'We identified the key water basins that should be on top of political agendas'

Walter Immerzeel
Professor Physical Geography
In December 2019, an international team of scientists presented their research into the vulnerability of the world’s ‘water towers’ in Washington. Walter Immerzeel of Utrecht University, who led the study, explained how climate change is threatening glaciers and how this will affect 1.9 billion people downstream.

Groundbreaking research, made possible by innovative techniques. Beautifully illustrated through a collaboration with National Geographic. The initiative makes it more difficult for sceptics to deny the consequences of climate change, and enables humanity to be better prepared for them.

As a university we are doing what we can to accelerate the necessary transition. Not only by paying attention to it in our education and research – for example, in the new Earth Simulation lab – but also by changing the way we conduct our own business. Utrecht Science Park (USP) has recently become the first campus in the world to use smart solar charging, where electric cars are not only charged with solar energy, but energy from cars is returned to the grid. This allows us to do new research and to become greener ourselves. USP as a living lab! Recently accessible by tram...

Or take the virtual classroom. This is another good example of a multifaceted initiative. On the one hand, it facilitates educational innovation, with an ideal combination of online and offline learning. On the other hand, the virtual classroom makes it easier for researchers and students to move around in international networks without having to travel by plane.

This edition of Highlights features many more fine examples of research and education in which we are making a difference. We hope you enjoy reading it.

Anton Pijpers, Annetje Ottow and Henk Kummeling
The Executive Board

‘Tiny Forest contributes to biodiversity’
Fiona van ’t Hullenaar
Director of Corporate Real Estate & Campus

In consultation with the Green Office, biology student Cas de Ruiter has planted six hundred trees on a plot of land the size of a tennis court in the Utrecht Science Park. In this ‘Tiny Forest’ there are 35 indigenous tree species, planted close together in order to provide shelter for birds, insects and worms in the future. De Ruiter: “We worked the soil to a depth of a metre to ensure that it contains more nutrients and more air.” Fiona van ’t Hullenaar, Director of Real Estate & Campus at Utrecht University: “As well as contributing to biodiversity, the university can also use the tiny forest as a location for research. For example, biologists can take measurements there to monitor the development of the ecosystem.”
Karin Rebel of the Copernicus Institute developed the Sustainability Game. This concerns “a module in which students from different universities and different disciplines can collaborate remotely on major sustainability issues”, says Rebel. Imagine this: you use an app on your smartphone to watch a miniature lecture of less than a minute long, given by a lecturer at Utrecht University, on a topic such as the inclusive city. The same app then asks you to take photos of what should definitely be preserved in the city in 2040. And you’re not alone: hundreds of other students play the same game with you at the same time.

In the virtual classroom, the first of its kind at a Dutch university, a lecturer teaches up to 36 students online from a studio. Scientists can also use the studio for teleconferences with researchers anywhere in the world. “We want more international collaboration, and at the same time we want to reduce CO₂ emissions through mobility”, says Board member Annetje Ottow. “We encourage staff and students to travel differently – for example, by train instead of by air – or to travel less. Of course it’s important to have live meetings with your colleagues or students abroad.” The virtual classroom can help in this respect, while simultaneously contributing to educational innovation and helping to reduce the carbon footprint.

The Second Utrecht Scholarship of Teaching and Learning conference was held on 5 March. During this conference, Utrecht University presented the Utrecht Roadmap for Teaching Innovation and Scholarship: an instrument that will guide you through the first steps of research-informed teaching by proving information, tips, tricks, and pitfalls. The conference is a sequel to the Education Parade, and this year’s theme is ‘Academic education: What is the purpose?’

What is the purpose of the university? What do we expect from our students and what do they expect from their lecturers? Is there room in our education for curiosity, is there room to make mistakes?”

Both Ron Jans, former coach at football club PEC Zwolle, and Cathelijne Broers, Director of the Museum Hermitage Amsterdam, teach in the university-wide Leadership Programme. Master’s students also follow the leaders at work. Cathelijne Broers: “The students’ questions and comments have made me more aware of my own actions as a museum director.” The programme focuses on the personal development of students. Louk Smalbil, student: “Thanks to the diversity of backgrounds of leaders and fellow students, I keep learning more about myself.”

‘The unique views of students give new perspectives’

Cathelijne Broers
Lecturer Leadership Programme
Researchers from different disciplines integrate their expertise to answer crucial questions for future generations. How can we help our children develop into balanced individuals, that are able to function successfully in a rapidly changing environment?

