

# THE CHESS GAME OF GLOBAL SCIENCE

UNICAMP researcher Euclides de Mesquita Neto discusses the challenges ahead as the executive secretary of the Global Research Council, an association of more than 60 research-funding agencies on all continents

**Fabrcio Marques**

**E**uclides de Mesquita Neto, a researcher at the University of Campinas (UNICAMP) and a member of the Joint Panel for Special Programs and Research Collaborations at FAPESP, was appointed in September as the executive secretary of the Global Research Council (GRC), an organization created in 2012 to promote the sharing of best practices in research governance among more than 60 funding agencies worldwide.

He will serve in this position as a representative of FAPESP, which has been selected to provide the GRC's executive secretary over the next five years and is the first organization in the Southern Hemisphere to be chosen for the role, succeeding the National Science Foundation in the US, Deutsche Forschungsgemeinschaft (DFG) in Germany, and United Kingdom Research and

Innovation (UK-RI) in the UK. Carolina Oliveira Martins Costa, a research collaboration advisor at FAPESP, has been named deputy secretary to Mesquita.

Mesquita's duties include mediating relationships between GRC member agencies and its governance bodies—such as the Governing Board and the Executive Support Group—and coordinating strategies to support global research initiatives in areas such as climate change. Mesquita, who holds a degree in mechanical engineering from the Federal University of Paraná, has served as a lecturer at the UNICAMP School of Mechanical Engineering since 1989 and served as associate dean for graduate student affairs at the university from 2009 to 2013. In the following interview, he discusses the challenges ahead in his role at the GRC.



Mesquita Neto:  
sharing  
governance  
practices across  
agencies and  
building  
international  
collaborations

***Where is the GRC heading over the next five years?***

We discussed the future of the organization during the GRC's annual meeting in Panama earlier this year. There were three different propositions on the table. The first was to continue providing a forum where the heads of research funding agencies around the world could network and discuss global issues and common strategies. This has been one of GRC's foremost roles in its first decade as an organization. The second was to expand our role in coordinating and facilitating international collaboration. The third proposition would be to create and manage an international fund to finance global research programs.

***What was your conclusion?***

Of the three propositions, the first two are clearly feasible. There is a consensus about the importance of sharing and disseminating good practices across agencies, and the GRC is uniquely positioned to mobilize and bring different agencies together. The pandemic has made the need for collaboration clearer than ever. In the Americas, Brazil and Mexico successfully developed government-funded technology to produce ventilators, while other countries struggled to source the equipment they needed. We now also have another task at hand, which is finding and engaging new partners. There are several institutions with which we could potentially collaborate. One is the

Belmont Forum, a partnership of 27 organizations in different countries that are funding research on environmental change. As an outcome from our meeting in Panama, we set up a group that is developing a proposal to the Governing Board to expand our multilateral engagement activities. For the idea of creating a fund for global research initiatives, there are several constraints. Many research funding agencies are not legally able to invest outside their home countries. Therefore, this is not currently an avenue that the GRC will pursue.

***In what ways can FAPESP contribute to the GRC in its role as executive secretary?***

FAPESP has secured the GRC Governing Board's approval for its proposition to host the office of the Executive Secretary. What this means is that the heads of member funding agencies see FAPESP as an institution with a strong track record of international collaboration and competent governance whose values and principles are aligned with those of the GRC. In addition, FAPESP's past support has given it credentials for the role. In 2019, we organized the GRC annual meeting in São Paulo. Professor Ana Maria Fonseca Almeida at UNICAMP is a member of the Gender Working Group. More recently, Professor Alicia Kowaltowski at USP joined the Responsible Research Assessment Working Group. In addition, we're prepared to do more. FAPESP has science communication and public outreach expertise that other agencies do not. The *Pesquisa FAPESP* magazine has received praise from several member organizations. There is also work to be done to strengthen regional networks of agencies. There have been positive efforts in Europe and sub-Saharan Africa to integrate agencies and researchers. We now need to step up our own efforts in the Americas, and I believe we are collaborating and on track to get there. To date, the GRC has primarily addressed issues related to governance and research funding; however, in the future, it could amplify its focus to other research topics affecting member agencies. One example is the impact of artificial intelligence. How and to what extent should funding agencies engage in policy-making on artificial intelligence? There are several other topics that will have a significant impact on the future of research and societies and that member agencies need to focus on. These topics include issues such as climate change, energy transition, cybersecurity, data protection, and open access. Note that the executive secretary communicates with all member agencies and does have a certain level of decision-making authority, although general direction is ultimately provided by the Governing Board.

***To what extent can the GRC influence other countries' policy-making?***

There are a number of limitations. Different countries' policies are not always aligned with each other. Some countries have no policies or funding for international collaboration. In the US, the Na-

tional Science Foundation has a long tradition of funding international collaborations through the grants it awards to US researchers. The European Union has its own tradition. There, different countries interact and work together on joint programs such as the European Commission's Horizon Europe program. Another region that has had a very successful experience in integration is sub-Saharan Africa. One example is the Science Granting Councils Initiative, in which South Africa is playing a leading role. The GRC has developed and approved a vision statement on how it will develop in the future and what strategies it will implement. One of our biggest focuses is on strengthening regional participation within the GRC. This will be an important effort over the coming years, and one in which, as executive secretary, I can play a meaningful part. There are currently political tensions among many countries, but scientific diplomacy has been and continues to be an important tool to build collaboration.

