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New staff writers wanted!



university of
 groningen

Subtitle secrets

An interview with Hanneke Loerts



Learning your mother tongue is easy. But learning a new language is a tough challenge, especially when you are older. Dr. Hanneke Loerts is a lecturer within the master's programs Applied Linguistics and Multilingualism, and she investigates second language acquisition. Using eye-tracking methodology, she shows that TV subtitles can improve both language learning and information transfer.

Let's go back in time: in 2012 you defended your dissertation called 'Uncommon gender: Eyes and brains, native and second language learners, & grammatical gender' at the University of Groningen. What was your PhD research about?

During my PhD I investigated differences in on-line language comprehension between native speakers of Dutch and late post-puberty Polish learners of Dutch. For this, I used ERP and eye-tracking methodology to see whether late learners of Dutch could process grammatical gender the same way as native speakers of Dutch. Late learners of Dutch can almost never learn gender (the fact that some words are preceded by 'de' and others by 'het' in Dutch), as this is very difficult.

In the eye-tracking experiment, participants would hear spoken sentences and I wanted to see whether they could anticipate what was coming next. For example, if a Dutch speaker sees a chair and a house, you know that if you hear 'de', you should click on the chair. While Dutch speakers indeed already looked at the chair

>> CONTINUATION OF SUBTITLE SECRETS - AN INTERVIEW WITH HANNEKE LOERTS

before hearing the word, late learners of Dutch could not use 'de' to determine which word would be heard next. In the ERP experiment, there was a gender error in the spoken sentences (e.g., 'het stoel'). The goal of this experiment was to see whether the late learners would notice these mistakes. The ERP results showed a P600 effect (noticing a grammatical error) for both the Dutch speakers as well as some of the more proficient late Polish learners of Dutch. This suggests that they do process the errors subconsciously, but they cannot use it to anticipate upcoming words. They are not fast and automatic enough.

Now - four years later - I heard you study subtitles in relation to language learning and information transfer.

The Netherlands is one of the countries that use subtitles a lot. It is estimated that 30% of Dutch television is non-Dutch and thus contains subtitles. In

my research, I focus on two questions: First of all, do subtitles help language proficiency? And secondly, is it possible to process all modalities (the text, the soundtrack, and the scene) at the same time? Besides that, it's important to know what people pay attention to, what they do with the information they see and hear, and when the information is best transferred.

There is this claim that Dutch people are good at English because of subtitles. What do your results say about the relationship between subtitles and language proficiency?

It is very difficult to test whether Dutch people are good at English because of subtitles. In one of the eye-tracking experiments that I conducted with an MA student, Elena Lazareva, Dutch speakers watched a Russian animation video. Because they knew nothing about Russian, double subtitles were used, having the Dutch subtitles below the Russian subtitles. We wanted

to know whether they learnt the words, or whether they were too distracted by the scene and the displayed text in both Dutch and Russian. Afterwards, participants needed to arrange the clips in the correct order of appearance to see whether they actually processed them. It appeared that the participants who were better at reading the subtitles were also better at arranging the clips in the correct order. Apparently, if you focus more on one thing, it helps you to focus on the other. Also, they learnt quite a few words! Especially with the double subtitles. If you want to learn a new language, double subtitles are very useful because you hear and see the word in the foreign language and you also see the word in your native language. Thus, you can link everything.

What about your second research question? Can there be too much stimuli to process it all?

A common example of this is the gorilla video. In this

> If you have multiple sources of the same information it's not distracting but helping each other. <



Screenshots of participants' eye gaze patterns with and without subtitles.

>> CONTINUATION OF SUBTITLE SECRETS - AN INTERVIEW WITH HANNEKE LOERTS



video, you see people play basketball. When you are asked to count the number of times they pass the ball, you may not notice the gorilla on the basketball field. Based on this attentional blindness, some have suggested that if you need to focus on the subtitles, you are missing a lot of information and it might impair your comprehension. However, my results so far show otherwise. I haven't published anything about this yet, but in a recent eye-tracking experiment I was interested in the amount of time that people look at

subtitles when hearing different foreign languages and how people process the related events on the screen. Often, when you see an English movie, you do read the subtitles, even though you don't really need them. It's just because it's there and it attracts attention. In this experiment, I used different languages like English, Spanish and Swahili to compare within one person how we read subtitles. And it was surprising, because it turned out that they spent most time reading the subtitles when they are more or less familiar with the language. So if you look at known (English), familiar (Spanish) and unknown (Swahili) languages, people spend most time at reading the subtitles when hearing the familiar language. I thought they would probably spend the least amount of reading when hearing English, and the most in the Swahili case, but they actually spent the most time reading the subtitles when hearing Spanish audio.

Why do you think that is?

I think people are trying to link the audio to the Dutch words, because they hear foreign words that aren't completely unfamiliar and then think 'Oh! Would that word mean that in Dutch?'. So, they try to relate the printed words to the words they hear.

So what about the processing difficulties that might or might not arise when there are too much stimuli?

Yes, that is also part of the second experiment. After watching several scenes with and without subtitles, there was a scene recognition task (so there were also scenes that the participants didn't see), and it turned out that the scenes with subtitles on the screen were better remembered than the scenes without subtitles. That suggests if you have multiple sources of the same information it's not distracting but actually helping each other.

How do you explain that?

The dual coding theory suggests that if you receive the same information in verbal and non-verbal messages, it's processed more deeply than when you only hear or see it. In the case of subtitled television, you see things in the scene that are linked to the subtitles, so maybe that's why people remembered it better. In the future, I would like to investigate whether the overlap in information also matters. Sometimes you are watching the news and they are talking about the stock market, and you see someone that is eating an apple walking on the screen. That doesn't make any sense, so maybe it's the overlap in information that counts.

Knowing when and how subtitles can be used to improve information transfer seems very applicable.

Yes! If you look at the learning component, you can design different types of educational videos with subtitles to teach people new languages. And that's natural input, better (and more fun) than learning the rules of a language in a classroom. Also, you can think of subtitles in a television kind of way, but you can also think about subtitles on information boards in hospitals or other places. I now see subtitles everywhere! And they are becoming more and more important as more and more people have different language backgrounds. So, we should know how to use them in the best way possible. There is still a lot to discover!

■ BY ANNELOT DE RECHTEREN VAN HEMERT
■ PHOTOS BY SANDER MARTENS

Now what? Life after the defense: a double interview with Maaïke Meurs and Sanne Booij

Whether you applied for a grant or applied to an existing PhD position, there may be parts of your PhD that do not live up to your expectations. Maaïke Meurs and Sanne Booij both worked on large projects about depression at the Academic Centre of Psychiatry. They have a lot of good memories about their PhD lives, but also remember the struggles of data collection.

SANNE: My PhD started in 2011 and it was about the human stress system and depression. In the literature there are a lot of inconsistencies about the involvement of stress in depression. What we found was that the dynamics of the stress system depend on the duration of the depression. People with acute depressive symptoms had a higher reactivity of the stress system, while subjects with chronic symptoms had a very low reactivity. Their stress system seemed to be exhausted.

MAAIKE: Did you come up with this project yourself?

SANNE: Yes, at least partly. I did my internship in the Department of Psychiatry during my master's and together with my thesis supervisor Tineke Oldehinkel, we applied for a grant at BCN. And what about you?

MAAIKE: I studied clinical neuropsychology and I had a job at a health clinic where I worked with heart patients. Then I heard about an MRI project that focused on the relationship between heart patients and depression. That sounded ideal for me. Depression is quite common in patients with cardiovascular diseases and the

hypothesis was that this could be caused by biological factors. It would be a large project and in the end they hired two PhD students, me and Nynke Groenewold.

SANNE: Did your project meet your expectations?

MAAIKE: Not really, because this particular project failed. We could not get any heart patients included in our study, because there was already too much research involving these patients. So, we looked for other patient groups in which the vascular system is also affected and we switched to kidney patients. Overall, it was a very fun project, but it was also difficult.

SANNE: Were there moments that you thought 'this project will never succeed?'

MAAIKE: A lot of times we thought 'we have only ten participants and we are already working on it for more than a year. Should we stop or continue?'. We often postponed the decision whether or not to continue. Luckily, we finished the project, but a year later than expected.



SANNE: I had a similar experience. Our goal was to include a minimum of 40 to 50 participants for a diary study. After one year, I had about 18 participants. That was also around the time that I went on maternity leave for a few months. I was very fortunate to have another PhD student enter the project at that time, Mara Bouwmans. We finished the project together.

MAAIKE: When I look back, it was a big advantage to do the project together with someone else (Nynke) as well. We could share the data collection and the analyses.

SANNE: Sharing the entire process with someone else is very nice, especially if you are having a hard time. Also, you are not the only one responsible for all the decisions. How is your new job going?

MAAIKE: At the moment, I am setting up an epidemiological study at the Hanze University of Applied Sciences. The topic is healthy aging and we would like to measure a wide range of domains, such as cognition, emotion, muscle strength, endurance, and so forth. And I work part time assisting Jojanneke

> Document exactly every choice you have to make... You will make so many decisions, that you will just forget why you made them. <

>> CONTINUATION OF NOW WHAT? LIFE AFTER THE DEFENSE: A DOUBLE INTERVIEW WITH MAAIKE MEURS AND SANNE BOOIJ

> Of course, I had some problems with data collection and papers that were denied, but that is part of the process and you will learn from it. <

Bastiaansen. Her project is a diary study in which depressive patients keep track of their mood and activities for 28 days, before they undergo treatment.

SANNE: It is funny that we both have two jobs right now. That is not really common.

MAAIKE: No, but I have to admit that it is not ideal. How does your week look like with two jobs?

SANNE: I work at the UMCG for three days a week as a postdoc, and I am examining the development of psychosis with diary studies. We investigate whether symptom networks can predict the course of psychotic symptoms. Also, for one day a week I work at the Centre of Integrative Psychiatry, and I am involved in studying the effects of various treatments and therapies.

SANNE: Did you have nice colleagues during your PhD?

MAAIKE: Definitely! I was in a room with five other female PhD students. I think one of the nicest things about a PhD is that you work in an environment with people of approximately the same age and who are also doing a PhD. You can discuss your problems with everyone. And I ended up with some good friendships. How did you experience this?

SANNE: I had exactly the same experience. Can you remember the last months before your defense?

MAAIKE: Yes, I was very busy with finishing my thesis and making it into an actual book. It was more work than I thought, creating the cover, writing the summary, et cetera. And you?

SANNE: In hindsight it was a very stressful period in which a lot of stuff happens at once. You are finishing

your thesis. Then you have to organize the defense and you have to familiarize yourself with new projects and think about your future.

MAAIKE: Yes, I forgot, I was also applying for jobs. Indeed, you have to combine everything. I thought it would be an easy couple of months after I completed my thesis, but that wasn't the case. Do you have any suggestions for PhD students?

SANNE: I could say, try to make a schedule. But that wouldn't help, because you will not stick to your schedule.

MAAIKE: I have a suggestion. Document exactly every choice you have to make. I am so happy right now that I never have the feeling that I forgot the reason for a certain choice I made. You will make so many decisions that you will just forget why you made them.

