laws of Cyberspace*. It comes from a conviction that 'the code,' the foundation of all digital technology, encompasses various fundamental values such as openness, neutrality, and clarity. I believe this particular perspective was plausible in the early days of the internet, when the World Wide Web was still in its infancy. Back then, the ideal image of the internet was still credible. However, experience has since shown that the same media types that facilitate open interaction, such as Facebook, also make it possible to drag someone's name through the mud. Yik-Yak is another example. It's an app that people can use to chat anonymously with others in a particular environment. This app is certainly useful for promoting social connectivity, the purpose for which it was designed. In practice, however, it is also used to hurl insults, incite hatred, and exclude people. An app designed for social cohesion can therefore easily disrupt the social structure of a community.

### Supervision

A third answer could be that the people most concerned about the proper use or misuse of digital media will start to develop and promote codes for use and conduct. They should commend those who adhere to the agreed codes and impose sanctions on those who knowingly undermine the common values. I envisage some sort of supervisory board, like the supervisory bodies you have for certain groups of professionals. These were set up a century ago in many countries, including the United States, for emerging sectors such as health care, criminal law, and – to a certain extent – journalism.

*'There needs to be a supervisory body like the ones you have for other groups of professionals.'*

We could follow the example, for instance, of people working behind the scenes who formulate rules on how a server, a central computer in a network, handles sensitive information. These individuals have an exceptional amount of power and if they wish to use that responsibly, they need to work altruistically. They need to store important information safely, grant access to those requiring information, and never betray the confidence bestowed upon them. It is quite possibly there, among those managing the servers, that we may find inspiration for setting the right values for our digital universe.



**Setting  
values for  
the digital  
world**



Robert-Reinder Nederhoed is the founder and CEO of Bitmymoney, one of the first companies in the Netherlands to sell bitcoins via iDeal (the Dutch e-commerce payment system). Of course, bitcoins are a business for Nederhoed, but his company was born out of love for the new digital currency. Nederhoed is convinced that bitcoins will lead to a better and fairer world.

## Robert-Reinder Nederhoed

### Democratic payments

**When Nederhoed got his first job after graduating, he purchased a kilogram of silver with his first wages on the advice of a friend. A couple of years later, on the advice of the same friend, he exchanged his silver for a few bitcoins. The exchange rate rose, enabling Nederhoed to invest in a new start-up for the purpose of making bitcoins more accessible to people in the Netherlands.**

#### Share of the pie

On his website, Nederhoed's company mission reads as follows: 'Bitmymoney believes that money should be unconstrained and easy. Easy to understand and free to use whenever and however you want. We give you back control over your own money; so that you can send money to family and friends whenever you want, without delays due to the banking network or national borders, and without charges, no matter where the other person is. Join us in financial innovation.'

This innovation is necessary, according to Nederhoed, because of the unsustainability of the present financial system. 'During the course of the twentieth century, the gold standard was abandoned as more money was needed to finance all sorts of things. As a result, central banks were able to print unlimited amounts of additional money. People were prepared to put up with inflation of existing money due to a firm belief that inflation was good for the economy. After all, if money lost some of its value, people would do more with it.'

*'Ordinary people pay the price.'*



Since the banking crisis, however, we have learned that this belief was naive. 'Those closest to the new money are those who reap the benefits,' Nederhoed explains, 'while ordinary people pay the price. Our savings are constantly decreasing in value and the national debt on our behalf is getting ever larger.'

#### No more explanations

Nederhoed quotes the Belgian economist Bernard Lietaer who is a fervent champion of the Bitcoin and author of *The Future of Money: Beyond Greed and Scarcity*: 'Only four per cent of financial traffic is still linked to the real economy. Only four per cent is related to people doing the shopping or receiving their salaries. The remaining 96% is related to speculative matters such as options, obligations, and derivatives.' This does not benefit us ordinary people. 'Banks have got a very fat finger in this very large 96% share of the pie. The people who are most closely involved earn an awful lot of money, and we all have to pay for it. It's no longer possible to explain why someone who works at a bank or on the stock market earns so much more than a doctor or teacher.' According to Nederhoed, this is a direct consequence of the fact that banks can borrow money virtually for free.

#### 20,999,999

The same conclusion was drawn by Satoshi Nakamoto, the inventor of the Bitcoin. Right in the middle of the credit crisis, Nakamoto (whose identity is still unknown today) published the white paper *Bitcoin: A Peer-to-Peer Electronic Cash System*. In this paper, he describes the technology which uses complex cryptography to create a new digital currency. Nakamoto's white paper led to the development of revolutionary software that would usher in a new era of digital payments. What makes the Bitcoin revolutionary is that no bank or institute is needed to regulate the payments. Goodbye ECB, DNB, ABN AMRO, Visa, and Western Union.

Nederhoed explains the benefits for users: 'First of all, bitcoin payments barely involve any additional costs. You no longer have to pay three per cent in service costs. Secondly, it is impossible to commit fraud. A credit card payment can be reversed, but any bitcoins you receive remain yours until you spend them yourself. Lastly, inflation can be ruled out as the maximum number of bitcoins is finite. The software has been designed so that there can never be more than 20,999,999 bitcoins in circulation. Nobody can print extra bitcoins.'

### Unbanked

'The great thing about the Bitcoin is that it is not only a currency but also a universal protocol. It therefore forms a global network for the transfer of value, and anyone can join. In the existing system, you are always dependent upon other parties like banks and credit card companies. If, for example, you are an entrepreneur wanting to develop software for payment with euros, you first need permission to link up to the system. Once you are connected, it still doesn't work worldwide. Take iDeal, for example: it's a great online payment system, but it only works within the Netherlands and it therefore cannot be scaled up. The Bitcoin, on the other hand, can be used around the world, by everyone. You can send value at the speed of light.' Consequently, the Bitcoin offers many opportunities for innovation and co-creation, and all on a worldwide scale. 'More than two billion people around the world don't have a bank account – they are the so called "unbanked". As many of them do have a telephone, however, it is much easier for them to participate in the global economy by using the Bitcoin.'

### Toll

The universal nature of the Bitcoin could also stimulate the rapid development of the Internet of Things. 'Soon, all sorts of things will be possible in the realm of technology, from smart robots to self-driving cars. However, there are considerable limitations when it comes to payment. This is already evident in the world of apps, for example. Developers are allowed to build apps, but cannot include functions that work with their own financial credits. This is not permitted as it would mean you would be acting as a "payment service provider". You would then have to connect to the existing payment systems outside your app, and this brings a whole host of limitations. The App Store and Google Play have far too much power. In 2014, for example, Apple excluded the Bitcoin from its App Store for six months.'

These limitations will also stand in the way of the development of the Internet of Things. 'If we were to link the Bitcoin to the Internet of Things, it would open up a world of opportunities. I foresee self-driving cars that automatically pay your toll on a toll road and negotiate with ticket machines about parking fees. Electricity bills could be paid in *real-time* instead of via advance payments and final invoices. The solar panels on your roof could automatically supply power to the highest bidder. And if after attending a concert you place a video online that attracts a lot of likes, the concert organizers could reimburse you for part of your admission ticket.' Nederhoed believes these types of payment patterns are only possible with a universal payment system like the Bitcoin.

*'If we were to link the bitcoin to the internet of things, it would open up a world of opportunities.'*



### Uber

We all have a responsibility in this regard, Nederhoed believes. 'It starts with the programmers. The internet elite, the builders of content, remain too much within the financial frameworks. If developers were more committed to the idea of more democratic forms of payment, this could create a snowball effect. Far greater innovation will be possible if we start to build upon the Bitcoin.' Companies such as Spotify, Booking.com, and Uber don't escape Nederhoed's criticism either: 'These companies call themselves champions of a *sharing economy*. They claim to improve the lives of ordinary users. Essentially, however, they're doing the same thing as banks and credit card companies: creating an extra layer above that of the participants. It would be more revolutionary if Uber customers could pay the drivers directly and if Spotify listeners could send money straight to the artists. Instead, they opt for a system based on credit card payments so that they can continue to earn money themselves.'

But we, the users, also have a responsibility. 'We need to explore and make more active use of these new democratic forms of payment,' Nederhoed explains. 'We might want a better world, but we also instinctively prefer the easy option. "*The euro works fine doesn't it?*" is what a lot of people think. It's such a shame. If we were more willing to embrace the Bitcoin, we would create an alternative to the established order. Governments, banks, and companies would then have to make changes and democratize the financial system. We ourselves can help create a fairer financial world.'





would rather not disclose his real identity for this interview. His Twitter bio describes him thus: *(Ethical) hacker. Over forty-four hundred Responsible Disclosures since '98. His place of residence: In your LAN.* During the interview, he shows us his *iron key*: an impenetrable USB flash drive full of uncrackable, protected, unfindable directories. This is where 0xDUDE stores everything he treasures, from work documents to photos of his family.

