Beyond replicability in the humanities

Correspondence

Make databases language-proof

It is absurd to put effort and public resources into research that has already been published. This will continue to be a risk as long as papers in non-English journals are not routinely indexed in the international databases (see also J. Lebel and R. McLean *Nature* **559**, 23–26; 2018).

Some national databases offer a partial solution (see J. Tao *et al. Nature* **557**, 492; 2018). For example, Ukraine's Panteleimon database (http://www.panteleimon.org) translates the title, abstract and some figure legends and tables into English. Nevertheless, people should never cite research that has not been read in full.

The scientific community needs to develop a comprehensive multi-language translation tool with the help of services such as Google Translate. This would enable international researchers to access regional databases not compiled in English and to find out all the essential details — for instance, regarding experimental design and results, or whether the paper was peer-reviewed. It would also resolve problems of priority and giving proper credit.

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Beyond replicability in the humanities

The humanities should take responsibility for quality in the same way the sciences do, argue Rik Peels and Lex Bouter, through the pursuit and institutionalization of replicability (*Nature* **558**, 372; 2018). We disagree: quality criteria are crucially different in the humanities and the sciences.

The humanities pursue meaning beyond truth. Confirming that Van Gogh painted *Sunset at Montmajour* (truth) is only the beginning. Unearthing the cultural meaning of the work requires historical context and theorizing on its message, style, aesthetics — and what the work can tell us about the artist and his world (view). The coexistence of multiple valid answers and the value of their interaction disqualify replication as a viable quality criterion.

Moreover, the humanities relate differently to their objects of study. They focus on both interactive kinds (people) and indifferent kinds (atoms, DNA sequences, paintings). Extracting meaning from interactive data requires continued interaction between informants, who might resist or embrace preliminary results or classifications. With co-producers of data and meaning, protocols are never set in stone, reporting guidelines are necessarily local and consent is always fluid.

Replication is a mark of quality only in the construction of truth for indifferent kinds. Extracting meaning from interactive kinds requires evaluation and assessment according to different quality criteria — namely, those that are based on cultural relationships and not statistical realities.

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Help relieve poverty with solar power

Of China's ten poverty-alleviation projects, its development of photovoltaic-based solar power has been one of the most successful. We suggest that other countries look more explicitly at solar energy as a way of generating income in rural areas, in accord with the United Nations Sustainable Development Goal to eradicate global poverty by 2030.

China's overall programme has lifted more than 50 million rural people out of poverty since 2013 (Y. Zhou *et al. Land Use Policy* **74**, 53–65; 2018). Solar-energy schemes launched in 2014 supplied 7.9 gigawatts of power by the end of 2017, directly benefiting some 800,000 poverty-stricken families (see go.nature.com/2jtdxjh; in Chinese). In Lixin county in central China, for example, solar installations provided an additional annual income of more than 3,000 yuan (around US$440) for every family.

Solar-power facilities provide employment opportunities, boost farmers' incomes and supply households with affordable, reliable and sustainable energy, thus also helping to alleviate energy poverty.

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Land use must abide by peace agreement

A resolution signed in June to allow agricultural development on 35% (40 million hectares) of Colombia's land could risk compromising the government's 2016 Peace Agreement with the Revolutionary Armed Forces (see also *Nature* **558**, 169–170; 2018). The agreement places strict controls on the transformation of national lands and environmentally important areas.

At present, just 20% of that land is under cultivation. How the other 80% may be used is unspecified, but we fear that ecologically friendly farming and traditional production systems — such as cattle ranching in flooded savannahs in the Orinoquía region — are likely to be replaced by more-intensive forms of land exploitation.

The expansion threatens the peace process and prospects for sustainable rural development — already a challenge in a country where only 16% of the soil is legally protected against degradation (see go.nature.com/2v997uv).

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Rectify biased take on science history

As members of the STEM Advocacy Institute, we find the typical Western view of science history distorted and incomplete and argue for more-balanced representation. Many non-Western scientists have made hugely important contributions to scientific knowledge, but their rich and inspiring stories garner little attention in the West.

For example, Hippocrates is widely considered to be the 'father of medicine' — even though the ancient Egyptians developed medicine as a profession 2,000 years earlier (see www.ancient.eu/imhotep). The first known physician in Egypt was a man named Imhotep, who was deified after his death for his medical achievements (see go.nature.com/2uxs5qd). Many such examples exist, but they are not well-known (see, for instance, J. Al-Khalili *Nature* **518**, 164–165; 2015; A. M. Celâl Şengör *Nature* **471**, 162–163; 2011; J. Poskett *Nature* **550**, 332; 2017).

This means that schoolchildren are inculcated with a history that excludes the diversity of ethnicities, beliefs and cultures that have contributed to today's science, technology, engineering and mathematics. Ignoring these reinforces stereotypes and the marginalization of certain groups, whereas balancing the narrative would positively influence those who are already disadvantaged in our classrooms.

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