SANNE: Yes. Sometime it seems unnecessary to do so, but it isn't. Also for writing a papers it is very useful to make an excel sheet and type very briefly what the results of the papers that you read about were. In that way, you can easily look up a paper when you are writing your introduction or discussion.

MAAIKE: What were some less nice aspects of your PhD?

SANNE: That is actually difficult to say. Of course, I had the usually problems, such as submitting a paper a lot of times before it got accepted, but that is part of the process and you will learn from it. And, as I mentioned, I had some problems with data collection. That despite all your efforts, the inclusion doesn't succeed. Then you notice that there is a large gap between the clinic and research.

MAAIKE: I think most PhDs expect things to go faster than they do in reality. You put a lot of effort in something, but it takes more time than you want.

SANNE: Another thing I found difficult is that I had no idea what my career opportunities would be when I started my PhD. If you want to stay in science the job opportunities are very slim.

MAAIKE: Yes, but jobs that are related to research are quite common, but in a different setting. I think that as a PhD holder, your profile will fit with a lot of different jobs. You have so many skills developed at the organizational and communicative level.

SANNE: Yes, and it is very nice that you are for the most part still a student. You can get a taste of a lot of different things, and you can follow courses and do fun stuff, such as traveling.

MAAIKE: I think you learn more during your PhD than you are aware of.

SANNE: And we made it successfully to the end!

MAAIKE: Yes!!

■ BY MANON VAN ASSELT

A doc's life

Insecurity is bliss



I have to be straight with you right off the bat.

Although I am thrilled to be a new member of the BCN Newsletter family, writing in English feels a bit like wearing a straitjacket. It was fine when writing my scientific papers; over the years I have become quite adept at throwing my might and howevers at the reader. But it turns out it is quite different when you want to speak more from the heart than from the mind. All of a sudden the English language does not feel nice and safe anymore, but leaves me feeling somewhat inhibited and insecure. Maybe some of you foreign researchers have experienced the same. You just feel more free expressing yourself in your own language. You feel funnier too. Just ask my friends; I am hilarious in Dutch. Unfortunately you guys have to settle for the English version.

I think the most annoying part about not being a native, is not being able to translate the expressions and sayings that are meaningful to you. My biggest supplier of both nonsensical and erudite expressions is my father. His “goed is goed” is still fairly translatable and helped me through various activities from painting walls to finishing my PhD thesis: “enough is enough”! Also very helpful during my PhD was his expression “elke wijze uil is ooit een uilskuiken geweest”. Unfortunately, trying to translate this expression might make him seem like a regular Louis van Gaal (a Dutch football manager who concocts an interesting brew of Dutch-English expressions whether his team is winning (“the three points are inside”) or quite far from winning the game (“running after the facts”)). The translation of my father’s expression would be something like: “every wise owl was once a fledgling”. Many young researchers feel like simpletons at the start of their PhD. They forget that even the smartest professors were once students and have made their fair share of mistakes.

The good news is that with a new language

also comes a great variety of new expressions. I am a particular fan of British expressions (but then again, reading adverts aloud in a British accent already sounds like poetry to me). For my PhD defence, I made a pact with one of my paranymphs: I would integrate “shipshape and Bristol fashion”, one of our favourite expressions, in one of my answers. Of course, I got completely carried away in heated discussions about brains, blobs and behaviour. Probably for the best: Being originally about boats, it might have been a bit strange to compliment my opponents with their mint condition.

English literature is also a source of great inspirational quotes. Last year I added an important one by British novelist C.S. Lewis to my list of favourites: “Integrity is doing the right thing, even when no one is watching”. To me this quote exemplifies the scientist I want to be. But insecurity struck: Was I using the expression correctly? In my search on the internet, I found out that my beloved expression about integrity was actually misattributed and misquoted. C.S. Lewis appears never to have written such

>> CONTINUATION OF A DOC'S LIFE - INSECURITY IS BLISS

a thing in his delightful old-fashioned British manner¹. Rather, the quote seems to have been derived from a recent novel by the American motivational speaker Charles Marshall²:

"Integrity is doing the right thing when you don't have to – when no one else is looking or will ever know – when there will be no congratulations or recognition for having done so." Ironically, Charles never got the proper recognition for this insight.

This integrity incident made me realize that my uncertainty about my second language actually helped me gain knowledge. It helped me detect an error and avert any potential harmful consequences (such as being booed at by the BCN community or walking around with a misguided tattoo on my back). Perhaps insecurity is not always such a bad thing. In fact, I think we should cherish it in the language that is second to us all: science. Uncertainty is what makes us run back and check our formulas, our data, and our references. Uncertainty is also the basis for scientific breakthroughs by questioning the status quo. Therefore, I added a new quote to my list of favourites: as long as I know how much I do not know, I am still on the right track.

Hmm, whose expression was that again?

■ BY JOJANNEKE BASTIAANSEN

■ PHOTOS BY SANDER MARTENS

Passport

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Intro new staff writer



> AMÉLIE LA ROI

During my work as a residential assistant in homes for the elderly, I got intrigued by the process of aging and how this affects our mind and brain. I decided to combine my interest in aging with my other passion: language. Through my research on language and aging, I hope to contribute to the healthy aging puzzle by approaching this question from a humanities perspective. How does aging influence our most vital means of communication, namely our language? In my project I focus on a very specific type of language, namely idiomatic expressions, such as the Dutch tegen de lamp lopen (literally meaning 'to walk against the lamp', but figuratively 'to get caught'). Idioms are a fun and important part of our language, but processing idioms has been found to require additional cognitive effort. Given the fact that aging affects elderly adults' cognitive abilities, elderly adults may have difficulties with processing and understanding idioms. As idioms are important in natural language use, impaired idiom processing may seriously hamper elderly adults' communication skills and in the end maybe even their quality of life.

I am looking forward to start working on my own PhD project. However, I believe that being a scientist not only means that you are passionate about your own work, but also that you can learn from other researchers from various fields other than yours. Writing for the BCN Newsletter gives me the opportunity to meet these other fellow scientists and to get to know what they are doing and how they experience their work. Furthermore, by joining the BCN Newsletter team I also hope that I cannot only get an inside view into other people's research, but also in what drives them to do what they do. All in all, I think a very interesting and fun time lies ahead of me and I hope you will all enjoy reading about this in the upcoming newsletters!

■ PHOTO BY SANDER MARTENS

¹ <http://www.cslewis.org/aboutus/faq/quotes-misattributed/>

² <http://charlesmarshall.net/>

> A COLUMN ABOUT LIFE AS A POST-DOC

The Wandering Mind

Last May, an announcement made the news that the Dutch academic landscape would soon be embellished with a new type of Ph.D. student, one that truly deserved the label 'student': the 'bursary' Ph.D. student, or 'promotion student' when I literally translate from Dutch. This is a type of Ph.D. student that is not employed by the university, as usual, but remains a student similar to a bachelor's or master's student. Thus, the Ph.D. gets incorporated into the higher education pipeline as yet another stage. These new students are supposed to be good for the knowledge economy, which needs a boost in the Netherlands, a mediocre country when it comes to the number of Ph.D.s, apparently.

Not all universities were equally fond of the idea. Only two universities enrolled in the experimental 8-year project that was set up by our education minister Jet Bussemaker. The Erasmus University in Rotterdam requested a modest 15 positions to start with; our own Groningen University, however, has been toying with this idea for much longer, and felt confident that 850 (!) such students were called for.

The pros and cons of this type of student have seen long and plenty of debate. The bursary Ph.D. student doesn't receive wages, but a scholarship lower than what a Ph.D. student is currently accustomed to (except

perhaps in the first year), and there are other obvious differences related to benefits, like (a lack of) pension schemes, pregnancy leave, unemployment compensation, etcetera. Those are important arguments that are well worth discussing, but I am worried for different reasons.

My main objection to this scheme is that a Ph.D. is not part of your general education, at least in my view. True, you hopefully learn a lot, but that wouldn't be much different when employed in industry or some other setting. An education is supposed to prepare you for a career. It provides you with the common set of skills, knowledge, and attitudes that are required for a certain type of profession. A Ph.D. is more often than not much too specialised for that, if you ask me. Or at least it used to be, before research schools started imposing mandatory courses as a substantial part of the four-year period (of which I am not a fan either).

If I may take myself as an example: I did my Ph.D. on fMRI neuroimaging of the auditory system. Let me tell you that that isn't much of a general basis for a career. There are a few centres world-wide that can use a worker with my specific skills, and they are virtually all in academia. Of course, there are more general skills that I have learned that may be useful more broadly, like the ability to formulate research questions,

set up experiments (or, for post-docs, manage entire projects), analyse results and report on them in a proper fashion. However, I've been writing application letters for a few months now, and although I believe to master all of the aforementioned skills quite well, I find that prospective employers have a lot of trouble looking past the particular application that I happened to specialise in. "Over-qualified" is a euphemistic term.

A related problem, in my view, is that there already are far too many Ph.D.s. The academic pyramid starts too wide, or the funnel ends too narrow. If – say – half of the graduates are unsuitable to continue in academia, and half of them simply prefer to pursue a career outside of academia, then 1 in 4 doctors should still be able to land a tenure track position. In practice, every professor supervises many more Ph.D. students than that in his/her career, so we are faced with a large number of smart people who get frustrated because they cannot obtain that essential funding or long-term position. So I don't think more Ph.D.s is the answer; I'd rather see fewer Ph.D. positions, more post-doctoral and tenured positions to align with those, and perhaps a bit more comprehensive or higher-quality bachelor's/master's phases, if need be.

Please pardon my ranting. I likely belong to the academic dinosaurs that are destined to



die out. I've gone through the paces of a Ph.D. and a few post-docs, have since left academia proper for a more clinical position, and am now venturing even further away. I'm one of those (I think many) that have been disappointed in the available prospects, some of whom are lingering in uncertain positions, and some of whom attempt to find salvation elsewhere in society. I have momentarily inserted an improvised 'sabbatical', overthinking my next move. It has taken me a bit too far astray to call my life the 'life of a post-doc' anymore. So, after ten of these columns, I pass the baton to another, surely much more cheerful contributor.

Dear reader, thanks for persevering until this last line that I end with: "take it away, Jojanneke!"

