

Inaugurele rede Prof. Dr. Fijs van Leeuwen

De zin en onzin van translationele wetenschap



Op vrijdag 13 november 2020 sprak prof. dr. Fijs van Leeuwen (Leiderdorp, 1977) zijn inaugurele rede "De zin en onzin van translationele wetenschap" uit in het Academiegebouw van de Universiteit Leiden naar aanleiding van zijn benoeming tot hoogleraar Moleculaire beeldvorming en beeldgeleide therapie. Fijs van Leeuwen is tevens hoofd van het Interventional Molecular Imaging Laboratory (IMI-lab) van het Leids Universitair Medisch Centrum. In deze editie publiceert het TvNG uittreksels uit de oratie geselecteerd door Fijs van Leeuwen zelf.

Bij een benoeming hoort ook een oratie. Dus werd ik geconfronteerd met de uitdaging wat ik daar nou moest gaan verkondigen... Nou was de makkelijkste route natuurlijk geweest om een verhaal te houden over hoe we vanuit het IMI-Lab de afgelopen 15 jaar (translationele) successen hebben geboekt door:

bimodale/hybride tracers, DROP-IN probes etc. etc. te ontwikkelen voor beeldgeleide chirurgie toepassingen. Vraag is alleen of iemand daar nu echt op zit te wachten... Tenslotte weet iedereen die actief is op dit onderzoeksgebied wel wat er in de literatuur te vinden is.

Een veel relevanter punt is natuurlijk hoe de translationele wetenschap haar beloftes aan de belastingbetaler en patiënten kan vervullen. Met andere woorden, hoe we verbetering aan kunnen brengen in het traject waarin we via fundamentele wetenschappelijke ontdekkingen proberen nieuwe werkwijzen en technologieën te creëren die de zorg ten goede komen. Een uitdagend onderwerp! Deze discussie moeten we m.i. met z'n allen aangaan, want er valt nog veel te winnen! In mijn poging om deze discussie tot stand te laten komen reikte ik mijn internationale toehoorders een aantal prikkelende gesprekspunten aan in het Engels, hieronder noem ik er een paar.

Voor wie transleren we nou eigenlijk?

"I wonder what the patient would say when you ask him or her this question? I know what I would say as a patient. "I want to get the best care possible and greatly appreciate all the help I can to get better." I assume that my personal needs are not so different from those of all of you.

And here comes the challenge. For a professional translational scientist to be allowed to stay at the university, to make a career, to finance a research group, you have to run the rat race to satisfy output statistics such as numbers of publications, senior authorships, H-factors, impact factors, numbers of first-in-human

applications, numbers of patents etc. etc. This suddenly makes advancing healthcare a numbers game. Don't get me wrong, it is more than fair that paid professionals have to continuously prove their worth. And indeed, past performance provides the best insurance for future success. However, in healthcare, it should never be about "how many" or "how fast" we get a new technique applied in humans. Of course, the fact that something experimental is applied in a human being does not automatically mean it will benefit them."

Langs welke as kunnen we transleren?

"Many will say that translational medicine is about moving scientific innovations "from bench to bedside" or from "molecule to man". I myself also use such popular statements. But let's be honest, this only covers the technical aspects. Unfortunately, the statements also harm the cause by suggesting that knowledge translation only occurs in a one-way direction. While in fact the success very much relies on the interactions between end-users and technology developers. The reasoning behind this is that it is simply impossible to solve a problem that you do not fully understand. The reverse is also true, fancy tools only have value when one appreciates them and knows how they should be used.

The only way to achieve long term impact, at least in my view, is to get out of our comfort zone and learn to understand and appreciate each other's skills and views. So, to all scientist and clinicians, please listen to the patients, it will surprise you how well they know what they need. Scientists, please see which challenges expert clinicians are addressing,

they really have more skills than you think. Clinicians, please have a look at the scientist who engineer the technologies you use, non-MD's also have valuable skills. Students learn from all, as all have something valuable to contribute to your education. In short, learn from each other! Now we are on this topic. To all, please look past titles and positions. Believe me, these are irrelevant in the grand scheme of things!"