## 0xDUDE

### The internet is not as safe as we think

During our conversation, it emerges how little we ordinary people know about the underlying structure of the internet. 0xDUDE bombards us with alien terms and concepts like bug bounties, pentests, qubits, Elasticsearch, grey hat hacking, fire sale, SHA256 encryption, and hash cracking. But complacency is not an option. He persuades us that everyone is jointly responsible for the state of our data landscape.

#### White hat

First of all, 0xDUDE explains to us the different kinds of hackers in today's world. The first group of hackers are the creative 'hobby hackers' who mainly do it for fun. Next, there's the hactivists who use their skills for political motives, usually focusing on freedom of expression and civil rights. The third group are the criminal hackers who are simply looking for money, any way they can get it. They are called the *black hat hackers*. Then there are the security hackers who are paid to detect threats to security. One of the ways they do this is via *bug bounty* programmes in which they earn money legally for any security risks that they find. However, there is also a group, the *grey hat hackers*, who wheedle money from companies and governments by only revealing security risks after receiving a substantial payment. Another group is the industrial hackers who are employed by companies to test the security of their software through so-called *penetration tests*, pentests for short. These are the *blue hat hackers*. In addition, there are also hackers who work for government bodies, often with noble or sometimes slightly less noble motives, depending on the task they are given.

0xDUDE regards himself as one of the ethical hackers, roaming around the internet closing security leaks wherever they can. And there are plenty of leaks for him and other ethical hackers to unearth. As his Twitter biography states, 0xDUDE has already detected 4400 vulnerable spots on his own. Where possible, he has repaired them himself or otherwise brought them to the attention of the competent authorities via responsible disclosure. 0xDUDE is therefore part of the group of *white hat hackers*, the knights of the internet.

#### Data mining

In recent years, citizens have been becoming increasingly concerned about the amount of data being collected about us. Although this feeling of unease is often quite indefinable – we just don't like being watched by Big Brother – 0xDUDE makes it clear to us that the risks are actually very specific. 'We now know through the adverts we are shown that companies gather information about us. Since Snowden's revelations, we also know that governments are keeping an eye on us. However, in reality, data mining goes much further. Information is gleaned from Facebook, Twitter, and LinkedIn using open-source intelligence. Everything you do publicly on social media is monitored. This is not only the case for rebel fighters travelling to Syria; it is also the case for you and me. Profiles are made for everybody, using applications like Maltego. This is a piece of commercial software that companies can buy, which can be used to create detailed profiles of ordinary people like you and me.'





Governments also outsource *data mining* to commercial parties. 'The Dutch security service simply does not have sufficient manpower. That is why commercial parties are called upon to make this data available when needed in an investigation.'

### Warehouse

This practice comprises a serious danger. 'I'm not that concerned about the objections based on people's principles. What I'm worried about is that there are absolutely no guarantees that the data is safe with these parties, certainly in the long run.' 0xDUDE mentions a number of structural problems that can be expected in the coming years. 'We will be migrating from IP4 to IP6. At the moment, we all have an IP address that starts with 168 or 92. This is IP4. However, we are running out of IP4 number series. In the coming years, many more devices will be connected to the internet, not least due to the emergence of the *Internet of Things*. So we need to create longer IP addresses with more digits. This is IP6.'

*'The internet is a swimming pool without a lifeguard.'*

This expansion of the internet is not without risks. 'The swimming pool is getting bigger and bigger, but it is still a swimming pool without a lifeguard. There are only a couple of volunteers who, if you're lucky, just happen to appear when someone is in danger of drowning.' 0xDUDE is referring to the select group of *white hat hackers* who try to keep the swimming pool a safe place. 'The internet is constantly growing but the level of security hasn't changed since 1999. It's bizarre.' 0xDUDE makes a comparison with real life. 'It's like a company with an enormous warehouse. At the front are two security officers with a dog, but at the back, one of the staff entrances is open. Instead of doing something about it, the company builds an extra warehouse. The two security officers now have to guard two warehouses, even though the back doors of both are wide open.'

### Qubits

'The security of our data is largely dependent upon encryption,' 0xDUDE explains. The standard encryption at the moment is SHA256, which was unbreakable when it was devised. However, this has not been the case for a long time now. Several years ago, you would have needed a powerful supercomputer to break this encryption, and such computers were only in the possession of governments and universities. These days, any old hacker can create a supercomputer. All you need is a 3D card, which you can buy from any computer store. This card can be used to calculate more than a billion combinations per second. Software to crack passwords is available for anyone to download from sites such as hashcat.net. The software runs on any computer with above average computing power. This makes it easy to break into almost any system. This simple method was used last summer to hack Ashley Madison, the American adulterous dating website, exposing the extramarital love lives of tens of thousands of people.' However, the standard security which we believe keeps us safe is set to come under even greater pressure in the near future. 'We have come a long way with the development of quantum computing. In *quantum computing*, a program no longer has to choose between 0 and 1, but can keep on calculating under the assumption that the correct value is either of these two numbers. These *Qubits* will mean tremendous progress for our computing power and we'll be able to use them to do fantastic things. Nevertheless, as soon as malicious hackers gain access to them, we'll have a gigantic problem. It will then be possible to crack all existing encryptions and passwords. All our internet traffic, telephone calls, e-mails, and banking transactions will be exposed. This hasn't been taken into account at all as far as security measures are concerned.'

### Truant

'We have little awareness of how much data we disclose to third parties in confidence. Take, for example, a simple thing like the Dutch Pupil Monitoring System. It contains all sorts of information about a child's development, and none of that information is accessible for either parents or pupils. What many parents do not realize is that all this data is stored with a commercial service provider. How do parents know that this data is safe? How can you be sure that the data is removed from these systems when the child leaves school? There are no guarantees for this at all. A lot of people will fall victim to problems arising from this in years to come. I foresee cases such as a politician forced to resign because someone found out he frequently played truant in his younger years, or job applicants being rejected because they were cocky at school.'

### Cyber hygiene

Nevertheless, there is definitely something we can do ourselves. 'Citizens and consumers need to be more involved in cyber hygiene. This might sound pedantic, but if everyone were more conscientious in updating their software and devices, ethical hackers like us would have far less work. Many security risks are created by lazy consumers who click "No thanks, I'll do it next time" when a security update pops up.'

*'Many security risks are created by lazy consumers.'*

Even more essential, according to 0xDUDE, is that consumers make more conscious decisions regarding the data they disclose. 'First of all, this means thinking about what you post and where. None of my friends are on Facebook any more, for instance. Everyone has moved to Diaspora, a social network that respects your privacy and does not become the owner of everything you post. At Diaspora, you remain the owner of your data. This type of network makes data mining and all the shady practices arising from it much less attractive.' In addition, consumers must be made more aware that something that purports to be free often has strings attached. 'Almost all free internet services are currently paid for with your data. By using these services, you maintain a media landscape where personal data is traded and which many people are happy to exploit. If consumers were willing to pay slightly more in order to keep their data private, the internet would be a far less attractive place for those with malicious intent.'





Sonny Mathura is an enthusiastic educational innovator. Through his company Sonch, he works to bring innovation to media in the creative industry and education sector. He was involved in the Media Future Week and was also in charge of a project at the Hilversum Media Campus. In addition, he is a freelance lecturer in social skills.

## Sonny Mathura

### The media literate school

**In 2013, Sonny Mathura joined forces with Tom Ravesloot, taking the joint lead in the project Topklas Digital Design VO at the Hilversum Media Campus. At the campus, school pupils from the Gooi and Vechtstreek region collaborate on innovative media projects under the auspices of the Netherlands Institute for Sound and Vision. Mathura tells us enthusiastically about the apps built by fourteen and fifteen-year-olds. 'I'm constantly amazed at what they can do. They create fully functioning apps. One of my favourites is an app for elderly people suffering from dementia which shows them their lives. This is a useful app for the elderly, helping to bring structure to their memories.'**

#### Dream

During the conversation, it emerges that memories are an important concept in Mathura's vision of education. 'The lessons I learned the most from are the lessons I can still remember. Teachers whose every word I hung onto, challenging projects, and exciting assignments.' Mathura is full of ambition to create lessons that pupils will remember. 'That's why we let the pupils start with their dream. We ask them to think about how they can realize this dream with the help of media. It makes education and the way new media is used much more meaningful.'