■ BY DAVE LANGERS



Mindwise: The benefits of being neurotic - The bright side of painting it black

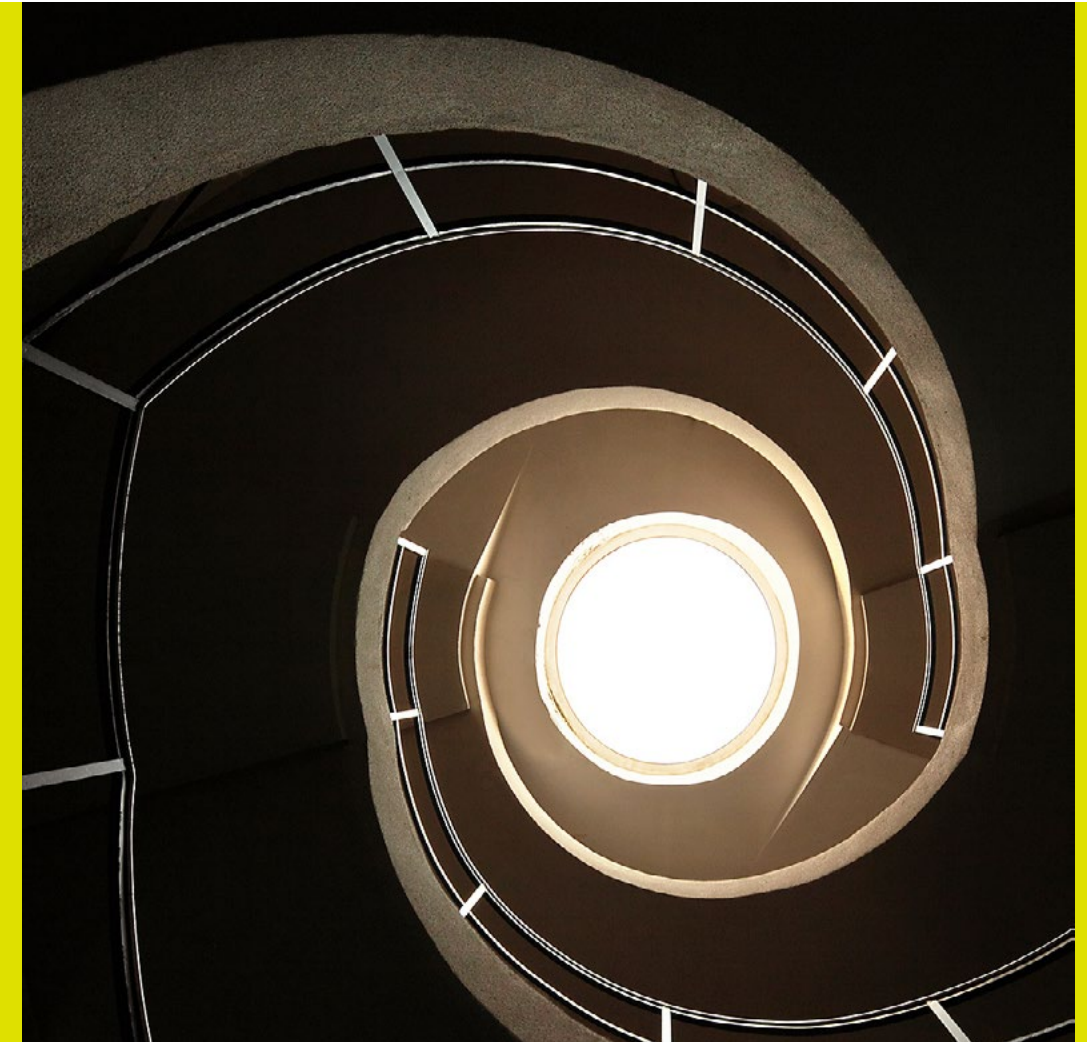
Second-year Psychology students participating in the University Honours College follow a mini-course on Blogging Science (within the Thematic Meetings course), in which they learn to communicate science to the general public, by means of informing, giving an opinion, and relating issues in science to issues in society. This year, a selection of these written blog posts is being published on Mindwise. Today's post is by Lukas Kowald.

Neuroticism: The tendency to ruminate and be overly worrisome, anxious and agitated [1]. I am no stranger to all of this. It is the day before my statistics exam and I cannot shake the feeling that I might have overlooked something in my preparations. I nervously revisit the course material and ponder over all my real or imagined shortcomings that could cost me dearly tomorrow. I may feel somewhat guilty because I suspect I could have done more. But here is the deal. I, and others like me, get things done eventually, despite all the pessimism involved. Might it be that the stress associated with being a neurotic has a silver lining to it? How is it that I get something good out of all these negative feelings, when neuroticism has traditionally been considered to be related to poor work performance and to negative health outcomes [1]?

Neuroticism as evolutionarily desirable and healthy

To understand these dynamics, it helps to establish what neuroticism is good for, and where it comes from. There is a clear link between neuroticism and evolutionarily desirable behavior [1]. Being neurotic helped our ancestors avoid harm. Those who were more anxious were more aware of the consequences of getting harmed, and could avoid harm better. Consequently, they scanned their environments more carefully. So from an evolutionary perspective, being on edge often does not seem to be a bad idea at all.

Also with regards to modern day health outcomes, it is interesting to know that new findings suggest there might be such a thing as healthy neuroticism, a hybrid of neuroticism and another personality



trait: conscientiousness. Having recently been linked to goal pursuit and self-regulation capabilities [3], conscientiousness may enable people who are highly neurotic to harness their anxiety and use it for their own good. These recent findings suggest that high levels of neuroticism and conscientiousness combined may lead people to engage more in healthy behaviors, such as going to the gym. In other words, the worries that

>> CONTINUATION OF MINDWISE: THE BENEFITS OF BEING NEUROTIC - THE BRIGHT SIDE OF PAINTING IT BLACK

neurotic people experience seem to energize them. Neurotics can use their negative emotions as a source of energy to tap into, in order to motivate themselves to perform.

Neuroticism and academic achievement

Relatedly, early on in the history of personality research it was established that neuroticism can be conducive to academic achievement [4]. Additionally, more recent research suggests that people high in neuroticism and low in extroversion may even have an edge over those showing mainly extroverted behavior in emerging as leaders amongst their work group peers, at least in the long run [2]. As their withdrawn temperament may lead to underwhelming but realistic first impressions in coworkers, neurotics have the chance to redeem themselves over time. In the process they may even surpass the more engaging and dominant extroverts, who leave more favorable, but less realistic first impressions. Yet again, it seems as if it is neuroticism that can lead people to prepare and perform extraordinary well in the face of adversity, for example in the context of social expectancies.

In short, contrary to traditional portrayals of neuroticism as being a categorically undesirable trait, physical prosperity as well as vocational success may very well be a consequence of being a neurotic.

All in all, it appears that feeling bad does not equal doing badly. If one can tap into the energy that comes with intense feelings, be they negative or positive

in nature, great things are possible, such as being a competent leader or living a more healthy and successful life. There is hope for those amongst us who occasionally fail to see the silver lining, if we just put our quirks to good use.

■ BY LUKAS KOWALD

■ IMAGE BY LE LUXOGRAPHE, LICENCED UNDER CC BY 2.0

Relevant links and publications

- [1] Watson, D., & Casillas, A. (2003). Neuroticism: Adaptive and Maladaptive Features." In E. C. Chang & L. S. Sanna (Eds.), *Virtue, Vice, and Personality: The Complexity of Behavior* (145-161). Washington DC: American Psychological Association.
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- [3] Turiano, N. A., Mroczek, D. K., Moynihan, J., & Chapman, B. P. (2013). Big 5 Personality Traits and Interleukin-6: Evidence for "healthy Neuroticism" in a US Population Sample. *Brain, Behavior, and Immunity*, 28, 83-89.
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Lukas Kowald, born in 1992, in Offenbach am Main Germany, is currently earning his Bachelor's Degree in Psychology at Groningen University, Groningen, the Netherlands. Amongst others, special research interests include judgment and decision processes, visual perception and processing, affectivity and interpersonal differences. The author is taking part in the Honours College program of Groningen University and is currently conducting research investigating lateral asymmetries in visual stimuli processing at the department of Information processing and task performance. Lukas Kowald is a sports enthusiast and particularly interested in the effects of physical exercise on mood regulation and perception of stimuli. Outside of university life the author holds a keen interest in martial arts, both as a practitioner and as a spectator. Other extracurricular interests of the author include the collecting and trading of records, musicianship and the outdoors.



Mindwise: Treat the patients, not just the symptoms - What we can learn from homeopathy

Second-year Psychology students participating in the University Honours College follow a mini-course on Blogging Science (within the Thematic Meetings course), in which they learn to communicate science to the general public, by means of informing, giving an opinion, and relating issues in science to issues in society. This year, a selection of these written blog posts is being published on Mindwise. Today's post is by Leon Többen.

A hypothetical recipe for a homeopathic remedy against insomnia:

1. Take one coffee bean and throw it into a bottle of water the size of a lake
2. Stir the mixture thoroughly (you need an enormous spoon for this)
3. Take a sip from the bottle whenever you cannot sleep

Would you believe that this mixture helps you fall asleep? I doubt it, but homeopaths try to make us believe that “medicines” similar to this remedy work. They do so with great success: three-fourths of Europeans know about homeopathy, and nearly one in three of them uses it; this amounts to about 100 million Europeans [1]. Moreover, most homeopathic compounds are freely available in pharmacies

and look virtually identical to medications that have been proven to be effective. Thus, chances are that even more Europeans (including you!) have used homeopathy unknowingly.

What is homeopathy?

Homeopathy is a domain of alternative medicine based on two principles [2]. Firstly, according to the like cures like principle, one may use substances which cause symptoms of a disease in healthy people as a cure for similar symptoms in ill people. For instance, a homeopath might treat sleeplessness with compounds that prevent sleep in individuals who are not sleep-deprived. The second principle – potentiation – assumes that diluting these substances with water increases their effectiveness.

Thus, homeopathic remedies consist of a possibly harmful substance which has been watered down to the extent that oftentimes no molecules remain in the mixture. In other words, there is usually nothing in it, and if there is something in it, it can have rather adverse effects. Needless to say, homeopathy flies in the face of mainstream medicine. Nevertheless, many people firmly believe in its effectiveness.

Is homeopathy effective?

While much research is devoted to homeopathy, there is no reliable evidence that the ingredients of homeopathic substances cause them to work [3][4]. In contrast, there is a lot of evidence that psychological mechanisms are the only factors involved in causing their effects. The most obvious mechanism is that homeopathic compounds work because the people taking them expect them to work; this is known as the placebo effect [3]. Further, while illnesses simply get better with time, people tend to attribute their recovery from an illness to their treatment rather than to the natural healing process [3].



The least obvious predictor of homeopathy's effectiveness, though, is that homeopaths are more likely to establish a relationship with their patients: compared to mainstream medical doctors, they take more time for their patients and have longer consultations with them, thereby conveying empathy and understanding [5]. This “quasi-psychotherapy” can do wonders because it makes the patients feel cared for. Thus, homeopathy is indeed effective – but only because it utilizes psychological mechanisms, which are often outside patients'

>> CONTINUATION OF MINDWISE: TREAT THE PATIENTS, NOT JUST THE SYMPTOMS - WHAT WE CAN LEARN FROM HOMEOPATHY

awareness. This brings up the question whether homeopathy is ethical.

Is it ethical to prescribe homeopathic substances?

Proponents of homeopathy argue: “it helps the patients, so what is the problem?” The problem is that homeopaths seldom inform their patients sufficiently; they tend to withhold a large body of research which has brought to light that homeopathic substances have no biological effects. The next argument typically is: “Homeopathy has no side effects and does no harm”. This is only half of the story. Yes, it has no side effects – because it has no direct biological effects. But, importantly, homeopathy can do harm: patients favoring homeopathy tend to neglect mainstream medicine [6]. This may be very dangerous when patients have life-threatening illnesses: to survive such serious conditions, they need medication that takes effect through biological factors, rather than purely psychological factors. Thus, practitioners (and pharmacists) should think twice about recommending homeopathy.