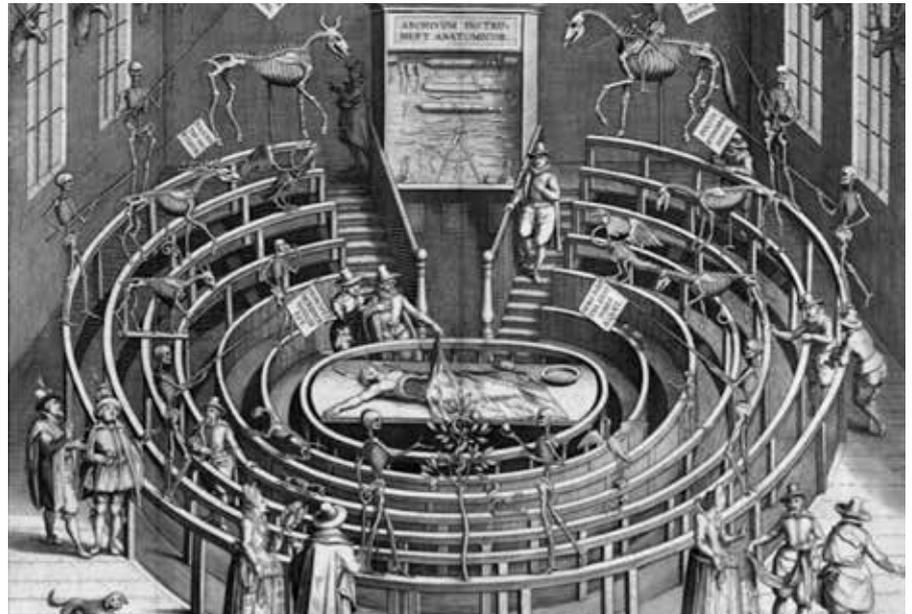
Hoe stellen we onze translationele onderzoeksteams samen?

"In academics it is very common for people to rank themselves by their specialty: surgeon, radiologist, chemist, physicist, etc. and this is often coupled to the number of years that they are employed somewhere, a kind of caste system. And some use this caste system to compose artificial translational research teams from the top down, rather than compose teams based on expertise and complementarity. Why do we continue to do this? There are many examples that show things can be done differently!

For example, in a competitive rugby team, a sport that is close to my heart, everyone has a clear task and position in the field, which is based on individual competence. Each team member also adds something unique that complements the competences of the others. In fact, on the field, each team member has the specific task to create opportunities for the others so that the team as a whole may win the game."

Welke karaktereigenschappen kunnen we verwachten van een translationele wetenschapper?

"Innovation is no magic or sci-fi, although it may appear that way sometimes. Obtaining the insights needed to advance science is often based on little more than actively reducing variables - you know the math tricks they taught you at high



school. On the other hand, getting your science translated to humans means you simply have to climb the ladder one step at a time, without falling or stopping until you have reached the top. For these tedious processes, the main predictor for success is not so much brilliance as it is perseverance and passion. In short "grit". Funny enough, when a Silicon Valley entrepreneur brags about "grit" being the reason for his/her success, we buy the book or like the post on LinkedIn. I do to! But when a refugee shows grit by crossing a continent and an ocean for a better life, some of us consider it a threat. Even when most of us are also continuously trying to improve the already privileged lives that we live with our families. This raises a very fundamental question: Is the ambition to induce progress only positive when no-one feels attacked in their own comfort zone? Unfortunately, pursuing change generally means someone somewhere will get uncomfortable for some reason. Consequently, not all interactions in translational science are equally pleasant. Again, we can take example from rugby. The rugby field is not only a good place to learn

about the fundamentals of team play, but also schools you in coping with uncomfortable situations and collisions. In front row scrummaging especially the contacts are seldom gentle. Scrummaging, however, is not so much about the initial "hit". It is all about the interactions that follow and opportunities that these interactions create for the rest of the team. It also is very much about respecting your opposing team and them respecting you for doing your job."

Alles aan alle randvoorwaarden voldaan is, hoe komen we dan aan nieuwe ideeën?

"In my view, discovering innovative technologies is about the willingness to learn more than anything else. In the end, it is all about logic and coming up with practical solutions that accurately and adequately address the medical challenges at hand. In fact, for me it is very much in line with the theory of "inventive problem solving". A concept that underfunded Russian scientists used during the cold war to keep up with their highly funded American counterparts. It recognizes innovations based on three key components: 1) problems and

solutions are repeated across sciences and disciplines, 2) patterns of technical (r)evolution are also repeated across these channels, and 3) innovations often rely on experiences obtained in a different field.

Hence, with technologies it is very much the same as with humans, they simply have more value when you team them up and provide them with a fitting context. This means we need to go out and educate ourselves in different skills. Experience and appreciate new things! I promise you, doing so will be rewarding!"

Dankwoord

"In preparing for this lecture it hit me how much of a humbling experience this all has been. The more I have learned the more I realize how little I actually know, the more skills I have acquired the more I realize which skills I lack. All of these lessons come from the interactions that I had with



all of you. Some interactions were friendly, some less so. But you know what, I value all of them! According to a famous Japanese poem "ware, tada taru, shiru", which translates into "what one has is all one needs"! This for me

closes the circle. As in life, translational science revolves around unraveling and appreciating the essence of things."

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