#### War

Mathura laments the lack of meaningfulness in education at many schools. 'Education must be tailored to pupils' experiences. However, adults have no idea how the world of youngsters looks. We live in a world in which technology plays a central role. For youngsters this is completely normal, but teachers and school administrators are afraid of it. Terrified. This fear leads to opposition to everything relating to new media and social media, especially with regard to their use in schools.'

*'Adults have no idea how the world of youngsters looks.'*

'It will turn into a war,' Mathura says decidedly. 'Within five years, or ten years at most, youngsters will stop putting up with this situation. Pupils will demand changes, or otherwise organize their own education. Power to the pupil!' This revolution cannot come soon enough for Mathura. 'We just talk and talk, holding meeting after meeting, and very little happens in the meantime.' Referring to the Dutch reform initiative Education 2032 Mathura states: 'Education 2032? Why wait!? Why not Education 2016? Let's bring it forward!'

Mathura therefore believes that every school should appoint an innovation manager. 'Not someone who adds another layer to management, but an inspirer and a visionary. Somebody who sets things in motion.' Media literacy will need to be given an important role. Mathura observes that young people are very skilled at using their smartphones. They have no problems navigating between applications and tweaking the settings. However, the majority of them mainly use their skills for *socializing*. 'For them, it's all about wanting recognition. That's an important part of life for this age group.'



## The media literate school

### Out of touch

When it comes to strategy, however, young people need some support. ‘Youngsters are quite willing to use their mobile phones for serious tasks, but they would like to be shown how to do this, and given guidance. This is what we do at the Hilversum Media Campus. We spend a lot of time on *concepting*: what media do you use for the purposes you want and why?’ This requires teachers themselves to be media literate. ‘Every self-respecting teacher must be able to operate at level 4 of the Media Literacy Competence Model for all competences.’ Those familiar with the levels published by Mediawijzer.net know that this is no easy task. ‘At present, most teachers haven’t even reached level 3 and only a few IT coordinators reach level 4.’ Education needs to be overhauled and the teachers and school administrators need to address this problem. Mathura sees potential in the model used in Finland. ‘There, the ministry has set a basic level of media skills for everyone working in education. Those who haven’t achieved this level are required to follow a course. This additional training should preferably be compulsory in nature: if you fail the test, you lose your job.’

### *‘One hour of media literacy per day.’*

The media revolution is not just a bit of fun; it is absolutely necessary in a world turned on its head by new media developments. ‘Education is losing touch with its target group. Everything can be found on the internet, but teachers want their pupils to acquire their knowledge from books. This is no longer enough to keep young people interested. The internet exists, and teachers have to use it. Good education revolves around experience, around recollection. Teachers need to create environments in which young people discover this experience. Media should be a part of this environment.’ Mathura thinks media literacy should be a separate school subject in its own right. ‘And not two hours of lessons a week, but at least one hour each day.’

Media literacy should also be integrated into the other subjects. ‘Not just at a couple of pioneering schools, but at every single school.’ A greater focus on media literacy should not be optional but compulsory. Mathura calls for the ministry to provide more centralized control in this area. ‘The entire Dutch education sector needs to become more media literate,’ especially as developments are taking place faster and faster.

### Siri

‘Flipping the classroom is just the start. Augmented and virtual reality are undergoing rapid development. Education should take advantage of this.’ The role of the teacher should become more like that of a coach. ‘However, the question is: how much longer will there be teachers? I can imagine pupils in ten years’ time preferring to be taught by Siri than by a teacher.’ For many teachers, this is not an attractive prospect. ‘I personally see it more as a challenge. Education could be fantastic!’ Fear often stands in the way of progress, as Mathura observes. ‘There are always horror stories about cyber bullying and sexting, which dominate the debate on media literacy. And things are set to get worse. In that respect, we could follow the example of other countries. In the USA, for example, the education sector is much more uninhibited when it comes to using media. They just use media with no qualms. It would be wise for Dutch education to adopt the same attitude.’



Howard Rheingold is one of the original internet visionaries. Since the early eighties, he has identified the opportunities offered by the web for participation, co-creation, and democracy. His books *Smart Mobs: The Next Social Revolution* (2002) and *Net Smart: How to Thrive Online* (2012) became standard reference works. Before he retired, he was a lecturer at Stanford and at Berkeley. He currently still publishes regular blog posts for DML Central, a website about digital media, education, and participation.

## Howard Rheingold

### Determining the future of the web together

**When we ask Howard Rheingold what he expects the media society to look like in the next decade, he places the current developments in a historical perspective. ‘Smartphones will of course continue to develop and we will also make more use of virtual reality and smart robots. Technology will continue to develop over the next ten years, but that’s nothing new. It is something that has happened continually over recent decades.’ Rheingold considers the technological developments themselves less interesting. What does interest him is how these developments threaten to alter the relationship between artificial intelligence and ‘intellectual augmentation’.**

#### Wooden mouse

‘Digital technology is always based on one of two principles. On the one hand, you have technologies aimed at outdoing humans or even replacing them. Watson and Deep Blue are just two examples. Some robots are also developed nowadays with this purpose in mind. On the other hand, you have technologies that are developed to enable people to do things they would otherwise not easily be able to do, if at all. Video chatting is a good example of this. Skype is not intended to replace people, but to assist them.’

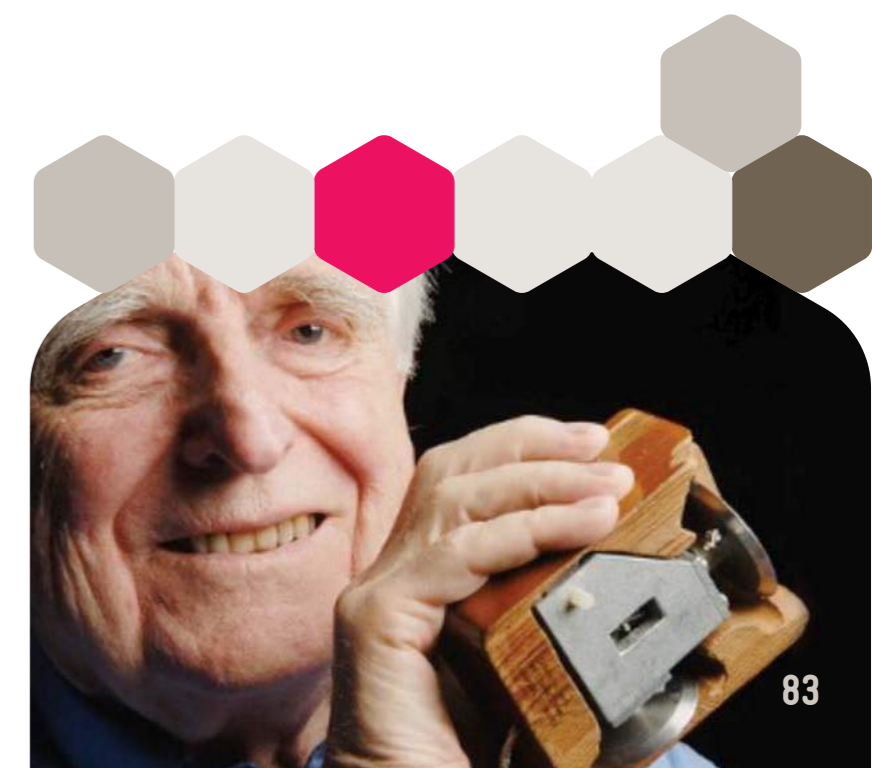
Rheingold subscribes to the tradition of illustrious internet pioneers such as Douglas Engelbart and Joseph Licklider. In the 1960s and 1970s, these visionaries were involved in the development of the World Wide Web and the personal computer. At a time when computers were still so large and expensive that it was thought that they would always be reserved for the government and army, Engelbart invented hypertexting and multimedia, and developed the first computer mouse, made from wood. In 1962, Licklider managed to convince his superiors at the Pentagon that computer technologies should be made available to the general population.

‘Without these pioneers, the web would not have become what it is now, with all the opportunities it offers for collaboration, knowledge sharing, and co-creation. These visionaries did not regard technology as a replacement for humans, but as a tool to strengthen the natural abilities of the human mind, eyes, and hands. This tradition is now coming under pressure. We are at risk of ending up in an era with too great a focus on technological possibilities, without considering whether what we are developing has the potential to enhance us as people or limit us.’

#### Bicycle

According to Rheingold, the pioneering work carried out by Engelbart and Licklider demonstrates another fundamental characteristic of media developments. ‘Today’s media society was created by an unforeseen collision of forces. These forces are: 1) the military industry, 2) the pursuit of profits by big companies, and 3) the idealism of inspired individuals. Hardly anybody who uses a smartphone to send a message to a friend would associate this action with the weapons industry, and yet, the smartphone would never have existed without the development of mobile technology in the military industry.’