***During the GRC meeting in São Paulo in 2019, one of the topics you discussed was the role of basic science and the way funding agencies are pressured by governments and society to produce research with practical applications. What progress have you made on these discussions?***

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and high-impact science. However, there is no much you can do about that. When the United Nations created the Sustainable Development Goals, for example, they sent a clear signal to the research ecosystem, which responded by creating programs aligned with that agenda. However, the German research agency DFG, for example, is adamant about not abandoning investment in basic science. They use a research classification that I think is useful, which is "known unknowns" versus "unknown unknowns." An example of a known unknown is developing a COVID-19 vaccine. You cannot be certain you will be successful, but you know what your target is. With unknown unknowns, on the other hand, it is different; you have no idea what you will need, but you have to create a pool of knowledge you can draw on in future circumstances that cannot be predicted, such as a novel pandemic. The Nobel Prize in Physics this year recognized research about atom entanglement. The French physicist who won the Nobel Prize in 2012, Serge Haroche, told *Nature* that atom entanglement was "a demonstration of the usefulness of useless knowledge." What began as curiosity-driven basic research has today provided the groundwork for quantum computing, with implications for encryption, cybersecurity and computing power that can be used in science and other fields. At FAPESP, we support applied research, basic research, and innovation and problem-solving research, all within the same agency.

***What is the risk in prioritizing funding for applied science to the detriment of basic science?***

It is precisely not having a pool of basic knowledge you can tap for applied science. However, there are other drawbacks. Going back to my example of the German funding agency, they are careful not to portray science as being there to solve society's problems. They believe that if expectations are too high, the public will become disillusioned, which could undermine trust in science. I share this concern. During the pandemic, when the vaccines started to roll out, science gained much credibility. However, this will not necessarily continue over time. Even though science has been highly successful at providing solutions and making people's lives easier,

the pressure and demands from society have continued to grow and, paradoxically, so has science denialism in Brazil.

***You mentioned the Belmont Forum, which funds collaborations on climate change, as a potential partner of the GRC. Global warming is also among the issues on the GRC's agenda. How have these discussions evolved?***

We will discuss the responsibility that science has in tackling climate change during the next GRC meeting, which will be hosted in late May 2023 in the Hague, the Netherlands. Three managers of FAPESP's Research Program on Global Climate Change—Paulo Artaxo, a physicist at USP; Patrícia Morellato, a biologist at UNESP; and Jean Ometto, a researcher at INPE—are preparing a working paper to be discussed during the 2023 meeting, which has had a good reception at the GRC. In the document, they suggest creating a Global Research Council Initiative for Climate Change. It is not just another text about climate change; they are proposing to create an actual initiative. They mention that climate change is a global issue that requires solutions informed by science but that those solutions may need local elements. The paper stresses the need for investing in mitigation but also the need to pursue an adaptation agenda. The rationale is that public policies aiming to mitigate global warming have proven insufficient thus far, and it is more realistic to use science to both mitigate climate change and to adapt to its effects.

***Where are you headed in terms of developing indicators and metrics for fair and responsible research assessment? Has a minimum consensus been reached?***

The GRC has a tradition of choosing two topics to be discussed in its annual meetings. These topics are typically developed into statements of principles to be adopted and implemented by member agencies. For the 2023 meeting, the second topic will be about recognizing and rewarding research activity and researchers. The Dutch funding agency NWO has been tasked with developing a working paper on this topic. The text, which is currently under development and discussion, identifies different aspects to be factored in evaluating and recognizing researchers and their proposals, including the need



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to diversify research careers and to strike a balance between individual researcher activities and their collective contributions to research groups, departments, schools, etc. These aspects are within the scope of the GRC's Responsible Research Assessment Working Group, which discusses approaches to research assessment that are not only based on quantitative indicators but also consider aspects such as academic leadership or each individual's background, such as the impact of motherhood on a researcher's career. There is a strong consensus about the need to diversify research metrics, and there has been vocal criticism of the use of journal impact alone to assess authors and their papers. The challenge is evaluating researchers across the full extent of their contribution, which is more nuanced than counting papers and citations. The way I see it, the crux of the problem is how to implement it. In most agencies, there is still an entrenched culture of using quantitative metrics in assessment and review processes.

***Another topic being discussed is the adoption of open science practices in an environment characterized by vigorous collaboration, open access to knowledge and extensive sharing of data. What is the GRC's position in this debate?***

This is another major challenge and, in this case, I see a number of barriers to reaching a consensus. Very different approaches have been taken across regions and even across different funding agencies. In Europe, there is a robust movement toward open science based on the rationale that knowledge created with public funding must be in the public domain. However, there are other propositions in which deriving intellectual property and economic benefits from research is also on the table. However, both the GRC and other international forums will need to operate within this landscape of differing points of view.

***The GRC also has a working group that promotes gender equity in science. Could you describe their progress thus far?***

Their initial goal was to narrow the gender gap in research and in agencies' assessment processes. Ana Almeida, a professor at UNICAMP and a member of the Joint Panel of the Scientific Board at FAPESP, has played an important leadership role within this working group. The results thus far have been promising. The group first published a survey on the gender gap in funding agencies in different regions. In a follow-up report published in 2021, they explored the survey data in further depth. The group now has a wealth of data to inform policy recommendations for agencies to reduce gender disparities. Surveys have shown that in many countries in Europe and even in the Americas, women receive just 20% on average of total research funding. FAPESP has performed better, but even here, we need to go through the data carefully and devise active policies to address the gender gap. The gender equality debate interfaces with the GRC's Responsible Research Assessment Working Group, as there is a need to rethink the processes and metrics that are perpetuating gender inequalities. Last year, the GRC's Gender Working Group submitted a proposal that was approved by the Governing Board, under which the organization's five-year goals will be expanded to include equity, diversity, and inclusion (EDI). With the proposal now approved, the challenge in the coming years will be to support the EDI agenda and keep the gender gap firmly in sight. ■