Traditional knowledge systems

The Guest Editorial by Patwardhan and Lakhotia[1] mainly talked about innovations that can be achieved in India by leveraging traditional knowledge systems (TKS) like AYUSH (Ayurveda, Yoga, Unani, Siddha and Homeopathy), for public health and medicine. The authors discuss the need for a 'fiduciary' or a respectful relationship between biomedical researchers and traditional medicine practitioners (vaidyas). I totally agree with the points made by them. However, in my view the need for trust/respect is pertinent to all stakeholders in the research environment, not just to the vaidyas and scientists or to TKS and biomedical research per se.

The Government, academia, industry and civil society organizations form the research quadrant that shapes an innovative and productive research environment. An appreciation of the inter-dependence of each other's domain expertise and the confidence to work with each other are key to making this possible. In India, however, there is an unwritten hegemony in this quadrant, especially when it comes to the government funding agencies who hold the purse strings. The attitude of the implementers of the schemes and the project reviewers is key to the success of any project, especially when it involves young researchers. Even though the situation has somewhat improved in the recent past, thanks to technology, it has not systemically changed, especially when it comes to leadership and soft skills of the implementers.

Government grants have been an important source of funds for my research in India over the past two decades. I cherish the enthusiasm and support extended by a couple of scheme implementers, which contributed to the success of some of my projects. Unfortunately, such people are rare, and not the norm. On the contrary, it is common for researchers to be treated disdainfully, with suspicion and mistrust by the scheme implementers as well as the review panel members. Lack of response, lengthy process and undue delays in the release of funds dampen the enthusiasm of researchers further. Thus, the purpose of the scheme is lost. This negative legacy continues despite younger generation replacing the old, i.e. it has become a 'culture' in the systems. Is it because the implementers are not briefed adequately about the schemes? Or are their hands tied because of a rigid system that has not evolved with times? Could it be that they are overloaded, as they claim? Since the entire country operations are handled at centralized offices in New Delhi, this maybe true. Or could it be because people with little or no imagination/leadership skills are scheme implementers?

Many new policies and brilliant Government schemes have failed because of the unimaginative and prosaic way they get executed. The implementers seem neither excited nor trained adequately to achieve the objectives of the schemes. Transformative, systemic change is required by making it more technology-driven and by capacity building of leadership and soft skills in the implementers. I am not absolving the researchers of any responsibility, but that is not the focus of this note.

Ending on a positive note, the recent research and action against COVID-19 are demonstration enough that the research quadrant can work synergistically on a mission mode, and in record speed. Hope we maintain the fervour.

1. Patwardhan, B. and Lakhotia, S. C., *Curr. Sci.*, 2021, **120**(4), 603–604.

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Response

As was implied in the Guest Editorial, we agree with the point made by Padma Venkat that all stakeholders (vaidyas, basic science researchers, those familiar with the traditional knowledge system and medical professionals/researchers) need to develop mutual trust and work in synergy to achieve the desired integration. Although the other point brought out by her is not directly relevant to the subject of the Guest Editorial, we agree that the policy implementers in funding agencies need to display the required leadership and soft skills so that research grants and other activities are optimally utilized.

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Unfolding science from the laboratory to laypersons in their native language

The Guest Editorial in *Current Science* by Gadagkar[1] entitled 'Communicating science to the general public: role of scientists and science writers' is an interesting read. It highlights the 'increasing division of labour between scientists who are content with producing knowledge and science writers who are content with communicating this knowledge to a broad audience' for several reasons. It suggests that 'there should be no division of labour between scientists and science writers' and advises that 'Scientists should not leave communication of science to the public entirely to science writers'. It has also recommended a number of excellent readings for scientists to master the skill of communicating science to the public.

The question is, how a person who has mastered his/her subject, immersed himself/herself in the field of science, and is well-versed in communicating research findings to reputed scientific journals, is not able to communicate with the general audience? The prime reason scientist's world over hesitate to communicate science to the common man is that all

through their professional career, they talk science in the English language. The non-native English-speaking scientists engage themselves more in mastering the English language. In this quest, they lose command over their native language in which they were primarily programmed to learn. Although the global need is being realized to enlighten the public about the scientific developments, scientists are hardly ever incentivized for their efforts in doing so, as far as their career growth and progress is concerned. This fact has also been mentioned by Gadagkar[1] that while sitting in selection and evaluation committees, he was often dismayed when all such efforts of a scientist who popularized scientific temper in the public domain were expunged from the list of publications of those being assessed.

The outreach of science in a person's native language is an important part of educating the common man. Educating people in their local language will increase their inquisitiveness and ignite their love for science. Such efforts will not only bring a scientific person closer to their native language, culture and heritage, but also makes them a better scientist and communicator[2]. Once a scientist develops passion for communicating science to the masses in their own language, the joy he/she will receive, cannot be measured on any physical scale[2,3].

The global mobility, communication and dissemination of scientific knowledge are key pillars of modern science[3]. To meet these requirements, a common language of communiqué within the scientific community is required. This is strengthened by English, the working language of laboratories across the world[3]. However, if science has to travel beyond the scientific community in a truthful sense, a researcher is required to speak the language of laypersons. The scientific developments have to be reflected in the linguistic diversity of the general population. Keeping these necessities in mind, scientists and policymakers across India have spearheaded their efforts in bringing science to the nation's citizens and residents in their native language[4]. We are a country of diverse languages, culture and heritage. Moving beyond the hunger of being incentivized for these contributions, our passionate collective effort can make this endeavour successful in helping our citizens reap the benefits of science.

1. Gadagkar, R., *Curr. Sci*., 2021, **121**(4), 463–464.
2. Teles, A. and Viana, F., *Nature*, 2021, **590**, 678.
3. Sugrue, J., *Nature*, 2021, **595**, 461.
4. Barath, H., *Nature*, 2019, **571**, 289–290.

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Response

I am glad that Ashok Kumar Tiwari has appreciated the message in my Guest Editorial. In addition, he has also raised the important point that inability to communicate in the native language of the public can be a barrier to scientists wishing to engage with them. This is an especially serious problem in a country like India, where people speak so many different languages. Tiwari refers to the efforts being made to bridge this gap. These efforts are laudable and need to be redoubled.

However, I must also point out that scientists do not necessarily do a great job in communicating to the public even when they and their public speak the same language, nor do we scientists do as well as we should in communicating with each other. Besides encouraging the use of multiple languages, we must therefore also make more efforts to master the art of communication itself.

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