Environmental and mental sustainability in academia

EMYA column regularly presented by Vesna Iršič

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The theme of sustainability, evinced in various forms, has become a crucial argument of discussion in many different contexts, leading for example to the creation of the United Nations' 2023 Agenda for Sustainable Development.

In particular, academics are involved in creating a more sustainable environment under many different points of view, including the impact of their activities on climate change and on the possible arising of mental health issues.

For this reason, at the European Congress of Mathematics (ECM) 2024, held in Sevilla from 13 to 19 July 2024, the European Mathematical Society Young Academy (EMYA) facilitated a panel discussion focusing on these two relevant topics: environmental and mental sustainability in academia. The panel brought together a diverse group of participants – ranging from undergraduates to professors and including people from various European countries – who shared their insights on these pressing challenges in discussion groups. A summary of the key points raised during our dynamic conversations is presented below.

Environmental sustainability in academia

Environmental sustainability was the focus point for the first part of the discussion. The participants acknowledged that the environmental challenges that Europe faces today are deeply rooted in global developments that have been ongoing for decades. These trends, including increased consumption, population growth, and rising energy and water demands, show no signs of slowing down.

Academia, despite its positive contributions to knowledge and innovation, is not immune to these challenges. On the one hand, the environmental footprint of *business trips* is undoubtedly a factor which contributes to energy consumption and pollution. In this context, the *quantity* of trips required for conferences, collaborations, and workshops was the most significant concern. Furthermore, most of these trips are rather *short*, while they can require *long-distance* travels, sometimes to another continent. Additionally, the environmental impact of relying on *air travel* and other carbon-intensive transportation methods was identified as a challenge – especially when some destinations are hard to reach by other means of transportation. This can be caused by the distance, but also by insufficient or inefficient train or bus connections.

On the other hand, several concerns regarding the use of *resources* were brought up. First and foremost the high *energy consumption*, particularly for running simulations and maintaining large infrastructure (including air conditioning, heating, but also extensive servers), is a major issue. Of course, the construction of such *large infrastructure* was also mentioned, especially when repurposing of existing buildings would be possible. Lastly, the *waste of paper* was broached, although the availability of digital alternatives is contributing in mitigating this issue.

Current mitigation measures and future suggestions

The panelists shared various measures currently being implemented in their respective countries and institutions to mitigate the environmental impact of academic activities. For instance, in Czechia, policies now allow holidays to be chained to business trips, reducing the need for additional travel. Furthermore, some countries have even banned short flights or limited the number of flights academics can take. Universities are increasingly considering the energy usage of high-performance simulations and setting upper bounds on the number of travel-intensive events. Passive water cooling is another innovative approach being adopted.

However, the panelists agreed that more could be done. They proposed several additional measures, such as:

- *repurposing of existing buildings* instead of constructing new ones, since universities could focus on renovating and finding new purposes for existing infrastructure;
- *digitizing paperwork*, as with the current digital infrastructure, there is no reason to continue with paper-based processes;
- *sustainable transportation*, through the incentive to use more sustainable methods of transportation, even if they are more expensive. This could include promoting the use of trains for travel, especially when they are fast and reliable;
- *energy-aware research*, where scientists could report their results not just in terms of time, but in terms of energy consumption, providing a clearer picture of the environmental impact of their work. This is especially relevant for machine

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learning research, where the hyperparameter training phase often goes undocumented;
- *energetic renovation*, with investments in the energetic renovation of university buildings, focusing on efficient heating and air conditioning systems;
- a broader *investment in railways*, including the expansion of night train services, was seen as essential to reducing reliance on air travel.

A notable concern raised during the discussion was the prevalence of "greenwashing" initiatives within academia. Participants pointed out that while many universities promote their sustainability efforts, these initiatives often lack substance and fail to address the core causes of environmental deterioration. There was a consensus that academic institutions need to move beyond superficial measures and commit to genuine, impactful sustainability practices.

In conclusion, the discussion highlighted the significant role that academia plays in both contributing to and mitigating environmental challenges. While there are promising measures being implemented, it is clear that more ambitious actions are needed, both by individuals and institutions. As academics, there is a responsibility to lead by example, not only in research but also in the way that institutions operate. By adopting sustainable practices and holding institutions accountable, academia can make a meaningful contribution to the global effort to combat climate change.