**Dynamics of Youth**

Researchers from different disciplines integrate their expertise to answer crucial questions for future generations. How can we help our children develop into balanced individuals, that are able to function successfully in a rapidly changing environment?

It just fits in one year: making his maiden speech as a newly appointed professor, receiving an ERC grant and being appointed as one of the standard bearers of the Dutch National Research Agenda. Behold the year of developmental psychologist Sander Thomaes.

With the ERC grant, Thomaes will focus his research on how to help secondary school pupils behave in the most eco-friendly way possible. And at the National Research Agenda, where he is the standard bearer in the field of youth in development, he wants to focus on society: “Society has many questions about young people, while science already has answers to many of them.”

Many view the social media use of young people with suspicion. It is not uncommon for the negative consequences to be highlighted. For example, previous research suggests a relationship between social media use and ADHD symptoms. Youth researchers at Utrecht University investigated this relationship, analysing the data of 543 secondary school pupils who participated in the Digital Youth Project. Their conclusion: “It is not frequency, but only problematic social media use – such as constantly thinking about social media and experiencing a loss of control – that is linked to ADHD symptoms.”

Most courses offered in the Netherlands are based largely on the world as experienced by young people from Western (wealthy and democratic) societies. When media is discussed in schools, this world is taken as the basis. According to Sanne Sprenger and Koen Leurs, who in their collaboration with Utrecht University alumni Ena Omerović and Hemmo Bruinenberg and Ithaka International Transition Classes in Utrecht found that the existing courses on offer ignore the different media literacy basis that young migrants have with regard to digital identification, civic engagement, necessary self-censorship and alternative forms of gathering news due to limited access to (independent) news sources. This particularly holds for refugees. Therefore, with students and teachers they have developed a series of lessons as a tool to promote inclusive and intercultural media literacy. “This way you can make young migrants more resilient through media literacy.”

**‘Making young migrants more resilient through media literacy’**

Sanne Sprenger
Practical Lecturer in Media and Performance Studies

Koen Leurs
Assistant Professor in Gender & Postcolonial Studies

**‘IN THE NETHERLANDS, WE HAVE A LOT OF KNOWLEDGE ABOUT YOUTH’**

It just fits in one year: making his maiden speech as a newly appointed professor, receiving an ERC grant and being appointed as one of the standard bearers of the Dutch National Research Agenda. Behold the year of developmental psychologist Sander Thomaes. With the ERC grant, Thomaes will focus his research on how to help secondary school pupils behave in the most eco-friendly way possible. And at the National Research Agenda, where he is the standard bearer in the field of youth in development, he wants to focus on society: “Society has many questions about young people, while science already has answers to many of them.”

**PROBLEMATIC SOCIAL MEDIA USE AMONG YOUNG PEOPLE PREDICTS INCREASE IN ADHD SYMPTOMS**

Many view the social media use of young people with suspicion. It is not uncommon for the negative consequences to be highlighted. For example, previous research suggests a relationship between social media use and ADHD symptoms. Youth researchers at Utrecht University investigated this relationship, analysing the data of 543 secondary school pupils who participated in the Digital Youth Project. Their conclusion: “It is not frequency, but only problematic social media use – such as constantly thinking about social media and experiencing a loss of control – that is linked to ADHD symptoms.”
When it comes to our health the focus is often on genetics. However, the extent to which our health is shaped by environmental factors is equally significant: what we eat, the air we breathe, our social interactions and lifestyle choices. “The challenge in understanding the role of all these factors, collectively termed the exposome, lies not only in the large number of exposures in our daily lives, but also in the complex ways they interact with our biological system and how this may differ over the life course.” says Professor Roel Vermeulen. Measuring and analysing the exposome is a complex undertaking. 

Thanks to progress in the use of satellites, wearables, modelling and biomedical measurements, we can now do this research. With a prestigious Gravitation grant of over seventeen million euros, awarded by the Dutch Ministry of Education, Culture and Science, Vermeulen will set up the Dutch Exposome Center in collaboration with four other academic institutions. The Dutch consortium is a team of top scientists from different disciplines such as epidemiologists, geographers, sociologists, chemists, biomedics and ethicists. “The ambitions are huge. We will be able to make major progress in the systematic analysis of all environmental factors and their biological consequences, with a view to improving the health of the Dutch population.”
The Earth Simulation Laboratory (ESL) of the Faculty of Geosciences was opened in October 2019. The lab enables researchers to simulate and study processes in the interior of the Earth and on the Earth’s surface with a high degree of detail and precision. “The research groups who have the lab as their experimental home base will have the most innovative, pioneering technology at their disposal”, said President of the Executive Board Professor Anton Pijpers during the opening of the ESL.