What can we learn from homeopathy?

The fact that so many people turn to homeopathy shows that they are missing something in mainstream medicine. Their wellbeing is influenced by psychological as

well as biological mechanisms. Homeopaths utilize only the former (without letting their patients know), whereas regular physicians focus primarily on the latter. However, to treat patients optimally, both factors have to be taken into account. Therefore, mainstream medical doctors can learn much from homeopaths. For example, they can extend the time of their consultations and establish a more patient-friendly atmosphere by showing empathy and understanding. This improved physician-patient relationship may not only enhance the patients’ satisfaction with the treatment but also their clinical outcomes [7]. Nevertheless, physicians tend to show a decline in empathy over their careers, so it is especially relevant to increase the awareness of the big role empathy plays in treatment [8]. In short, physicians should treat the patients, not just the symptoms.

■ BY LEON TÖBBEN
 ■ IMAGE BY UMHEALTHSYSTEM,
 LICENCED UNDER CC BY 2.0

Relevant links and publications

- [1] di Sarsina, P. & Iseppato, I. (2011). Looking for a Person-Centered Medicine: Non-Conventional Medicine in the Conventional European and Italian setting. *Evidence-Based Complementary and Alternative Medicine*, 1-8, doi: 10.1093/ecam/nep048.
- [2] Hahnemann, S. (1833). *The Homeopathic Medical Doctrine, or “Organon of the Healing Art”*. Dublin: W.F. Wakeman. pp. iii, 48–49.

- [3] Ernst, E. (2002). A Systematic Review of Systematic Reviews of Homeopathy. *British Journal of Clinical Pharmacology*, 54(6), 577-582.
- [4] National Health and Medical Research Council. 2015. *NHMRC Information Paper: Evidence on the effectiveness of homeopathy for treating health conditions*. Canberra: National Health and Medical Research Council; 2015.
- [5] Brien, S., Lachance, L., Prescott, P., McDermott, C., & Lewith, G. (2011). Homeopathy has clinical benefits in rheumatoid arthritis patients that are attributable to the consultation process but not the homeopathic remedy: a randomized controlled clinical trial. *Rheumatology (Oxford)*, 50(6), 1070-82.
- [6] Malik, I.A. & Gopalan, S. (2002). Use of CAM results in delay in seeking medical advice for breast cancer. *European Journal of Epidemiology*, 18(8): 817–22.
- [7] Bensing, J., Derksen, F., & Lagro-Janssen, A. (2013). Effectiveness of empathy in general practice: a systematic review. *The British Journal of General Practice*, 63, e76-e84.
- [8] Neumann, M., Edelhäuser, F., Tauschel, D., Fischer, M.R., Wirtz, M., Woopen, C., Haramati, A., Scheffer, C. (2011). Empathy decline and its reasons: a systematic review of studies with medical students and residents. *Academic Medicine*, 86, 996-1009.



Leon Többen is a second-year psychology student at the University of Groningen. He is especially interested in cognitive psychology and could imagine taking on an academic career in this field after his studies. In his free time, Leon enjoys engaging in sports and social activities.

BCN Lunch: Transitions between academia and industry

Back in May, we held our latest BCN lunch meeting with the theme: “On the Move: Transitions between Academia and Industry”. During our lunch meetings, we want to give PhD students the opportunity to learn from experienced researchers or other professionals in an informal setting. The invited speaker of

our latest meeting was Professor Marc van der Maarel from the University of Groningen. Throughout his career, he has showed excellence as a scientist and lecturer in academia, but also in management positions in industry. Furthermore, he successfully established collaborations between universities,

institutes and industry. During his talk, he shared his experience of moving from academia to industry and back again.

A key message that Professor Marc shared with the audience was that unlike academia, industry focuses a lot more on your soft skills.

Specifically, working for a company involves a lot of teamwork, dealing with different areas of expertise, and multitasking. According to him, you shouldn't worry too much about specific technical skills, as companies are willing to invest in your capabilities. One of his key learning experiences was the importance of establishing collaborations with other groups, universities, and companies. This required taking initiative and showing good communication skills, but the collaborations he established during that time still prove worthy to this day.

Since it was a bright day and the room was getting warm from all the excitement, we had lunch outside the restaurant, perfect for interacting with the other PhDs students and discussing the pros and cons of academia and industry with our kind speaker.

So if you are thinking about moving to industry, spend less time writing articles and dedicate more time to develop your soft skills! Speaking about that, joining the BCN lunch meetings is a very good way to improve your communication skills! Also, feel free to propose topics that you would like to see discussed in the next BCN lunch!

■ BY JOANA CARVALHO AND STEFAN HUIJSER FOR THE BCN PHD COUNCIL
 ■ PHOTO BY JOANA CARVALHO



The BCN Summer Symposium 2016

Closing in on the academic year, students of the BCN master cohorts 2014-2016/2015-2017 were finally able to present their semester's hard work to a wider audience. Across two days, there were twelve student presentations and four poster sessions – two of which were held in cohort- and track-mixed groups, whereas the other two served as an opportunity to freely roam and explore the vast array of minor and major research projects ranging anywhere from depth perception in virtual reality to sexual promiscuity in fruit flies. What follows are short impressions of only a handful of the many exciting projects carried out by students who were invited to speak about their work.

C-tracker Sarah Maaß induced time pressure in human subjects to study its effects on decision-making using different implicit and explicit methods of slowing down the presentation of stimuli. All methods led participants to make a decision based on less contextual evidence in line with the idea of decision urgency. Looking at how this effect is neutrally realised, Sarah found that the urgency effect is partly controlled by the striatum.

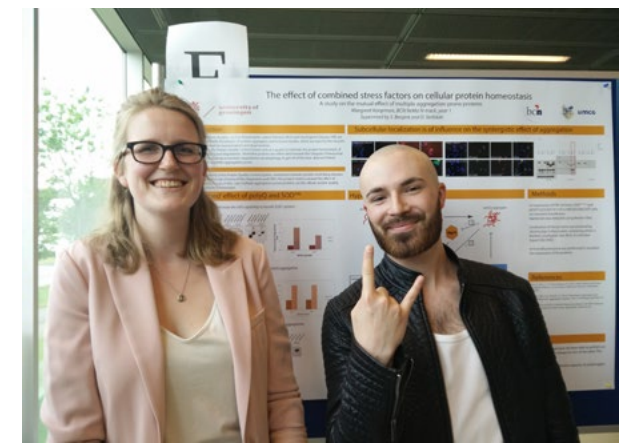
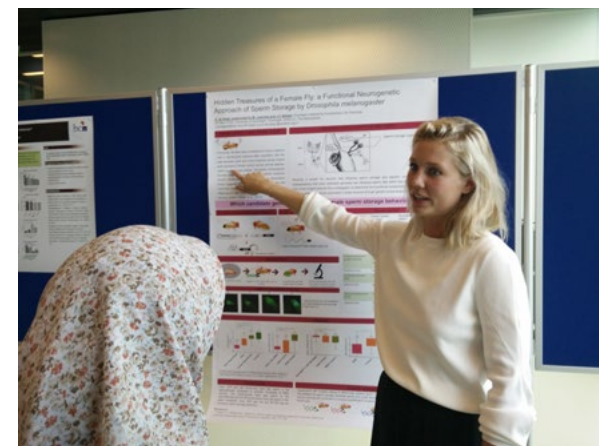
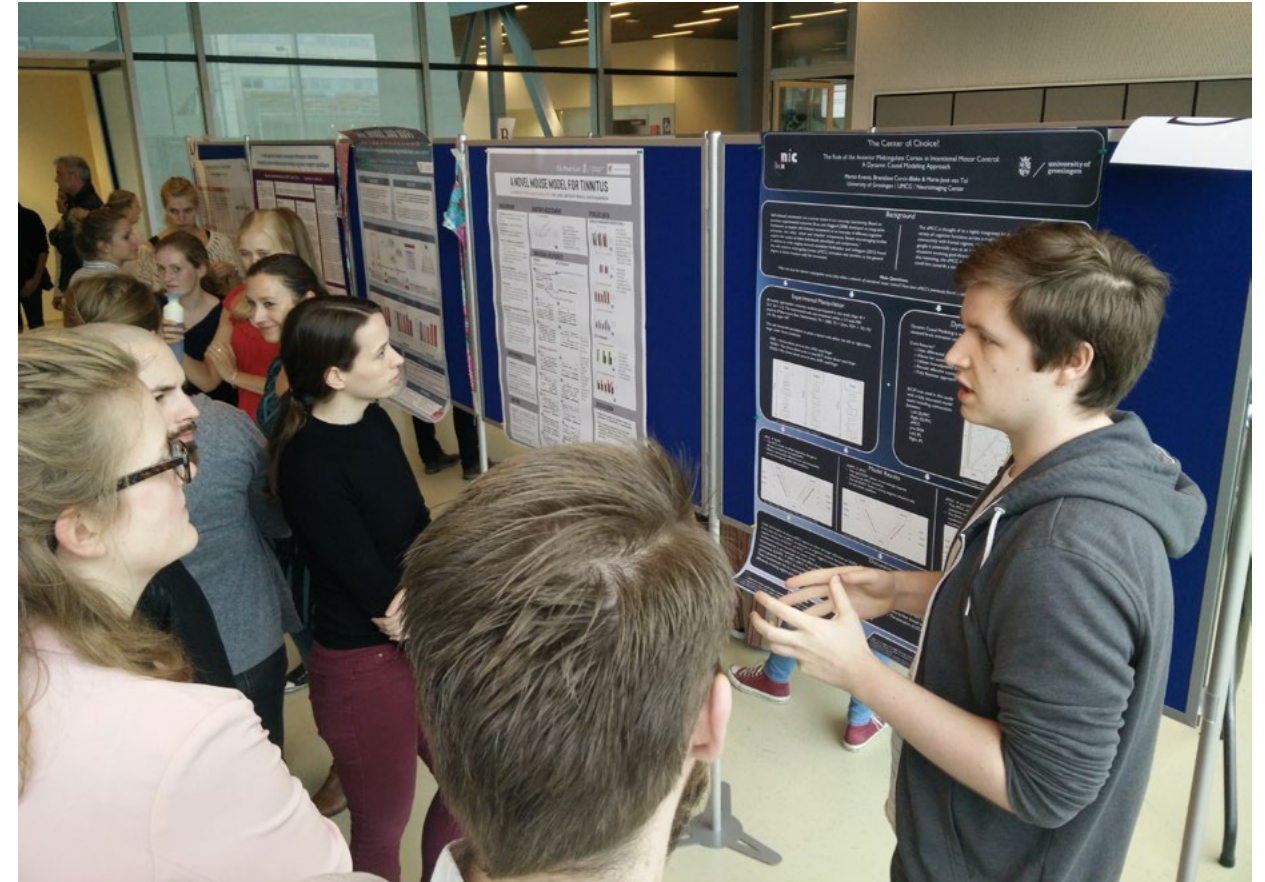
Lara Renssen from the B-Track investigated whether memory consolidation differs across day and night in mice by exploring the role protein synthesis plays in the formation of contextual fear memories. Her group found no differences between those phases, suggesting that rather than the light-phase, the specific nature of the memory may be important for the way it is processed.