*‘Today’s media society was created by an unforeseen collision of forces.’*



Conversely, no one at the Pentagon was able to foresee how the mobile technology they had developed would be used by everyone and change the whole of society.' According to Rheingold, today's web is a 'hybrid of liberating technology and the pursuit of profit'. Rheingold sees both of these personified in Steve Jobs. 'Jobs's company made him immensely wealthy, but his dream was to give people a "bicycle for the mind".' The web was not created purely on the basis of altruism, nor purely on the basis of egoism. 'The web wasn't created by a state or a company. It was created by millions of people who set up their own websites. The infrastructure was developed by the army, IBM and Apple made the equipment, and YouTube and Facebook developed the software, but the form of our current internet is determined by the millions of people who have posted videos of their dog or cat online.'

### Farmers

The future of the web is therefore something which everyone should be able to think and talk about. 'The media society has reached a point at which new media and social media affect all aspects of our lives. The development of media should therefore no longer be simply left to engineers, programmers, and producers. Media belong not just to them, but also to us. We have been using media ever since we learned to read and write. The printing press and the pen have facilitated our use of media and, nowadays, digital media offer us even greater opportunities. But we mustn't forget that the media belong to us. Facebook, Apple, Microsoft, and all the other companies in Silicon Valley have a lot of power, but it will be a twelve-year-old boy in New York and a physicist in Switzerland who lead the way with surprising and innovative ideas.'

No one knows exactly how the media will and should develop, but I do know that the future of media should be determined by a much greater proportion of the population than is currently the case.' Rheingold therefore hopes for a broad public debate. 'Factory workers, painters, firefighters, and farmers all have smartphones nowadays and they all know that the smartphone is radically changing the world. All these people need to be involved.' Rheingold also sees a significant role for intergenerational learning processes. 'Go and talk to youngsters who are twelve, fourteen, and sixteen years old. Talk to them on an equal footing. Don't preach to them, but listen to them and learn from their ideas and expectations for the future.'

### Critical point

Rheingold hopes this broad public debate will contribute to the use of the internet for a greater variety of purposes in future. 'The internet is not just Facebook. Don't get me wrong, I think Facebook is fantastic and I use it a lot, but the internet offers so much more. Facebook is a medium that limits how you can participate. You can upload photos and post status updates, but only in accordance with a set format. The internet offers far more possibilities for interaction, development, and participation. I therefore derive great satisfaction from teaching young people how to set up and run a WordPress website on their own server.'

Rheingold thinks the expressive poverty of Facebook serves as an illustration. 'We have created serious problems through our use of media. These problems can only be resolved by working together. Of course, we should be critical about how Facebook and Google want to steer our behaviour, but in the end we all have control over our own destinies. If we all say that we are powerless, we will be powerless. If enough people feel that we can collectively influence the media landscape, then that is what will happen. Many critics argue that the internet is dominated by capitalism. That's true, of course. Others say that the internet's main contribution is the creation of an even greater amount of rubbish and nonsense. And that's also true! But the internet also makes fantastic things possible. We are approaching a critical point. If we throw in the towel now, we will lose our grip on the internet and it will become an increasingly inhumane place. On the other hand, if enough people have the energy to pick up the tradition that has made the internet great and run with it, we can look forward to a fantastic future.'

*'If we throw in the towel now, we will lose our grip on the internet.'*





Martijn de Groot is a medical biologist and a Quantified Self pioneer. He set up the Quantified Self Institute, at the Hanze University of Applied Sciences in Groningen, where research is conducted and teaching given on the interface between technology, health, and lifestyle. Although he doesn't use all the apps available in the App Store, he does use a few to 'calibrate his internal senses'.

## Martijn de Groot

### Measuring who you are

**Self-analysis is an activity of all eras. 'Know thyself' is a maxim that was inscribed long ago in the temple of Apollo at Delphi. Nowadays, we read self-help books to find out more about ourselves and we talk to psychologists to penetrate the mysteries of our soul. 'Quantified Self technologies are becoming increasingly useful in this regard. They provide us with a wealth of information about ourselves and show us patterns we can learn from,' De Groot explains.**

#### Delphi

The Quantified Self movement centres around the concept of *self-tracking*. 'Self-tracking is about technology you can use to identify certain aspects of your own life and express them in numerical terms,' De Groot explains. 'This is done based on the belief that numbers can give you answers. People want to know how much exercise they do, what they are eating, how high their blood pressure is, what time they go to bed, and how often they take the dog for a walk. They do this because they can, because it's fun, and because it provides useful insights that they can use to make better decisions.'

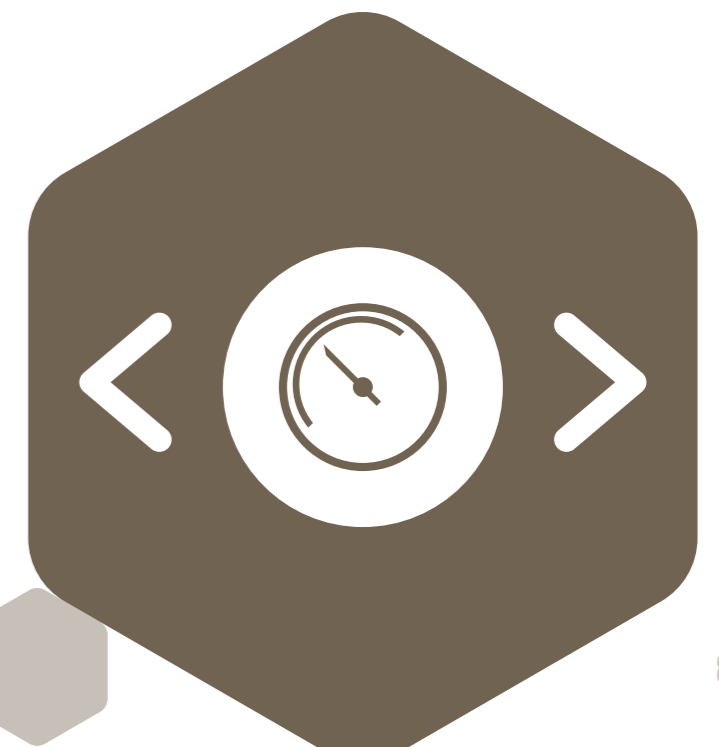
#### 'Quantified Self is as old as the world.'

'The Quantified Self movement is nothing new. It's as old as the world. What is new, however, is the improved technology that makes it so much easier to analyse all sorts of information. Self-measurement used to be labour intensive, but it now costs little effort. All you need is a smartphone – which almost everyone has – and a few *wearables* such as a wristband or *activity tracker*. You can easily measure your movement, sleep pattern, or heart rate without much effort. Quantified Self technology brings the maxim inscribed in the temple at Delphi to life. Quantified Self makes it possible for people to measure themselves.'

#### Intimate

De Groot sheds more light on the development of Quantified Self from a historical perspective. 'In the past, technology was predominantly used to enhance our muscle power, our influence. Since then, we have used technology to change the whole world, including our living environment. Technology has become something much more personal and intimate. Today, it gives us feedback and changes us. It influences who we are and what we do.' Nevertheless, many people feel opposed to the idea of sleeping with a headband full of sensors on their head. 'Viewing new developments with initial caution or even suspicion is a biological phenomenon,' De Groot explains. 'We used to be apprehensive about steam locomotives, televisions, and mobile phones. Young people have a different approach to new technology, and our children in turn will show a different attitude yet again. They'll consider it completely normal for people to measure themselves.'

The most popular applications at the moment are those that measure your exercise and movement patterns. De Groot gives two explanations for this: 'First of all, the technology used in accelerometers has vastly improved. They work really well and are reliable. Secondly, our sedentary lifestyle and the amount of time we spend sitting has become a health concern. Technology, the economy, and society have therefore linked up to ensure that *activity trackers have become a real trend*.'





## Washable

We ask De Groot how he thinks Quantified Self technology will develop over the coming decade. 'I'm not a futurologist,' De Groot says. 'I don't have a crystal ball. Other people could make better predictions about it than I can.' And although *activity tracking* is now in vogue, De Groot sees the emergence of other applications in future. 'As a result of technological developments, the focus may lie elsewhere in a few years' time. We may be measuring our sweat or saliva in order to detect a certain biomarker, such as proteins or hormones, from which we can glean information. Or we might have printable technology on our skin that informs us about our vitamin D levels. These innovations are already within reach,' De Groot says. 'I can well imagine the *wearable technology* of today being incorporated into our clothing in a few years' time. You may have to remove the technology before washing your clothes, but it is also likely to be washable by then.'