Mental sustainability in academia

Academia has long been admired for its pursuit of excellence and rigorous standards, but these qualities can come at a significant cost to mental health. The culture of perfectionism, where mental toughness is often equated with success, creates an environment in which mental health struggles are stigmatized. This mindset can lead individuals to ignore their mental health needs, feeling ashamed or weak for experiencing challenges, and fearing judgment or discrimination if they speak up. Normalizing discussions about mental health and recognizing that these challenges are common and natural in the academic environment is the first important step.

During the panel discussion, participants identified several key factors contributing to the lack of optimal mental welfare in academia. One of the most pressing issues is the *lack of stability* that comes with temporary positions. The constant pressure to secure the next opportunity creates an environment of ongoing stress and uncertainty, exacerbated by the *expectation to relocate* frequently, which disrupts personal lives and adds to the anxiety of an already demanding career path. Balancing these pressures with personal and family responsibilities is no small feat, making maintaining a good work-life balance a major challenge, particularly for those with families. The relentless *pressure to publish*, driven by the "publish or perish" mentality, further complicates this balance, often pushing academics to prioritize work at the expense of their mental health. This is further reinforced by the *competitive nature* of academia.

Moreover, the *imposter syndrome* is a common struggle in academia. Many individuals doubt their own abilities despite clear evidence of their competence, leading to feelings of inadequacy and heightened stress. This is compounded by the *constant traveling* which requires academics to attend conferences and collaborate internationally, which adds both physical and mental strain. In such a high-pressure environment, there is often an unspoken expectation of *working while ill*, which not only delays recovery but also exacerbates stress. Finally, the *lack of institutional support* in some cases leaves individuals feeling isolated: without access to adequate support services and connections outside their departments, many academics struggle to cope with the demands of their roles.

Current and proposed measures for improvement

Recognizing these challenges, some institutions have begun implementing measures to support mental health, such as counseling services, mentoring programs, and mental health groups. The "holiday culture" in Europe, where vacations are encouraged and respected, also provides a necessary respite for many researchers. Additionally, mid-PhD reviews can offer valuable feedback and guidance, helping to alleviate some of the pressures faced by doctoral students.

However, the panelists proposed additional actions that could continue to improve mental sustainability in academia:
- *increasing the number of permanent, plannable positions* would provide greater stability and reduce the constant pressure to secure the next role;
- *balancing Postdoc positions and permanent roles*, aligning the number of postdoctoral positions with the availability of permanent roles: this could help mitigate the bottleneck effect in academic careers;
- allowing academics to *move between universities* while retaining the same position, especially for family reasons, would significantly simplify attaining a better work-life balance;
- introducing *pension schemes for PhD students* could provide long-term security and recognize the value of their contributions;
- *shifting away from output-driven metrics*: Academia should focus less on mere output – such as the number of published papers – and more on the broader contributions of research, including dissemination, education, and validation;
- Institutions could offer *external referrals to mental health professionals* to ensure that individuals receive the help they need.

Importantly, the panelists emphasized that these measures need to be implemented at a collective level, rather than relying on individual efforts. The mental health challenges faced in academia

are systemic, and so addressing them requires systemic solutions. By taking action at the institutional and community levels, academia can foster an environment where mental well-being is prioritized, and individuals can thrive both personally and professionally.

The discussion shed light on the need to address mental health in academia. It is essential to recognize that mental toughness does not mean ignoring mental health. Rather, true strength lies in acknowledging challenges, seeking help when needed, and working together to create a culture that values and supports the well-being of all its members.

Finally, these discussions at the ECM 2024 were just the beginning. The ideas shared during the panel underscore the importance of continued dialogue and collective actions in ensuring a sustainable future for both the planet and the academic community.

We would like to conclude by deeply thanking all participants for their valuable input, hoping to continue to raise their voices and do our part in creating a more sustainable academic environment for our generation and the future ones.

If you have further suggestions or ideas, you can contact EMYA via emya.secretary@gmail.com.

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