Also from the B-Track, Lauren de Wit researched the response of the biological clock to a light pulse in summer or winter time in the group of

Joke Meijer at Leiden University. Using living brain tissue to study animals entrained to a summer or winter day, calcium imaging data showed that the master clock, located in the suprachiasmatic nucleus, responded equally independent of entrained time. This result suggests that, contrary to popular belief, the difference in phase shifting capacity in summer and winter time is not caused by the immediate response to a light pulse.

Following the work of Hedderik van Rijn, J.C. Billeter and Adrea Soto Padilla, C-tracker Tom verified preliminary research that hinted at the possibility of fruit flies being capable of time perception. Trapped in an ingeniously built fruit-fly arena, these insects were repeatedly exposed to heat through two out of three floor tiles. Tones of different lengths uniquely identified which tiles were heated and most flies correctly moved to a safe location.

Lastly, C-tracker Nienke Hoeksema exposed people who have a tendency to go to bed late to



>> CONTINUATION OF THE BCN SUMMER SYMPOSIUM 2016

natural morning light. Her hypothesis was that this exposure would affect the “time” of their “internal clock”, causing them to sleep and wake up earlier. She found that exposing people to natural dawn did not meaningfully impact their sleep behaviour. However, a correlation was found between a person’s increase in morning light exposure and the shift in timing of their internal clock, meaning that the intervention was capable of impacting people’s internal clock after all.

The symposium was further enriched by two keynote speeches by newly appointed professor of behavioural neuroscience at GELIFES Martien Kas and long-time RUG insider and life sciences professor Ingrid Molema. Martien Kas passionately shared insights of his translational research, which investigates neuropsychiatric disorders such as autism spectrum disorders or schizophrenia in mice using cross-species genetic analyses of neurobiological substrates. Kas explores the social behaviour of different sets of inbred mice that differ in their genetic make-up: Some strains have identical versions of genes on both copies of their chromosomes, whereas others have different combinations of genetic variants. By applying a variety of behavioural testing paradigms, he and his team observe the social or repetitive behaviour displayed by the mice and then statistically map these behaviours onto different chromosomal variants. Ultimately, Kas hopes that his research will offer more insight into conserved gene function in regulating essential behavioural strategies and, as a consequence, improve therapeutic and preventive strategies that may contribute to healthy aging.

While Martien captured students’ attention with his scientific contributions, Ingrid Molema broadened students’ horizons by providing them with information about possible career paths. Students often do not know exactly what they should do after their studies: Should they do another master? Should they pursue a PhD? Is the academic life really for them, and what other options does one have in the free economy? Ingrid stressed that students who may not choose to stay in academia/science should not think that their education was in vain. In fact, the first-class training they received developed skills that are universally sought by employers: being able to work independently, continuously exercising critical thought, teamwork skills, interpersonal and written communication as well as the necessary creativity to think outside the box when obstacles should arise. Lastly, she helped students get a better understanding of how the now reformed PhD bursary system at the RUG works and what changes future PhD students can expect.

Finally, the symposium was rounded off with a ‘gezellige’ BBQ at the Linnaeusborg, during which both carnivores and herbivores were adequately catered for. The BCN Summer Symposium committee thanks all students and members of the BCN research school for their enthusiasm during both intense days of scientific exchange. The committee also wishes the 2015-2017 cohort a successful new academic year and the freshly graduated BCN 2014-2016 cohort a lot of success in pursuing their future careers!

■ **TEXT AND PHOTOS**
BY TIMOTHY SONDEJ

Intro new staff writer

> **TIMOTHY SONDEJ**



In the late stage of my life as an undergraduate, I realised that becoming a scientist was not just one of a few career options, but rather felt like a calling. Subjects that emphasised the scientific method enchanted me with their simplicity, power and elegance, and the curious mind of mine that constantly demanded to be entertained followed suit. But beyond my selfish pursuit of acquiring ever more insight into the human condition and the intricate workings of the brain, I hoped that a career in science would enable me to add to the common good: Understanding how people function - on any level of organisation - means upgrading the scientific toolbox ready to further human flourishing. So as a greenhorn with two (very theoretic) bachelor’s degrees in psychology and the philosophy of cognitive science, I embarked on a journey towards being an actual practitioner: Next step the C-Track of the BCN research master.

Under the supervision of Monique Lorist, I am now working with Berry van den Berg on the fundamental neural mechanisms of reward learning. Specifically, using EEG we are investigating the role that alpha oscillations post-stimulus play in the process of updating contextual information to cortical areas. Expanding on the theme of learning in my major project at Oxford, I hope to explore how the nature of prosthesis-mind interaction improves prosthesis use in amputees and how this impacts brain plasticity.

■ **PHOTO BY SANDER MARTENS**

BCN Symposium 2016

'Sensory systems: From Molecule to Mind'

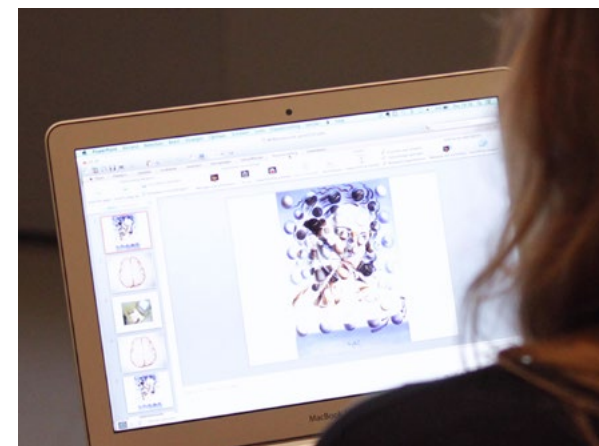
June 23, 2016

On the 23rd of June, 2016, the research school BCN organized its annual symposium, entitled 'Sensory systems: From Molecule to Mind'. This year, the symposium was dedicated to the sensory systems. The organizers (Amalia Dolga, Sonja Pyott and Enja Jung) managed to get several interesting national and international speakers to Groningen.

The program started off with a presentation of professor Alex Wade (University of York, England) on 'fly vision and its application to neurological disease'. Professor Wolfgang Kummer (Justus-Liebig-University Giessen, Germany) had an interesting talk on brush cells as sentinels to detect bacterial colonization or the presence of other harmful components on the mucosal surface. Ilona Croy (University of Dresden Medical School, Germany) shed a light on olfaction and emotion and olfaction as an indicator of psychiatric disorders. Liam Browne (University College London, England) discussed the molecules and cells that drive pain. Finally, in her presentation, professor Hannie Kremer (Radboud University Nijmegen Medical Centre,

the Netherlands) focused on the unravelling of genes associated with hearing loss in order to increase our knowledge of the molecular make-up of the peripheral auditory system.

■ BY MICHIEL HOOIVELD
 ■ PHOTOS BY MICHIEL HOOIVELD



EIT-Health Ageing Brain Summer School 2016

An unforgettable experience

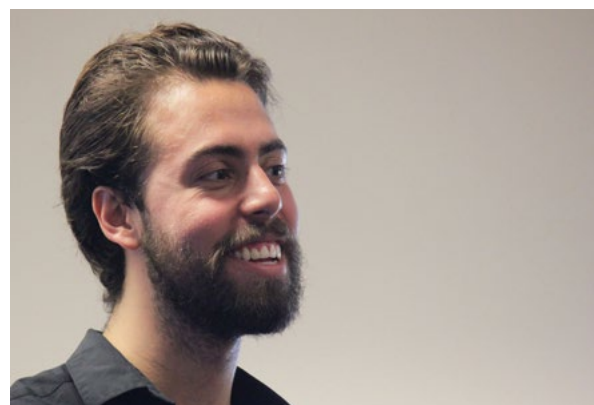
For years, the University Medical Center Groningen has organized the international Summer School 'Ageing Brain'. This year's edition, which took place from 2nd of July till the 16th of July, was unique since it was part of the EIT Health Campus program (www.eithealth.eu), a large knowledge and innovation community (KIC) on healthy living and active ageing. The EIT-Health Ageing Brain Summer School was organized by a group of eight students in collaboration with two UMCG neuroscientists, prof. Natasha Maurits and prof. Jon Laman. Together, they organized a two-weeks course that focused on the neurophysiology and pathophysiology of the ageing brain and on the innovative and entrepreneurial aspects of the ageing brain.

This year's event hosted thirty students (ranging from bachelor's students to master's and PhD students), originating from Europe, Latin America and Asia. The participants followed a balanced program, which started off with a pub lecture on entrepreneurship in an informal setting. Furthermore, the program consisted of lectures on a broad range of neurological diseases, including lectures on the embryological and adolescent brain, Parkinson's disease and stroke, lectures on nutrition and the brain and how to maintain a healthy brain, and lectures on the elderly brain with a focus

on dementia and delirium. In addition to the lectures, several workshops took place. Via EIT-Health, a very diverse group of speakers (i.e. Lisbon, Newcastle, Uppsala, Freiburg and Ghent), consisting of researchers, clinicians, entrepreneurs and representatives from patient and non-governmental organizations, contributed to the summer school.

One of the highlights of the course was a fieldtrip to the University of Twente in Enschede (the Netherlands). With visits to the Experimental Center for Technical Medicine, the surgical robotics lab, the biomechanical engineering group and the robotics and mechatronics group, participants got the opportunity to see and test state-of-the-art surgical and rehabilitation devices.