## Entrenched views

Many people associate Quantified Self with cheery Americans going for a run each morning with an iPhone 6S strapped to their arm. De Groot wants to move away from this stereotype. 'It's not always about health, nor is it always about technology. Quantified Self is about making new discoveries about yourself, with measurements based on figures and accurate observations. Modern technology can help with this, but it can also be done with old-fashioned pen and paper. The important thing is to make an accurate observation of what you want to study, which could be anything: health, of course, but also behaviour, monetary issues, social relationships, or even happiness. The key question with Quantified Self is always: *What have I learned?*'

Nonetheless, some concerns may arise in relation to people measuring themselves. If everyone is seen as just a series of numbers in future, will health insurers start imposing specific requirements? Will we move towards a health insurance system in which our contributions depend on how healthily we live? De Groot asks a question in return. 'Why shouldn't you be rewarded if you can demonstrate you lead a healthy lifestyle? If we have to share the costs of health care, wouldn't it be a form of solidarity if everyone strives to become as healthy as possible?'

*'We don't all have to eat the same veggie burgers.'*

However, De Groot also sees a downside. 'I do wonder, of course, whether such a scenario is desirable. Do you want everyone to abstain from smoking and alcohol, and all eat the same veggie burgers? Would that really improve life? Artists, musicians, and writers are sometimes aided by alcohol and drugs, as it helps them create great works. Do we have to get rid of that just because it would be healthier for all of us collectively? You could ask yourself whether you'd want to live in such a world.'

More than anything else, a Big Brother society is a scenario fuelled by fear, De Groot believes. 'We need to move away from the debate between the entrenched views of the supporters and opponents. We need to look at the real value of personal data. The focus must not lie on controlling the individual. That's not what Quantified Self is about. Quantified Self does, of course, concern data, but it concerns my data. In other words, *sousveillance* rather than *surveillance*.'

## BreakFree

Media literacy certainly plays a role in this, De Groot claims. 'You must always ask yourself if you really want to know something or whether it has been foisted upon you by the industry trying to sell its trackers. You need to ask critical questions.' On the other hand, Quantified Self can also help improve your media literacy. 'Media literacy is, in fact, also a form of Quantified Self. Look at your opinions and the choices you make: which media do you use, and for how long and how often? Which apps do you download? What technology do you buy? How much television do you watch and how much time do you spend playing computer games? If you have insight into this, in numerical form, you may well be surprised at what you find out about yourself. Several apps, such as BreakFree, are already available for this purpose. But maybe this is something your network could develop further.'

*'Media literacy is also a form of Quantified Self.'*

## Participation

The research conducted at the Quantified Self Institute is based on the four Ps of Leroy Hood: *personalized, preventive, participatory* and *predictive*. 'Participation, in particular, plays an important part in our research. If, for example, you are undergoing medical treatment, Quantified Self gets you involved in your health and care process in a different way. You are also no longer entirely dependent upon clinical observations that only take place once in a while. You have insight into your own dataset, which automatically increases your involvement.'



Bart Robben is the co-founder of Elastique, a company that specializes in ‘creating sensational and exciting online and mobile experiences,’ particularly for the television industry. Elastique has developed websites and mobile applications for a range of Dutch television programmes such as De Slimste Mens, Feuten, In Therapie, and Penozza.

Transmedia storytelling is Robben’s passion.

## Bart Robben

### The connecting power of stories

**Transmedia storytelling entails telling a story via multiple platforms. This technique originates from 1960s Japan, when people started producing comics and gadgets to go with the anime television series. The development of digital technology has prompted a huge rise in the popularity of transmedia storytelling in recent years. One of the major successes in the Netherlands was the web-based game for the Het Huis Anubis television series that pushed up viewing figures and increased audience involvement. Nowadays, almost every self-respecting television programme has its own interactive website, game, or mobile app. ‘And yet transmedia storytelling is nothing new,’ says Bart Robben.**

#### Communion

‘Transmedia storytelling has been seen in every era. The Catholic Church has been doing it expertly for centuries. There’s the Bible, of course, which is the core story. This story was then enriched through a variety of expressions, from statues of Mary to stories depicted in stained glass windows, from the sermons of the pastor to symbols like the cross, and from events such as christenings and communion to traditions such as Easter Mass. Telling stories is a human characteristic. Stories allow us to understand the incomprehensible. The greater our desire to understand something, the more platforms we use to tell a story.’

*‘This eternal need for stories is currently merging with new technologies.’*

Of course, things have changed, Robben says. ‘This eternal need for stories is currently merging with new technologies. Smartphones offer makers new possibilities for telling new types of stories and give users new ways of experiencing them. The fact that people are constantly online has given the development of transmedia storytelling a real boost.’

#### Idealism

In conjunction with the Dutch broadcasting corporation NCRV, Elastique developed an application for the drama series ‘In Therapie’ (‘In Therapy’) which enabled viewers to look at the therapist’s smartphone. Viewers were able to further *immerse* themselves in the series. For the Feuten (‘Freshers’) drama series, they devised an app with which viewers could perform initiation challenges to become accepted as a member of the Mercurius student association. In addition, the following week’s episode of Feuten was also made available on a *mobile first* basis. ‘Hello new generation’ was Robben’s idea behind it. Users submitted all kinds of spontaneous initiatives within the online student association. ‘After a while, it became very organic; people started organizing things spontaneously. That’s what you dream of, of course: interactivity and participation.’ The future of transmedia storytelling will increasingly concern the creation of conditions for such experiences. ‘The biggest changes have already taken place. We will see more of the same over the coming years, except people will be looking for more intensive experiences. We want transmedia storytelling to bring television to life. The story continues where television stops. There is definitely an element of idealism behind our work. We want to make enriching online experiences possible.’



### Coffee machine

You often hear people say that television is dead, but Robben doesn't believe it. 'Content is still *king*. There are still some fantastic programme-makers around. It's just the distribution model that has changed. This generation wants to watch television at *any time and anywhere*, at a tempo of their own choosing.' Robben sees this as perfectly logical. 'People no longer want to have to wait a week for the next episode.' And it's not just today's generation that want streaming, on-demand television. 'Baby boomers want that just as much, they just don't fully realize it yet. Steve Jobs had a point: people often don't know what they want until you show it to them.'

It's partly due to these baby boomers that traditional television is still so dominant at the moment compared to streaming services like Netflix. 'Traditional television still sets the tone and calls the shots,' Robben explains. 'This is evident from the viewing figures, but it is also in people's mindsets. Many things on the internet only go *viral* once they've been shown on television.' Robben explains this on the basis of the power of stories. 'People need to feel a connection. At work, you want to share experiences with your colleagues as you chat at the coffee machine. In our individualized society, we often have few shared experiences. While one person goes to the neighbourhood meeting in the evening, another person goes and plays squash. Television gives you something to share, something to talk about, and to jointly give meaning to.'

Traditional television is not the direct opposite of digital viewing. 'They need each other, as they can be used to enhance and supplement each other. It is the combination of the two that forms the whole experience. I'm not saying it doesn't exist if it hasn't been on television, but television is certainly still dominant. It can work in all kinds of ways. There are plenty of things on the internet that feed television and vice versa.'

### Facebook clinics

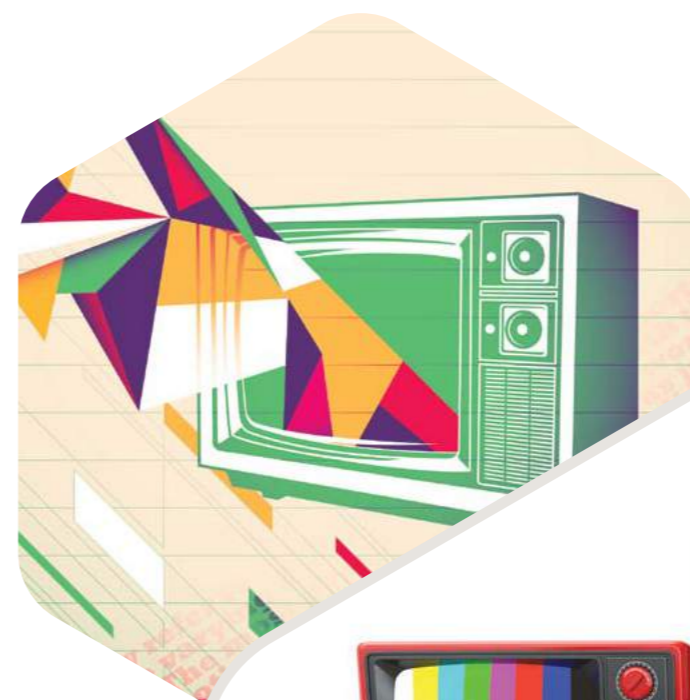
Robben speaks even more strongly about the relationship between television and social media. 'Television leads to bonding and meaning. The social media lead to loneliness and superficiality. Social media are two-dimensional. Someone posts a message and we respond. These responses often lack clear interpretation. All you do is drop an emoticon and walk away. The reactions are superficial and mainly for the purpose of affirming our own egos. "I've seen it!" or "This is what I think of it!" Things only start to exist when they are discussed at length; value is only created when a story is presented from all sides. Social media barely make use of this possibility. Television, on the other hand, does. Television is 3D or sometimes even 4D or 5D.' Robben is referring to Dutch programmes such as Nieuwsuur, Tegenlicht, and College Tour. 'The people in these programmes know what they're talking about. The technology of television makes it possible to add depth to the story through reports on location, interviews with those involved, infographics, polls, and images. The opinions of experts are compared to one another, or they all enter into a debate. This gives you a fuller picture and the story becomes more detailed and more meaningful.'

