

This essay was written to apply for the [Young ESA SGAC Diversity Scholarship](#) to attend the International Astronautical Congress in Adelaide, Australia (2017). I was short-listed, but did not receive the award.

Part of the application was a [clip](#) on Diversity.

Diversity in Space Research

I am currently working on a PhD at the Centre for Science and Technology Studies (CWTS) at Leiden University. My research project addresses the use of quantitative metrics to measure the quality and societal impact of research in Astronomy. The ultimate purpose of my research is to contribute to improving the evaluation system such that it guarantees quality in space research.

Diversity in all its forms is an important aspect of this research.

First, diversity of talents amongst young researchers must be promoted. To achieve this, the system needs to support young scientists by rewarding their growth, rather than their academic past. Abraham Loeb, Chair of the Department of Astronomy at Harvard University, especially stresses the misconception that “scientific success is largely down to raw talent”. Nowadays, a successful researcher requires a variety of skills such as writing, team work and teaching.

Second, diversity comes from interlinking a variety of research fields, the so-called interdisciplinary research. Loeb emphasizes the importance of interdisciplinarity by arguing that novel, out-of-the-box thinking would “take us out of our psychological comfort zone, but would bring us closer to the truth”.

Third, diversity comes from the variety of approaches in the scientific endeavour. Research is humankind’s endeavour to understand the unknown and as such research is by definition risky. The conflict between the inherent need for a diversity of talents and the practical need to conform to social standards results in a fear of risk-taking, leading researchers to often “play it safe” to receive funding.

Fourth, diversity comes from encouraging differing opinions. Loeb argues that uniformity of opinions is sterile, because only the co-existence of multiple theories fosters competition and progress.

The latter three aspects of diversity can be summarised as "epistemic diversity": diversity within the research process that allows out-of-the-box thinking and innovation. The aim of my research is to study diversity in Astronomy by investigating astronomer’s attitudes towards diversity in its many forms and its promotion.

I have witnessed efforts in diversity first-hand, as Leiden University is becoming increasingly aware of its importance. Hester Bijl, the vice-rector, and the Diversity Office, advocate diversity with a strong focus on inclusiveness. “Inclusiveness means not putting people into categories”, states a representative from the Sounding Board. The Board was set up to give feedback on the diversity policy of the Diversity Office. The policy, which focuses on diversity, equal opportunities and inclusiveness, received a "Diamond" for the promotion of female scientists to top positions.

Inclusiveness of people no matter their gender, their age, their nationality or their handicap, is therefore strongly tied to the promotion of diversity. As Bijl puts it, a student population that reflects society, in terms of gender, origin, culture and religion will help ensure that Leiden University provides opportunities for all and allows people to get the best out of themselves, no matter who they are and what their background is.

I believe that, while all humans are equal in their worth, we are diverse in our talents. To me, diversity means to embrace our equal value as human beings, while at the same time appreciating and fostering our differences. Therefore diversity is incomplete without the idea of Equity: giving people the means

to foster their individual talents and encourage them to contribute to society the best way they can. “Equal” opportunities then translate to tailored opportunities to the needs and skills of individuals.

This is why “Personalised Learning” and “Individual Learning Pathways” are part of the Leiden University's plan to move towards diversity and inclusiveness. Bijl is aiming for a more accessible and flexible curriculum without logistical obstacles. She emphasises that, although she finds innovation important, it should not become an aim in itself, stating that “The main thing is that you learn from and inspire each other.” This approach of promoting diversity will in itself yield innovation.

I have personally been involved with the University's Diversity & Inclusiveness programme by receiving a grant of 5000€ on behalf of the Leiden PhD Association, which I am a board member of. The award was given by the Van Bergen Fund in collaboration with the Diversity office in the framework of "The Making of an Inclusive Leiden University" for our proposal "Going Dutch" which is aimed at bringing incoming international and Dutch PhDs together to learn about life in the Netherlands and engage in interesting cultural debates¹.

Furthermore, I have been invited to an expert meeting, “Inclusive Higher Education in 2025”, on 16th June 2017. This meeting is held by the Diversity office’s “The Future Is Diversity” taskforce. I hope to actively help shape the diversity agenda, as I believe that diversity in all its aspects is invaluable and essential for science and society to progress.

I welcome the IAF’s efforts to “promote and advance diversity and equality principles amongst a global space community”. I believe that combining IAF's 3Gs with the International Space University's 3Is (International, Intercultural & International), would allow an integration of excellent researchers and professionals of different genders, generations, nationalities, cultures and traditions. Inclusiveness and diversity enhance productivity and the quality of learning. Epistemic diversity in research avoids blind spots and diverse teams are more innovative. Fostering diversity and not putting people into categories allows for out-of-the-box thinking, which entails non-conformism and non-conceptual thinking and being encouraged to take risks.

All of these reasons are making diversity a necessity, and the fact that it is becoming an increasingly significant part of many organisations’ agendas shows the growing awareness of the importance of diversity in the space sector. If we want to make ground-breaking progress in Space Research and develop innovative technologies for the Space Industry, diversity and equity are necessary. Society directly benefits from a productive space work-force due to the fundamental scientific knowledge it uncovers and the various spin-offs the space industry creates. Therefore, through its many benefits, diversity in space has a direct positive impact on society.

¹ <http://www.magazinewise.nl/diversityday/6-van-bergen-award.html>