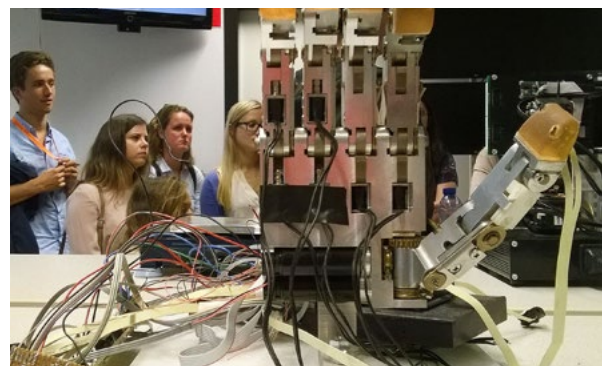
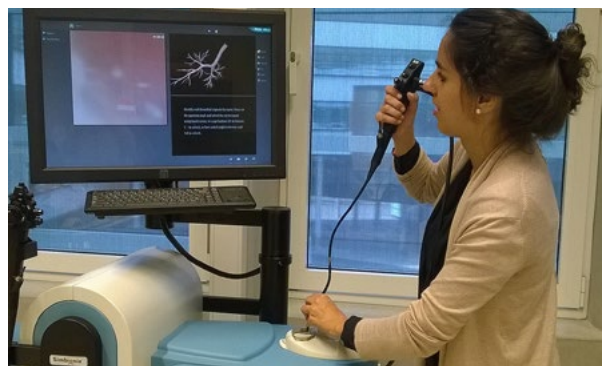
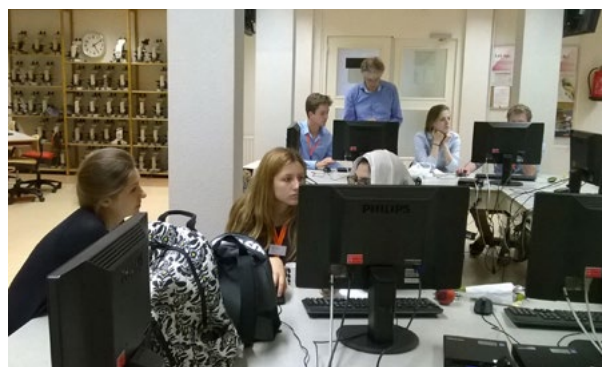
The final day of the summer school was focused on the group assignments and the presentation of their business ideas. The 6 groups had to come up with an idea to tackle daily, real-life problems of people with neurologic diseases. The groups had to pitch their idea to a panel of two entrepreneurs, a neurologist and a patient. One group had invented the "pill-box" and was awarded winner of the business idea challenge. In particular, the Parkinson patient organization expressed a lot of interest in further development of the idea. The group has



>> CONTINUATION OF EIT-HEALTH AGEING BRAIN SUMMER SCHOOL 2016 - AN UNFORGETTABLE EXPERIENCE

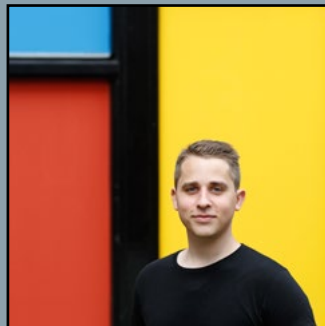
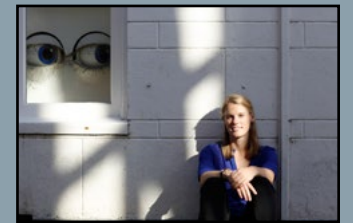
therefore been invited to develop their idea further in the EIT Health Accelerator. As always, the formal part of the course was surrounded by an extensive and interesting social program for the participants to get to know each other better and to forge ties and friendships for the future. All in all, the EIT-Health Summer School Ageing Brain 2016 was a great success and, for most participants, an unforgettable experience.

- BY GERT JAN BOER, NATASHA MAURITS AND MICHIEL HOOVELD
- PHOTOS BY NATASHA MAURITS AND MICHIEL HOOVELD



New staff writers wanted!

Do you enjoy reading the Newsletter?
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and make it even better?
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or PhD student,
it's a great way to expand your network,
improve your English writing skills,
and be actively involved in BCN.
Interested?
Send an e-mail to Sander Martens,
sander.martens@gmail.com!



> GRAND STUFF

BCN members on the TV programme 'Zij houden Nederland in leven'

Neurologist Teus van Laar and Neurosurgeons Marc van Dijk and Marinus Oterdoorn were filmed during a brain operation of a patient with Parkinson's disease.

MORE INFORMATION

<https://www.umcg.nl/NL/UMCG/Nieuws/Nieuwsberichten/Paginas/zhnil-hersenstimulatie.aspx>



■ PHOTO BY UMCG.NL

Peter de Jonge professor in Developmental Psychology

As of June 1, 2016, Peter de Jonge has been appointed as Professor in Developmental Psychology.



■ PHOTO BY RUG.NL

H2020 MSCA ITN grant - ENRICH European Training Network

Prof. Deniz Baskent received a grant of € 450.000 from the Horizon 2020 Research and Innovation Framework Programme of the European Committee for the ENRICH Network. The ENRICH consortium consists of 8 beneficiaries and 7 partners from academia, industry and clinical practice in 9 countries, who collectively provide diverse infrastructure for investigating spoken communication and for applying innovations to end-user populations.

MORE INFORMATION

<http://www.enrich-etn.eu/> and <https://intranet.umcg.nl/>

UMCG Mandema Stipend

MD/PhD student Christina Fuller received the Mandema stipend from the UMCG, which enables physician-scientists to combine their specialist training with research and establish their own line of research.

European Control Award for Ming Cao

Professor Ming Cao received the European Control Award, which recognizes 'outstanding contributions by a young researcher in the area of systems and control'. Cao has pioneered control systems that allow groups of autonomous robots to work together.

MORE INFORMATION

<http://www.rug.nl/fwn/news/2016/european-control-award-for-ming-cao>



■ PHOTO BY RUG.NL

> GRAND STUFF

Hanna van Loo (Psychiatry) wins the Wierenga-Rengerink PhD prize

During the summer ceremony of the University of Groningen, Hanna van Loo won the price for the best thesis. Her winning thesis 'Data-driven subtypes of major depressive disorder is about the intersection of psychiatry and the philosophy of science'. Her promotors were Prof. Robert Schoevers, Prof. Peter de Jonge and Prof. Jan-Willem Romeijn.

MORE INFORMATION

<https://intranet.umcg.nl/index.html>



■ PHOTO BY UMGCG.NL

Rimke Groenewold wins Rubicon scholarship

Thanks to the Rubicon scholarship awarded by the Dutch Organisation for Scientific Research (NWO), Rimke Groenewold, a talented and recently promoted neurolinguist, will be able to work at Edith Cowan University in Australia for two years. She will investigate whether grammar problems can be compensated for by a strategic use of intonation.

MORE INFORMATION

<http://www.rug.nl/news/2016/07/twee-jonge-onderzoekers-naar-buitenlandse-topinstituten-met-rubicon-beurs>

Martijn Wieling receives Nvidia GPU for research project

Nvidia awarded researcher Martijn Wieling with a Titan X GPU to use for his research. This high performance graphic card, with a value of around € 1.000, will be used for the development of a speech-inversion-system with which the underlying movements of the tongue and lips are defined as well as possible on the basis of someone's pronunciation.

MORE INFORMATION

<http://www.rug.nl/news/2016/07/2016-07-15-martijn-wieling-ontvangt-nvidia-gpu-voor-onderzoeksproject>

GUF-100 prizes 2016

Annelot de Rechten van Hemert, a Language and Cognition Research Master student and BCN Newsletter staff writer, is one of the winners of the GUF-100 price. She receives an amount of € 2.500.

MORE INFORMATION

<http://www.rug.nl/about-us/support-the-university/groninger-university-fund/guf-prijzen-en-penningen/guf-100-prijzen>



■ PHOTO BY KLAAS MEIJER

>> Have you recently received any grants, prizes, or remarkable media coverage? Please let us know (E.T.Kuiper-Drenth@umcg.nl) and we will try to cover it here!

Dear BCN community This is your PhD Council

We are a direct connection between you and BCN. We represent you at the Education Committees and at the Graduate School of Medical Sciences (GSMS). We also promote educational events such as the PhD lunch.

We are very happy that one new member just joined our team (yay!). This means, the following PhD students are now part of the council (see pictures!).

After the summer, a number of us will be graduating and will be leaving the council. ***This means we need more support! Are you also interested in joining the council?*** Contact us at bcnphdcouncil@list.rug.nl.

See you at our next PhD lunch,
Your PhD Council.

Claire Kos
COGNITIVE NEUROPSYCHIATRY, NEUROIMAGING CENTER



Steven Gilbers
NEUROLINGUISTICS
AND LANGUAGE
DEVELOPMENT, LET



Joana Carvalho
LABORATORY OF
EXPERIMENTAL
OPHTHALMOLOGY, UMCG



YOU?



Stefan Huijser
(NEW MEMBER!)
ARTIFICIAL
INTELLIGENCE
& COGNITIVE
ENGINEERING, FWN



Florian Sense
PSYCHOMETRICS AND
STATISTICS & EXPERIMENTAL
PSYCHOLOGY, GMW



Enja Jung
DEPARTMENT OF
OTORHINOLARYNGOLOGY
(AUDIOLOGY), UMCG

> PHD COLUMN

The academic life imbalance

As I decided to start my PhD, some friends jokingly said goodbye, implying that, from that moment on, I would not have time for anything or anyone else. When I argued that would not be the case, I was called naive as they told me that with time I would understand what they meant. A year and a half into my studies, I understand. I see most PhD students working every weekend, barely having time to enjoy dinner with their friends, under a constant level of stress and lack of motivation. I hear stories of burnouts day in and day out and it almost feels as if this is the norm. How can this unhealthy schedule be productive? I have been warned of what I would encounter, so the scenario was no real surprise. Yet, every day it surprises me how this workaholic routine is expected and even admired among researchers.

Somewhere along the way, young researchers started to be expected to adopt a certain lifestyle which, to put it in light terms, can be considered somewhat busy. Academic jobs are ever more dependent on and evaluated by the amount of hours spent in the laboratory/office, by the number of published papers in a year, by the quantity of supervised students, and so on. Academia certainly lives in the realm of overwork for underpay and it does not seem to be leaving it anytime soon. Even more worrying is the fact that professors, after going through

the transition into this “academic life”, now help perpetuate the cycle, often pressuring and expecting their students to follow the same stressful path. Commonly, peers also play the game, strongly criticizing colleagues who do not work late hours and idolizing superiors who are so busy they barely meet with their students. Most days it feels I am expected to enter the game – certainly more so now that I am approaching the end of my PhD. However, I believe that before joining in, I (and anyone in a similar situation) must ask myself: is this how working in research should feel?

As researchers, I would hope we support our decisions and behavior based on, you guessed it: research. Yet, even though it is known that results and efficiency are not a function of the amount of hours one spends on a task, we keep pushing the other way. And in doing so, all we managed to do was to achieve an overwhelming increase in burnouts, not to mention the amount of stressed and demotivated young researchers wandering around university hallways. I think it is about time we start practicing what we preach: it is about time professors encourage a healthy lifestyle over long hours and working weekends, and it certainly is past the time our community changes its game, rewarding quality over quantity. After all, if research strives for innovation and development, why



are we substituting potential creative time by repetitive, mindless and hour-filling tasks? I think our minds need rest and our motivation needs refreshment. It is clear to me that new ideas and inspiring research need space and time to flourish. Academia needs people who can “think outside the box” – and what could be better for it than living outside the box for a while? For me, a good researcher is, by definition, a well-balanced one – someone who keeps his or her curiosity and drive for the topic, without giving up the other things in life. We all need time to enjoy other activities, to discover new interests and to develop ourselves in all aspects (not only the academic CV-building ones). In fact, more often than not, that is where new and exciting ideas come from: exploring the world outside of your own project, your

own department or even your own university. So please, professors, be kinder to your students; and students, be kinder to yourselves – you might even find that working less makes you work better.

Am I only a naive PhD student? Maybe. But I am also part of the new generation of researchers – and if we do not work towards change, who will?

■ BY ISADORA L. ALVES

> PHD AND OTHER NEWS

Looking for topics for BCN Symposia

The latest BCN Symposium "Sensory Systems: From Molecule to Mind" was a very successful and highly appreciated edition. BCN is intent on organizing another successful edition in 2017. Therefore, we would like you to send in topics for the next edition(s). The 2017 theme will be decided during the BCN Board meeting in September.