In comparison, the storytelling on Facebook, Twitter, and Instagram is very much one-sided, Robben believes. 'I foresee a serious problem. Facebook is an experiment we will regret in ten years' time. We'll realize that we have created a generation of Facebook zombies. The existing mental health-care institutes will have insufficient capacity by 2025. New clinics will have to be set up to treat the current Facebook generation for narcissism and superficiality.'

*'Facebook is an experiment we will regret in ten years' time.'*

### Golden egg

Robben's preference for the medium of television does not mean that television producers can become complacent. 'People used to accept what television producers served up without complaint. Things have changed, as viewers have become more critical and many want to make their own stories. This is not true for everyone; it's like a pyramid. At the bottom you have the passive viewers, and at the top you have the ambassadors of your story. Those are the people you have to listen to. If you listen carefully to their input, it can help you tell better, more interesting stories through television. I don't see this happening enough yet, even though people do still watch. To some extent, they are abusing their monopoly as storytellers, and this is something that needs to change. If we start taking the public more seriously, television will be able to tell much better, more appealing, and more relevant stories.'





Mitchel Resnick is the director of the Lifelong Kindergarten group for the Massachusetts Institute of Technology Media Lab. Resnick's research group develops new technologies 'to engage people (particularly children) in creative learning experiences.' Things they have developed include the educational coding program Scratch and the programmable toy called Programmable Bricks, which formed the basis of Lego Mindstorms and WeDo. Resnick and his group also set up the after-school computer project Computer Clubhouse.

## Mitchel Resnick

### Those who can code can create

**Scratch is a fun program that teaches children how to code and create. It is free to use and is available in seventy different languages. It can be used for a wide range of applications, such as producing animations, simulations, games, and music. Users can share their creations with others in the Scratch community. The counter now stands at 11 million shared creations. The full name of Resnick's research program is clearly justified: *Scratch: Democratizing Digital Expression.***

#### Create and share

Resnick reminds us that Scratch was not the first educational program to teach children how to code. 'Some people may still remember Logo, a program developed in the 1960s by Seymour Papert and Wally Feurzeig. They were the pioneers of the past. At MIT, we felt that today's era required something new. We thought about games and interactive animations, and embarked on the task of finding something better geared towards the experiences of young people today.' Resnick explains what sets Scratch apart. 'Scratch is a programming language that uses programming blocks. The program can be accessed via a web browser, but can also be installed on your PC. Scratch makes it very easy for pupils to create multimedia programs. It can be used in a variety of lessons at school, not least maths and physics. But it is also suitable for use as a presentation or simulation program.'

Scratch is also a "create and share" program. Anyone using Scratch to create something can then share it in the community. You'll find millions of creations on the Scratch website, and many of them are definitely worth a look. This also creates a lot of interaction; many of the shared creations have had additions or improvements made to them by others.'

*'Coding is making and creating multimedia things.'*

Within this context, Resnick aims to make a distinction between programming and coding. 'Programming is such a big word. When I'm referring to Scratch, I prefer to talk about coding. Coding for me is the creation of multimedia things, and in particular the interaction. The more interaction that is possible, the more complex something becomes. In coding, you look at what interaction is needed to make your creation appealing. This requires a lot of thought, creativity, and familiarity with the technology. One condition is that the technology fits in with the perceptions of those who are destined to use it.'

#### Tomorrow's world

Fitting in with the perceptions of children is essential for this enthusiastic educational innovator. 'Our children must have the right tools to be able to take on the challenges of tomorrow's rapidly changing world. We don't yet know how that world will look. The problems that will arise in future are as yet unknown, but creativity will be needed to resolve them. Education can help our kids develop their creative talents. Nevertheless, creativity is an ongoing process: something might be new now, but it will soon become outdated.'



Moreover, it is not easy to make something new and continue developing it. Whatever you make should not only be visible, but also tested and improved. Computers and their underlying technology now offer more possibilities for creation. My task is to prepare our young people for tomorrow's world.'

### Language

In that world, coding skills will be indispensable, Resnick tells us. 'We all agree that it is important for children to be able to read and write. These skills will naturally be essential if they want to become a journalist, poet, or writer when they grow up, but even if they choose a different profession – without a focus on writing skills – they still need to be able to read and write. These skills help you to think, reflect, remember, and organize. The same is true for coding.' Resnick sees it as a supplementation to reading and writing. 'The ability to code enables you to create new things, such as interactive stories, games, animations, and simulations. School children need to be introduced to coding so that they can use it as a tool of expression. It's not about the technology, but about what you can do with it. I sometimes compare it to grammar. Grammatical knowledge is useful but ultimately what you write down is the most important thing. Language, and therefore also programming language, is a form of expression.'

*'Language, and therefore also programming language, is a form of expression.'*

In addition, Resnick emphasizes that Scratch provides insight into how digital devices and applications work, making it easier to understand the world. 'Computers make so much possible, so it's useful to know how they work. Coding helps you understand the world around you. That world is currently full of devices that have been programmed for a specific purpose. If you understand the language used by those devices, it becomes much easier for you to develop new ideas on how to improve those devices, and, therefore, the world.'

### L2CC2L

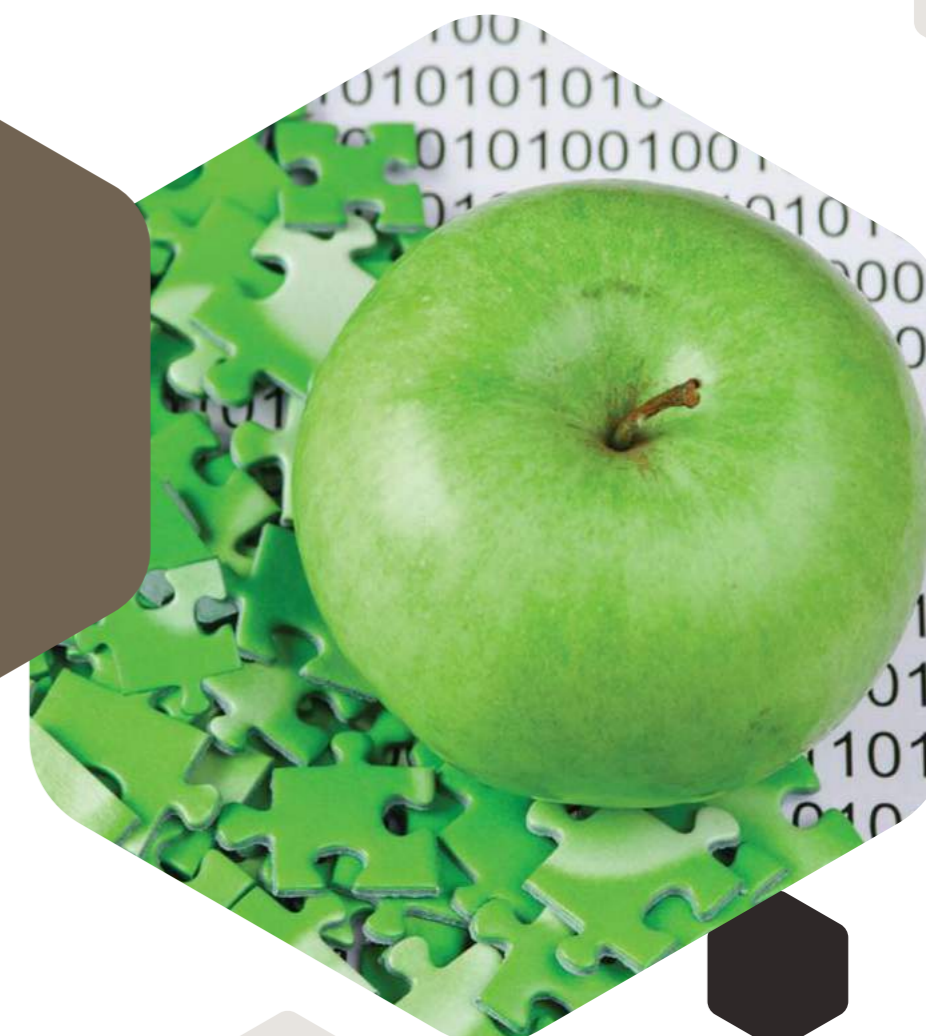
To really make the world a better place, education needs to be overhauled. 'The current form of education was established during the industrial age. This was a period of routine work and the development of the illiterate. That period is far behind us now. A lot of work is no longer routine, and in most countries the rate of illiteracy is low. In our knowledge-based society, we are also encountering many more opportunities and choices.' That world is in stark contrast to the education system, as Resnick explains. 'Schools are part of an unwieldy system based on the notion that learning is something you do until you are eighteen and then only during lessons. In our digital era, however, learning is a process that can take place at any time and at any place throughout a person's life. We need to look at different ways of acquiring knowledge. This could be done at home, in community centres, in museums, or on the shop floor. Internet opens up many new opportunities for learning. Working together and sharing knowledge is also a part of this.'