We are confronted daily by alarming news of the climate crisis, biodiversity loss, thawing ice, and rising social inequality. We are increasingly aware that the pathways to sustainability require an extraordinary effort. So how can we speed up achieving the necessary breakthroughs? At the Pathways to Sustainability Conference on 5 March, Scientific Director Professor Maarten Hajer took the 500 participants on a journey into accelerating the sustainability transformation. He invited a range of top experts on stage to contribute to the journey, including Dr Hans Bruyninckx, Executive Director of the European Environment Agency, ‘climate tipping points professor’ Tim Lenton from Exeter University, Utrecht University climate researcher and weatherman Dr Peter Kuipers Munneke, and photojournalist Kadir van Lohuizen. During the interactive afternoon sessions, the participants discussed breakthroughs in industry, deltas, food, circular cities, and in reaching ‘unreachable’ allies.

Researchers from the universities of Utrecht and Eindhoven, together with chemical concern BASF, have unravelled the mechanism behind CO₂ conversion. “We were able to solve this puzzle thanks to a fantastic partnership,” says research leader Prof Bert Weckhuysen. The conversion of CO₂ into useful chemical building blocks for processes such as storing renewable energy from wind or solar power will open up a multitude of new possibilities. It can contribute to reducing CO₂ emissions and, in principle, it can also make it possible to produce basic chemicals directly from CO₂.

Researcher Prof Roderik van de Wal was one of the main authors of the latest report of the UN climate panel IPCC on global sea level rise. The report warns of an acceleration in sea level rise, warming of the oceans, more frequent occurrence of extreme storms, and a large increase in the long term in sea level rise if no action is taken now.
Institutions for Open Societies

Within this research theme, research is conducted on the formal and informal rules (institutions) of human action. Why do societies develop so divergently? And how do institutions contribute to the formation of open and sustainable societies?

Efforts to raise the number of female professors in the Netherlands have not been as effective as had been hoped. Professor Belle Derks blames this on, among other things, our persistent stereotype of the successful scientist: “Nowhere in the world is the subconscious preconception that scientists are men as strong as in the Netherlands.” In October, Derks was the keynote speaker at the 17th European Gender Summit in Amsterdam. “The only way universities will be forced to prioritise diversity is if diversity requirements are taken just as seriously as other quality requirements.”

The European Commission in Brussels wanted our input on how a cross-sectoral scientific approach can be organized in Europe. We are in a good position to advise them as, in Utrecht, we have extensive experience in interdisciplinary research.” So says Bas van Bavel, director of the research theme Institutions for Open Societies. “More than 400 scholars from various fields such as economics, history, public administration, culture, law, sociology, social psychology, language and communication, ethics, innovation studies, and geography join forces to contribute toward finding answers to concrete societal questions. We shared our expertise in Brussels and underlined the importance of the integration of academic disciplines to better address societal challenges.”

In a highly exceptional case, Utrecht University, together with the Dutch state was summoned to appear in court in summary proceedings on 23 January. The board of the Dutch community of Jehovah’s Witnesses wanted to prevent disclosure of a report prepared by an interdisciplinary team of Utrecht University scientists. The researchers had conducted an investigation into sexual abuse among (former) members of the Jehovah’s Witnesses community in the Netherlands. Based on quantitative and qualitative data, the team concluded that, although the community in the Netherlands has over the past 10 years taken steps to improve how reports of sexual abuse are handled, in practice the Jehovah’s Witnesses’ formalistic system still provides an insufficient guarantee of an adequate response to sexual abuse. The board of the Jehovah’s Witnesses disagreed. After the judge ruled that the objections of the Jehovah’s were unfounded and the report could be made public, there was a sigh of relief in the courtroom. Research leader Kees van den Bos considers the ruling a victory for academic freedom. He hopes that the board of the Jehovah’s Witnesses, that had actively cooperated with the study until the findings became known, will come around, take the findings to heart and engage in an open dialogue.

More women in science? Lose the masculine stereotype

Belle Derks
Professor of Social and Organisational Psychology
‘The international train is quiet and comfortable, so I can work undisturbed.’