Compulsory course: BCN Orientation Course, edition 2016

This course will start on September 9, 2016. Other course data: September 23, October 7 and 21, November 4 and 18. The Orientation Course is a compulsory course for BCN PhD students. The cancellation rules are NOT valid for this course. Please contact me if you might miss one or two days of the course.

PhD students in the last year of their project

I would like to advise PhD students who will finish their project this year to contact me as soon as possible, to discuss the need of filling out the educational activities in Hora Finita!

BCN PhD council & BCN Newsletter committee is looking for new members

If you would like to be more involved in BCN, organize activities for your fellow PhD students, and get political experience, become a member of the BCN PhD council!

If you are talented in writing or interviewing, or would like to find out if you are talented, the BCN Newsletter committee is looking for PhD students. In both cases, please contact me! These activities will be rewarded with EC's (in the elective part of the BCN program).

Agenda: BCN Activities

September 9, 2016: start of BCN Orientation Course. Other course data: September 23, October 7 and 21, November 4 and 18.

September 22, 2016: start of BCN Functional Neuroscience, EEG part

October 11, 2016: start of BCN Mathematics for Neuroscientists.

Other course data can be found in the online registration system: <http://cursus.webhosting.rug.nl/gsms/courses/>
The cancellation rules are NOT valid for these 3 courses.

■ DIANA KOOPMANS (D.H.KOOPMANS@UMCG.NL)



WWW.PHDCOMICS.COM

Cool links

- > New television series in which prominent Dutch scientist are interviewed
http://www.npo.nl/kijken-in-de-ziel-wetenschappers/29-07-2016/VPWON_1253011
- > Scientists use ultrasound to reactivate brain of comatose patient
<http://www.iflscience.com/brain/scientists-kick-start-brain-comatose-patient-ultrasound/>
- > 26 time-management tricks
<http://www.iflscience.com/editors-blog/twenty-six-time-management-tricks-i-wish-i-had-known-at-twenty/>
- > Man missing most of his brain challenges theories about consciousness
<http://www.iflscience.com/brain/man-missing-most-of-his-brain-challenges-everything-we-thought-we-knew-about-consciousness/all/>
- > Antivaccine families tend to cluster together, making outbreaks more likely
<http://goo.gl/nCjXg6>
- > Alzheimer's and the brain: a viral youtube video explaining the latest on the disease
https://www.youtube.com/watch?v=dWcdBOYy_bU
- > Wilderness expert C. Peterson picks up a giant black slug the size of a small dog
<https://www.youtube.com/watch?v=15l8elqh9il>
- > Ancient sculptures were originally in color: the Getty Museum recreates some of them
<https://www.youtube.com/watch?v=7UsYHo5iarM>

> ORATIONS

Retention of Mobility and Traffic Safety: about growing older, luxurious cars, mobility scooters and electrical bicycles

ORATION

D. de Waard

TITLE

Retention of Mobility and Traffic Safety: about growing older, luxurious cars, mobility scooters and electrical bicycles

CHAIR

Traffic psychology and retention of mobility

FACULTY

Behavioural and Social Sciences

DATE

May 10, 2016

Mobility is crucial, in particular for older people. We are used to mobility, and the loss of it can lead to isolation and even depression. Fortunately, we can take care that people retain their mobility. This can be accomplished by optimising the infrastructure, by adapting the vehicle with the aid of technology, or by looking at alternative means of mobility. In all these cases it is crucial that attention is given to user friendliness and to user behavioural adaptation to these changes. Automatic driving for example could be a good long-term solution. However, at present these systems are far from error free. The question is also when these fully automated systems will become available to the public at large. Until then, it is not really clear whether people can hand over control to the computer,

and whether we can trust the system. If that is not the case, that is a situation that is better avoided.

At present, major benefit is to be expected from creating more time for the older traffic participant to make decisions, as a car driver, a cyclist, or a pedestrian. Time can be created by giving decision support and by increasing safety margins. The latter can be done literally, for example for cyclists by creating more space in the infrastructure. Car drivers can be guided in such a way that they choose a quiet or not so complex route. In the coming years, “tailored advice” will be an important topic that deserves and will get our attention.



■ PHOTO BY MAARTEN DE WAARD

From optimisation towards understanding and back

ORATION

M.E. Timmerman

TITLE

From optimisation towards understanding and back

CHAIR

Statistical techniques for the analysis of multivariate data from behavioural research

FACULTY

Behavioural and Social Sciences

DATE

June 21, 2016

Statistical analyses play a major role in the interpretation of data collected in psychological research. There are many different statistical methods, which may offer different views of the same data. In response to the alarming messages about the lack of reproducibility of findings reported in the psychological literature, there is now a strong tendency towards strictly hypothesis-driven research. This strategy perfectly applies to purely confirmatory research, but it falls short as soon as the research becomes more exploratory in nature. Very often one finds combinations of stronger and weaker expectations in the same study. In this oration it is argued that such combinations are vital for deepening our understanding and expanding our knowledge. Herewith it is essential to minimize the risk of non-replicable results.



■ PHOTO BY JENNE HOEKSTRA

It is argued that this can be done using a carefully selected exploratory analysis method, which matches the objectives, the type of data collected and all available knowledge. The selection of this exploratory analysis method can, and should, be done before the study is carried out. Pre-registration – in whatever form – is therefore, as with confirmatory research, perfectly possible and highly recommended. It is illustrated that more exploratory approaches are really worth the effort, as one can achieve insights that would otherwise remain hidden.

■ EVELYN KUIPER-DRENTH, BASED ON PRESS REPORTS OF THE UNIVERSITY OF GRONINGEN

> PROMOTIONS

Negative symptoms of schizophrenia: Treatment options and evidence from neuroimaging

PHD STUDENT

J.J.L.A.S. Dlabac-de Lange

THESIS

Negative symptoms of schizophrenia: Treatment options and evidence from neuroimaging

PROMOTOR

Prof.dr. A. Aleman

CO-PROMOTOR

Dr. H. Kneegting

FACULTY

Medical Sciences

This thesis focuses on studies to improve treatment options for patients who suffer from schizophrenia. Lack of initiative (apathy) and a reduced ability to experience pleasure is part of a syndrome, called “negative symptoms”, in these patients. These symptoms are related to severe impairments in social functioning and a reduced ability to live independently. Mainstream treatments for patients with schizophrenia are not effective in reducing negative symptoms. Repetitive Transcranial Magnetic Stimulation (rTMS) is a relatively new treatment option in psychiatry, and is applied to stimulate specific regions of the brain. In the first part of this thesis, a double blind randomized

controlled trial is reported, which found evidence for the efficacy of high frequency bilateral rTMS treatment of the prefrontal cortex in patients with negative symptoms. This clinical trial was combined with a neuroimaging study, to better understand the origin of negative symptoms and the effects of rTMS. The neuroimaging study showed an increase of brain activity and brain metabolism in the prefrontal cortex of patients with schizophrenia after rTMS treatment.

The second section of the thesis explores the underlying neural substrates of negative symptoms. Our fMRI studies found an association of social-emotional withdrawal and reduced frontoparietal activation during a planning task. Expressive deficits were shown to be associated with reduced activation of the prefrontal cortex and fronto-thalamic brain areas during a social cognition task. These findings provide evidence for different neurobiological mechanisms of the two domains of negative symptoms, and may contribute to the development of new treatment options.

Jozarni Dlabac-de Lange (1980) studied Medicine at the Vrije Universiteit Amsterdam. She did her research in the Department of Psychiatry and at the research institute BCN-BRAIN of the University Medical Center Groningen. The research was financially possible by an unconditional research scholarship of Astra Zeneca and ‘Stichting Roos’. Dlabac-

de Lange works as psychiatrist at different institutions. She was promoted on June 1, 2016.

Exploring microglial functions under physiological and pathological conditions by genome-wide expression profiling

PHD STUDENT

I.R. Holtman

THESIS

Exploring microglial functions under physiological and pathological conditions by genome-wide expression profiling

PROMOTOR

Prof.dr. H.W.G.M. Boddeke

CO-PROMOTOR

Dr. B.J.L. Eggen

FACULTY

Medical Sciences

Microglia cells are essential for brain homeostasis and play an important role in neurodegeneration and brain aging. Genes that are important for these microglia functions and activities are transcribed in RNA, which is subsequently translated into protein. With the recent advances in techniques to generate genome-wide RNA expression profiles, it has become possible to study microglia at a whole new level and to delineate the molecular pathways and mechanisms that regulate their function and activity. In this dissertation we present the Glia Open Access Database (GOAD),



■ PHOTO BY STEPHAN KLEEREWEER

>> CONTINUATION PROMOTIONS



■ PHOTO BY ROOS VELTING

which is an online database where previously generated genome-wide glia expression profiles were made available to the research community. In addition, we generated RNA expression profiles from microglia from the brains of mice, zebrafish and humans to address research questions related to 1) the effect of aging and neurodegeneration on microglia, 2) interspecies comparability and 3) the role of microglia in the developing brain. When comparing microglia from different mouse models for neurodegeneration and brain aging, we observed a highly comparable expression profile, suggesting that microglia contribute to these conditions in a similar way. When

performing interspecies comparisons, we found that the physiological microglia expression profiles were relatively similar, but the activation, aging and neurodegeneration profiles differed across species. In the brain development study, we identified a subpopulation of microglia that highly expresses factors that could be crucial for brain development. In summary, this PhD dissertation presents studies where genome-wide expression analysis was used to study microglia in health and disease.

Inge Holtman (1983) received her master's in Behavioural Cognitive Neuroscience at the University of Groningen. She did her research

in the Department of Neurosciences and at research institute BCN-BRAIN of the University Medical Center Groningen, which also financed the research. The other funder was Lundbeck New Jersey. Holtman works a researcher at the University of California, San Diego. She was promoted on June 6, 2016

Difficult birth and motor outcome in early infancy and at school age

P H D S T U D E N T

P.A.M. van Iersel

T H E S I S

Difficult birth and motor outcome in early infancy and at school age

P R O M O T O R

Prof.dr. M. Hadders-Algra

F A C U L T Y

Medical Sciences

It is well known that children born with a serious deprivation of oxygen (asphyxia) at birth are at high risk for developmental problems. In this thesis we assessed the sequelae of moderate to mild asphyxia in term infants at the age of 6 years. We labelled this condition Difficult Birth At Term (DBAT). Children with DBAT are mostly admitted to regional hospitals that lack the sophisticated imaging techniques of academic centres. This was the context of the study.

Two groups of children were followed: 64 infants with DBAT and 81 control infants. During the first weeks after birth, we assessed their 'General Movements (GMs)'. GMs are movements involving the whole body, present up until

4 months of age. The degree of variation of GMs is a marker of the health of the nervous system. GM-quality is a good predictor of developmental outcome in preterm infants and infants with serious problems around birth. At the age of six years, all children were examined with a battery of tests with special attention to motor abilities.

The study showed that: 1) children with milder forms of DBAT resulting in neurological signs at birth are at increased risk for developmental problems at age 6, especially for impaired manual abilities and 2) GM-quality predicts outcome in term infants without major problems at birth, but with less power than in preterm infants.