Teachers and parents are often an inhibiting factor in educational innovation, Resnick observes. 'After all, they only have the experience of their past. The paradox is that the change in education needs to come from those people who find it the most difficult. It will be a lengthy process.'

At the end of the interview, we discuss the commonly-heard expression 'L2CC2L' – *Learn to Code, Code to Learn*. 'Learning has become a permanent process. If you want to keep pace with developments around you, you have to keep learning. Members of the Scratch community are learning things in a different way. They start regarding themselves as creators and inventors, working with the aid of digital resources. This is more than just surfing the internet or playing games. Many people can handle digital media, but Scratchers can create. They are preparing themselves for full participation in the media society of tomorrow.'

*This contribution is based on an interview between Aad van der Drift and Mitchel Resnick during Resnick's visit to Scratch2015Amsterdam.*

forever  
imagine  
program  
share





R. David Lankes is a professor of New Librarianship at the School of Information Studies at Syracuse University. In 2012, his book *The Atlas of New Librarianship* was crowned Best Book in Library Literature in the USA. He is very much in demand as an advisor to a broad spectrum of government bodies, organizations, and companies. In the 1990s, Lankes was involved in the continued development of the educational databank ERIC and helped companies such as CNN and Discovery Channel to develop their first websites.

## R. David Lankes

### The beating heart of the media society

**In many countries, the public library has an important role in media literacy. This is certainly also the case in the Netherlands, where the Koninklijke Bibliotheek – the National Library of the Netherlands – is one of the five key partners involved in Mediawijzer.net. In recent years, libraries have evolved to become Houses of Media Literacy, offering media literacy services to schools, through programmes such as The Library at School, and have their own media coach training programme for library professionals. David Lankes is familiar with the Dutch library system and is full of praise for the activities in the Netherlands, especially those related to media literacy. However, as a declared ‘passionate advocate for librarians and their essential role in contemporary society,’ he does still see room for improvement and innovation.**

#### Production line

We ask Lankes whether future libraries will still have books. ‘Some will, some won’t,’ he replies. It is only as the interview progresses that we fully understand the radical meaning behind that answer. ‘I’ve visited many libraries in many different countries. There are certainly differences between them, but also similarities. In the United States, the Netherlands, Italy, and New Zealand, there is a substantial need for a ‘community hub’. It’s a bit like an Italian *piazza*, a central square where people meet up to share experiences. There are fewer and fewer of these types of public spaces now. The library is one of the last surviving public spaces that has not been closed or lost as a result of urban planners’ interventions.’

Lankes emphasizes that this type of community centre can never be universal. ‘Many libraries look fairly similar, but they shouldn’t really. Libraries should be a reflection of the community they form part of.’ Lankes explains why this isn’t the case. ‘The library is an institute that arose during the industrial age and which was created following the example of the factory. Melvil Dewey, the inventor of the familiar Dewey Decimal book classification system, was one person who made very clear statements about this at the end of the 19th century. His dream was that libraries should function just as efficiently as factories, and that librarians should be just as interchangeable as workers on a production line.’

#### Take control

‘Throughout society we are noticing a movement towards personalization and individualization. Schools, television channels, publishers, newspapers, and websites are all aware that they need to use new technologies to the full to enable individuals to shape their own learning and information environments.’ This requires quite an adjustment, also for libraries. ‘Libraries have long been active in the “*stuff business*”. We have invested in the power of books, buildings, and organizations. We are now starting to understand that it’s not about things but about individuals. It’s not about schools providing education, but about individuals wanting to learn. It’s not about doctors providing treatment, but about people trying to stay healthy. The same trend is also noticeable in librarianship. It’s not about librarians wanting to inform people, but about people wanting to acquire knowledge.’

We ask Lankes how this shift towards the individual ties in with the mediatization of society. ‘The desire for individualization and personalization is nothing new. Marshall McLuhan talked about this as early as the 1960s. People have been wanting to take control of their own lives for a long time, and to be responsible for their learning processes, knowledge development, and information consumption. Technological developments mean people have now been given the tools to achieve this and demand it.’

### Diversity

We put the view to Lankes that the universal library also had its good sides. After all, if you only allow the library to reflect the community, there is a chance that a library in a strict churchgoing area will only lend out Christian books and that a library in a deprived area will mainly sell junk food. ‘Of course! But that’s why I say that universality was always an illusion. What we marketed as universality was in fact nothing more than cultural hegemony. Libraries have long helped preserve the world view of white western men from affluent backgrounds.’ Lankes refers to Andrew Carnegie, a philanthropist who donated some of his fortune for the construction of around 1500 libraries in the 19th century. ‘In response to criticism from workers, Carnegie said: “If I had raised your wages, you would have spent that money by buying a better cut of meat or more drink for your dinner. But what you needed, though you didn’t know it, was my libraries and concert halls. And that’s what I’m giving to you.” His contemporary Dewey wanted to keep all fiction books out of the libraries because only non-fiction would lead to greater knowledge. Fortunately, we have left this paternalistic view behind us and space has been created for cultural diversity and pluralism.’

This diversity has been made possible in part by the digital revolution. ‘What is revolutionary about the internet is its neutrality in relation to its content. Even before the internet existed, there were networks available for sharing information, and some of these networks were very large. However, they were all set up with specific contents in mind. What was new about the internet was that it didn’t focus on content, but rather on the way in which data could be transferred. A new technological infrastructure was created in which people could place things online and share information. This is how the internet became the refuge for the “Great Diversity”.’

### Big content

It is from this that Lankes derives the model for the library of the future. ‘We should not try to standardize the libraries themselves so that they all look alike. What we need to standardize is the *connection* between the libraries. This is an important task for librarians. If something extremely interesting happens in one city, for instance Ostend, it is up to the librarians collectively to ensure that this is shared with the communities in other cities, such as Tilburg and Amsterdam. This is not the responsibility of citizens, but of librarians who can create a connection at network level.’

However, the role of the librarian is much broader. ‘Big data was a much talked about topic in recent years. But this is all about ones and zeros, patterns and measurements. Nowadays, we talk about big content. This is the huge collection of semantic information made available to us through the internet, such as books, reports, and websites. We are returning from numbers to language. Big data can help us identify patterns, but these are only relevant insofar as they enable us to improve the way we do something that is important to us. We are moving from an information-based era to a knowledge-based era, or better said, to an era based on meaning.’

### Empowerment

This brings us to the subject of information skills. Librarians like to present themselves as specialists in accessing information and are happy to offer their services to teach others these same skills. ‘This is a very consumer-oriented approach. You teach people to search for and find information and to report on their findings. What about building, producing, and having an impact? Everyone knows Michael Eisenberg’s Big Six model which mentions six essential information skills. It is not surprising that this model received serious criticism. The entire model focuses on instrumental skills, such as the skills you need to write a report or to pass an exam. The background to this is the idea that it is easier to consume than to produce. Not everyone can write, so we teach them to find a book; not everyone can compose, so we teach them to find music. It is a return of the 19th-century disdain for the people.’ Lankes hopes that we will move towards a maker’s culture, in which people develop skills, learn, create, and produce. ‘The word “maker” is a *buzzword*. Hopefully, it will no longer be in vogue in ten years’ time because everyone will be a maker by then. If so, librarians will have done their jobs well.’

Lankes has not yet finished his rant on information skills. ‘Even the word “information” itself is dubious. What does “*information*” actually mean? The electric currents moving through the cables while we use Skype? The word “information” is a cultural lubricant to disguise the fact that we are really talking about the unilateral dropping of something. “Here’s some information – just use this.” I prefer to talk about knowledge and, better still, about meaning.’