Peter Kuipers Munneke
Meteorologist & weather presenter
Dutch Public Broadcasting

Utrecht University wants to realize the ambition to be CO₂-neutral by 2030 not only through research and education, but also by stimulating students and staff to travel sustainably. Therefore the university is going to offer a green travel grant for outbound exchange students. For the academic year 2020–2021, a total of 25,000 euros will be made available to students who choose to travel to their European destination by train or bus. Utrecht University also encourages employees to travel by train within Europe. A train zone map shows which destinations are easily accessible. Furthermore Utrecht University compensates all air travel-related CO₂ impacts by contributing to projects that meet the strictest standard for CO₂ reduction.

For the first time, an international research team – led by Professor Walter Immerzeel and Dr. Arthur Lutz – has ranked the planet's mountain glacier-based water systems on vulnerability. “What is unique about our study is that we have assessed the water towers’ importance, not only by looking at how much water they store and provide, but also how much mountain water is needed downstream and how vulnerable these systems and communities are to a number of likely changes in the next few decades”, says Immerzeel.

Students, residents, neighbourhood partners and lecturers work together in Learning Lab Overvecht to turn ‘value cases’ into real social enterprises that have a social impact on the neighbourhood. This lab won the Societal Impact Award. “A gold standard”, according to historian James Kennedy, an advocate of socially engaged academic education. Examples of Learning Lab Overvecht’s activities are Café Mama, Social Car Wash and Social Bike.

Can we measure the impact of our public engagement activities? And what ingredients provide what impact? Associate Professor of Psychology Madelijn Strick conducts research around these questions. She tested her theory at the Betweter Festival 2019. It turned out that, in particular, activities that scored high on personal relevance, interactivity and accessibility led to more familiarity with and more knowledge about science among festival visitors. “Personal relevance is a particularly important ingredient for public engagement activities, so whether visitors felt they had learned something about themselves or were touched by something personally.”
Plastic and microplastics in the oceans kill 1.5 million seabirds, fish, whales and turtles every year. Leading scientists at Utrecht University are investigating how plastic waste moves through the oceans. With this knowledge, they are developing a model that can be used to efficiently clean up the plastic in our oceans around the world. In three years’ time, this model will be used to rid the Galapagos Islands of plastics.

The Utrecht University Fund is raising money for this research project in its annual Pay It Forward campaign.

Help us rid the Galapagos Islands of plastics. Go to steun.uu.nl and donate now.
"Learning each other's language and taking an interdisciplinary approach"

Susanne Knittel
Chair of the Young Academy

Utrecht University, Wageningen University & Research, Eindhoven University of Technology and University Medical Center Utrecht are going to intensify their cooperation. The knowledge alliance poses an explicit challenge to future generations: top young researchers from the academic institutions will be taking the lead. Participants will be able to use each other’s laboratories and research equipment. Students will be encouraged to take courses at other institutions. The focus of their cooperation includes energy, nutrition, health and the circular society.

“We can only make significant developments if we work together in a truly interdisciplinary fashion”, says Susanne Knittel, chair of the Utrecht University Young Academy. “We’re ambassadors for young academics, and we want to attract talent.” An already existing example of the cooperation is the Food for Health and Safety challenge. Students are experimenting with a soup-making robot, 3D-printed meals and a garden on wheels for fresh vegetables. These could turn out to be new food concepts for soldiers on deployment.

Eindhoven University of Technology (2019)
Wageningen University & Research (2019)
Utrecht University (2018)
University Medical Center Utrecht (2018)
UTRECHT DAY OF PHILOSOPHY

Philosophers past and present provide inspiration on subjects such as inequality, liberty, truth, the meaning of art, etc. Lectures and discussions.

📍 Sunday 5 April  
📍 University Hall

‘CELLO IN THE SCAN’

Radiologist Frank Pameijer (UMC Utrecht) and cellist Joachim Eijlander share the extraordinary story behind the anatomy of an 18th-century cello.

📍 Thursday 16 April  
📍 Perdu, Amsterdam

DYNAMICS OF YOUTH SPRING CONFERENCE

Inspiring keynotes, interactive workshops and more about the overarching theme: ‘Fostering future generations’.

📍 Monday 15 & Tuesday 16 June  
📍 Utrecht Science Park

RESEARCH FUNDING DAYS

Two days offering sessions on funding opportunities or workshops on, for instance, how to improve your grant proposal writing skills.

📍 Wednesday 1 & Tuesday 2 July  
📍 Instituto Cervantes, Domplein 3

All these events and more at uu.nl/events

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