We advise to routinely monitor development in all infants with DBAT accompanied by neurological symptoms, starting with GMs in the first months of life.

Patricia van Iersel (1949) studied physiotherapy at the Hogeschool in Utrecht. Thereafter, she got her degrees as teacher of physiotherapy and child physiotherapist. From 1976 to 2013, she worked as a (child) physiotherapist at the Gelre Hospital in Apeldoorn. This hospital was the setting of her research. She did her doctoral research within the research institute BCN-BRAIN of the University Medical Center Groningen. She was promoted on June 15, 2016.

>> CONTINUATION PROMOTIONS

No pain no gain: Exploration and validation of experimental pain models in human healthy volunteers for applications in drug development and implications of quantitative sensory testing in neuropathic pain patients

PHD STUDENT

M. Harbers

THESIS

No pain no gain: Exploration and validation of experimental pain models in human healthy volunteers for applications in drug development and implications of quantitative sensory testing in neuropathic pain patients

PROMOTOR

Prof.dr. J.A. den Boer

CO-PROMOTORS

Dr. W. Timmerman

Dr. R. Kortekaas

FACULTY

Medical Sciences

Pain management is a major challenge in modern medicine. It is estimated that the prevalence of chronic pain could be as high as 35%. Consequently, 1 in 3 people will experience a period of chronic pain during their lifetime. This societal burden underlines the importance of developing effective analgesic therapies. As a hypothesis, we tested if Quantitative Sensory Testing (QST) measures for acute and neuropathic pain in healthy volunteers and patients would improve the reliability of efficacy studies. Furthermore, we aimed to develop a robust topical capsaicin model for neuropathic pain to achieve reliable hyperalgesia and

allodynia. Our results showed that the heat pain threshold, the pressure pain threshold and the cold pressor test are reliable measures to test analgesic efficacy in acute pain. In general, the high test-retest reliability in our studies supports the use of a standardized QST battery for testing novel analgesics and can improve assay sensitivity of clinical trials.

Furthermore, our QST database demonstrated that many patients with chronic pain not only have abnormal somatosensory functioning at their painful pathological body side but also on the contralateral (non-painful) body side. Also, our Heat Capsaicin Warmth (HCW) model for neuropathic pain using continuous pain with capsaicin cream combined with continuous warmth demonstrated that this is a reliable method to induce allodynia, a key symptom of neuropathic pain. Overall, the results from our studies contribute to the selection of appropriate pain tests and models and can improve clinical trials of pain treatments.

Marten Harbers (1979) studied psychology at the University of Groningen. He did his doctoral research in the Department of Psychiatry, and within the research institute BCN-BRAIN of the University Medical Center Groningen. The research was funded by Top Institute Pharma, PRA Health Sciences, Merck, the UMCG and the RUG. Harbers now works as project manager of pain and CNS studies at PRA Health Sciences in Groningen. He was promoted on June 20, 2016.



■ PHOTO BY MARIELLE GEBBEN

>> CONTINUATION PROMOTIONS

Understanding and managing interruptions: How to avoid watching cat videos all day long

PHD STUDENT

I. Katidioti

THESIS

Understanding and managing interruptions:
How to avoid watching cat videos all day long

PROMOTOR

Prof.dr. N.A. Taatgen

CO-PROMOTORS

Dr. J.P. Borst

Dr. M.K. van Vugt

FACULTY

Mathematics and Natural Sciences

'This is a rational choice', says Katidioti. But if, in the same experiment, the web browser was very slow, the participants responded sooner to the chat messages. 'And they then forgot important information and took longer to finish the task. They no longer behaved rationally.'

Ioanna Katidioti (1985) studied cognitive sciences at the University of Athens. Her doctoral research was part of the ERC Starting Grant project 'Towards Safe and Productive Human Multitasking' of prof.dr. Niels Taatgen. She now works for the IBM Client Innovation Center in Groningen. She was promoted on June 24, 2016.



■ PHOTO BY RIEPKO BUIKEMA

An app to regulate digital distractions

In this information age it is not easy to concentrate on your work. Chats, e-mails, social media... they all distract you from your work. And even if you turn off all notifications, a slow loading webpage can have you reaching for your smartphone. From her PhD research on distractions, Ioanna Katidioti concluded that they activate cognitive processes that are not then in use, and that an app that regulates these distractions might help.

Ioanna Katidioti began by studying why people allow themselves to be distracted. 'We often interrupt our own work to do something else, like watch a cat video', she says. In her first experiment, the participants were asked to search for product information on the web, while chat messages popped up to distract them. In general, the participants finished the task before responding to the messages.

Visuospatial perception: From behavior to brain

PHD STUDENT

F. Yildirim

THESIS

Visuospatial perception: From behavior to brain

PROMOTORS

Prof.dr. F.W. Cornelissen

Prof.dr. J.M.M. Hooymans

FACULTY

Medical Sciences

We use visual spatial perception to localize ourselves in our environment, to direct our attention, and to reach out to and grasp objects.



■ ILLUSTRATION BY FUNDA YILDIRIM

In this thesis, I aimed to better understand the role of response type and the various aspects of our visual scene in human visual perception. I found that making eye-movements or not to indicate the identity and location of objects did not affect human performance. This contrasts with previous suggestions in the literature. It is important, as it means eye-movements can be used to accurately assess human visual perception. In addition, using functional magnetic resonance imaging (fMRI), I found that it is possible to map the spatial representation of the visual world in the visual brain much more accurately by using stimulation method based on orientation rather than luminance contrast. The new method better reveals various properties of the spatial organization of the human visual cortex.

>> CONTINUATION PROMOTIONS

Funda Yildirim (1987) received her master's in Cognitive Science at the Middle East Technical University (Turkey). She did her doctoral research within the research institute BCN-BRAIN of the University Medical Center Groningen. The research was partly funded by the Abel Tasman Talent Programme. Yildirim soon starts as researcher at the Boston University (United States). She promoted on June 29, 2016.

Maternal hormones meet environmental variability: Context-dependent effects of maternal hormones in avian egg yolks

P H D S T U D E N T

B. Hsu

T H E S I S

Maternal hormones meet environmental variability: Context-dependent effects of maternal hormones in avian egg yolks

P R O M O T O R

Prof.dr. A.G.G. Groothuis

C O - P R O M O T O R

Dr. C. Dijkstra

F A C U L T Y

Mathematics and Natural Sciences

In the past few decades, maternal effects have been widely recognized as an important way through which mothers can modify offspring phenotypes above and over direct genetic effects. As a wide variety of animals are prenatal exposed to maternal hormones, accumulating evidence also suggests that maternal hormones are an important mediator of maternal effects.

In birds, previous studies have already shown evidence that maternal hormones in egg yolks can influence offspring development, growth, physiology, and behaviour, influencing their fitness. Nevertheless, the adaptive significance of prenatal maternal hormone exposure is still unclear because of the great discrepancy in the literature. A very likely explanation of the discrepancy is that because maternal hormones bring costs as well as benefits, the final outcome would be modulated by the environmental and/or biological contexts.

Focusing on the most extensively studied maternal hormone – testosterone, and using rock pigeons (*Columba livia*) as a model species, I experimentally investigated whether the

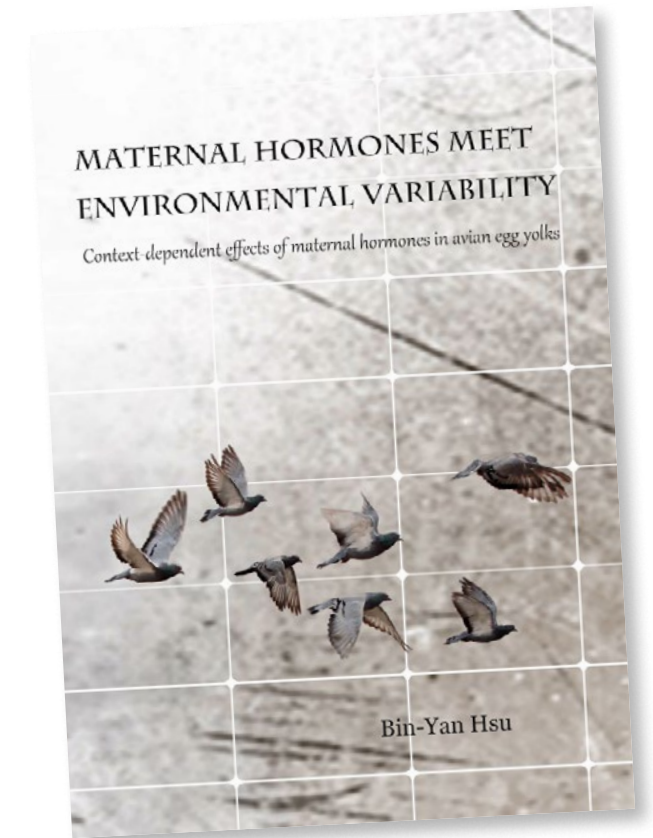
effects of maternal yolk testosterone would depend on post-hatching food conditions, offspring age, and egg composition.

The results indeed suggested food-dependent effects of maternal testosterone. Maternal testosterone also showed long-term effects far into adulthood and did not wane over age. No strong evidence of interaction between yolk testosterone and another class of yolk hormones – thyroid hormones – were found, but subtler interactions might be still hidden and require more studies.

These results provide an explanation of the discrepancy in the literature and strongly suggest the importance of taking context into account in future studies of maternal hormones.



■ PHOTO BY TESS BEKING



■ COVER BY HSIAO-YIN LIU

Bin-Yan Hsu did his research in the Department of Behavioural Biology of GELIFES. It was partly funded by the Ministry of Education. Hsu continues his career as a postdoc at the University of Turku in Finland. He was promoted on July 4, 2016.

■ EVELYN KUIPER-DRENTH, BASED ON THE PRESS REPORTS OF THE UNIVERSITY OF GRONINGEN

> CHEEKY PROPOSITIONS

"PhD candidates may profit from brain stimulation when their brain short-circuits/when they have a writer's block."

> Jozarni Dlabac-de Lange

"Professors and PhD supervisors may also benefit from brain stimulation in case of brain overload."

> Jozarni Dlabac-de Lange

"Students need to be warned about the dramatic effect that glia research can have on their personal lives. There are cases known where researchers started to relate to glia as 'friends or foes', cherish and pet them as 'watchdogs with pedigree', or idolize them as 'unsung heroes'."

> Inge Holtman

"Fundamental research, even without clear scope for application, form the essential and indispensable basis for applied studies. Emphasizing the need for "societal use" of a research proposal and distributing the amount of funding accordingly will thus in the long-term undermine the development of scientific research."

> Bin-Yan Hsu

"Those who state that pain is a mental issue ("it's between the ears") reveal the dualist within themselves."

> Marten Harbers

"It doesn't matter if a task is difficult or easy; if our visual resources are available, we will watch a cat video."

> Ioanna Katidioti

"Propositions are like tattoos. They are most meaningful on the day that they were created."

> Funda Yildirim

> COLOPHON

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