Where should libraries focus their efforts when it comes to media literacy? ‘Librarians should commit to the idea of *empowerment*. We are living in a world which steers people towards consumption instead of production. Librarians have the opportunity and the power to help people understand media, to help them use media for creation and to make a difference in the world. For example, they can teach them not to be exploited by new media technologies but to actively use the media for themselves.’



# Media literacy

## 2015 > 2025

The twenty-one experts who share their opinions in this book make bold statements, ask critical questions, and present new challenges for media users, media producers, policy-makers, and media literacy professionals.

Here we summarize a number of these questions and challenges, so that they can serve as a basis for further discussion, possible changes in direction, and new initiatives both within and outside our network.

## Questions and challenges

### New?

If, as Imar de Vries argues, new media are of all eras and innovation is centuries old, what does this mean for our efforts relating to media literacy? After all, these are often based on the assumption that new media and social media are completely new and able to turn the world upside down.

### Expansion?

Various experts call for a new subject in schools. Hans Schnitzler mentions philosophy of technology, while Maarten Steinbuch proposes technological citizenship. Various experts are calling for more attention to be devoted to coding. The question is whether the concept of media literacy sufficiently covers these matters or whether we should broaden the concept, and if so, which elements should be added.

### Framework?

Renee Hobbs advises us to record our history and to endeavour to create a common frame of reference. We have the definition from the Council of Culture, but this covers a range of initiatives that take place with various intentions and lines of approach. Could we make this more explicit? And what should our common framework be, in spite of – or perhaps because of – this diversity?

### Activism?

Various experts call for action and opposition. Education, work, libraries, social media, and payments all require radical change. In light of this, the efforts made by the Netherlands over the last decade with regard to media literacy appear to be rather tame. Various experts encourage us to fight for our cause. The question is: how radical are we willing to make media literacy?

### Strategies?

Is there still hope? Some experts see very few possibilities for 'agency,' the ability to make conscious and rational choices as free individuals. Others do see possibilities, though they do not believe it will be easy. The various experts put forward a range of different strategies. Some want to start with education (with a particular focus on coding, games, and philosophy).

Others want media producers to make more enriching, more responsible media, and advocate a code of conduct for the media industry. Yet another group primarily sees possibilities for acts of liberation at individual level, such as purchasing an iron key, getting rid of your television set, doing useful things with your Oculus Rift, buying a robot dog for your mother, or migrating to Ello. Reference is also made to the changes required at policy level, starting with the ministries. Which of these strategies will we choose, how will we implement them, and how will we tempt media users to take greater responsibility for their own media literacy?

### Engagement?

What the contributions from our American interviewees have in common is their strong emphasis on participation and democracy. Rheingold, Hobbs, Gardner, and Lankes do not regard media literacy as a goal in itself, but rather as a means to create a fairer, more appealing, and more democratic world. In the Netherlands, the discourse on media literacy is more down-to-earth. We need to ask ourselves: to what extent do we want to be inspired by American-style engagement? And are there other traditions in other countries from which we could draw more inspiration?

### Media literacy robots?

And then there's the issue of advances in technology. If we believe the experts, we'll have drones flying around our heads in future and we'll be wearing our virtual reality goggles all day long. If you're ill, a self-driving car (ordered using an app and automatically paid for from your bitcoin wallet) will take you to your robotic GP who, instead of asking you what's wrong, will simply read out the data from your jumper. If the 'acceleration is still ongoing,' as Reinout te Brake states, how can we prepare ourselves for what is to come? Can we remain relevant as media literacy professionals? If GPs and lawyers are eventually replaced by robots, as Maarten Steinbuch expects, will media literacy professionals even be needed? Or would it be better to bring apps, wearables, VR applications, coaching robots, and hacking scripts onto the market that would enable people to make themselves more media literate?

Over the next few years we will have to jointly find answers to these and other uncomfortable questions raised by these twenty-one experts.

# The Mediawijzer.net network

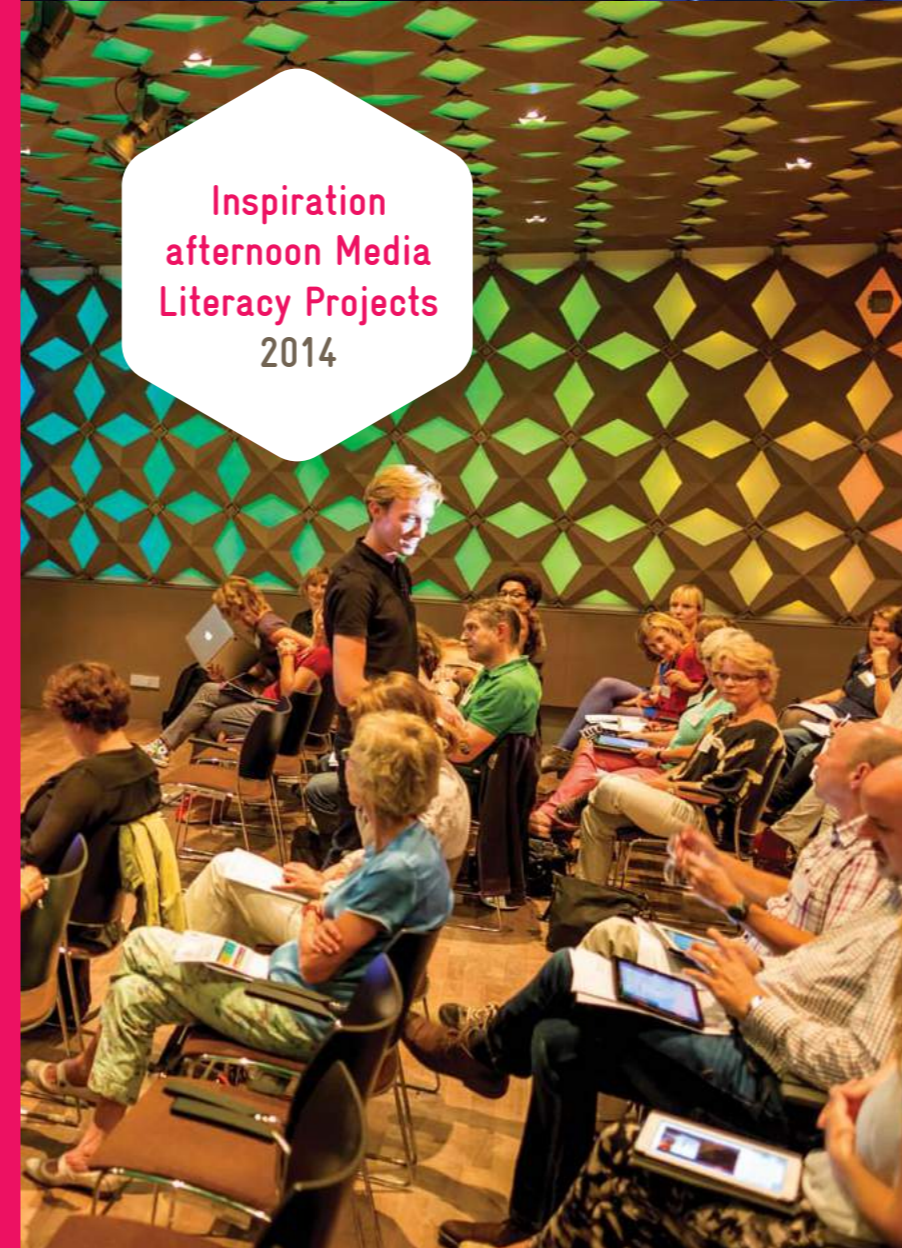
Mediawijzer.net is the Dutch network organization for media literacy. Its main purpose is to promote media literacy among children aged 0 to 18. More than 1000 organizations, companies, and institutes working in the area of media literacy are affiliated to the Mediawijzer.net network. Together they form the Netherlands Expertise Centre on Media Literacy and share their knowledge and expertise at various meetings, expert sessions, and conferences. Mediawijzer.net is steered by five key partners: ECP (Platform for the Information Society), Kennisnet, Koninklijke Bibliotheek (the National Library of the Netherlands), Netherlands Institute for Sound and Vision, and NTR.



Inspiration day  
A Look at Media  
by the SNS  
REAAL Fonds  
2013



National  
Media Literacy  
Conference of  
the NOMC  
2015



Inspiration  
afternoon Media  
Literacy Projects  
2014



Media  
literacy  
market  
2013





Kinder Media  
Awards 2015







mediawijzer.net

**Tenth  
Anniversary of  
Media Literacy  
2015**



**Media literacy**  
2015 > 2025 > ...

**10**





mediawijzer.net