*Critiques are increasingly challenging the way research is being performed. Recent scandals revealing scientific fraud have made media headlines. Meanwhile, some are challenging the established ways of measuring research. It appears that research integrity is not sufficiently ingrained in the current practice of science. So much so, that it sometimes appear like an unattainable goal. To remedy this problem, some believe that part of the solution lies in making research integrity training compulsory, even though it is far from being a magic bullet.*

## Can ethics training improve the quality of research?



### The jury is still out of the value of research integrity training

What is research integrity really about? "What many people first think of is misconduct, falsification of data," said Johannes Klumper, head of the European Commission unit, which will support the scientific advisory mechanism (SAM) in the Directorate General Research & Innovation , during a panel discussion, held at [ESOF2016](#) in Manchester in July. "But what's more important is the smaller wrongdoings or smaller weaknesses," he pointed out, "This can start with inappropriate choice of statistical methods, neglecting to cite data that are contrary to your opinion, not wanting to publicise your data."

Clearly, the issue of research integrity is not fully understood throughout the scientific community. Yet, the need for such standard to be adopted by all researchers is even more pregnant today. Research has become increasingly competitive, as scientists are struggling to get funding from the limited available financial resources. For example, in academia, "there's strong dependence on external [funding] sources and this is a huge risk for a university if you would like to see a more intrinsic culture of ethical rules and standards," said Dan Brändström, chairman of the board of Linnaeus University, in Sweden.

This prompted the *EuroScience Policy Working Group* to discuss the issues of training as one of the solutions to help promote research integrity at ESOF2016. In this article, *EuroScientist* shares the contrasted perspectives of experts on this current issue.

## Who is responsible?

The matter of "research integrity is a shared responsibility," said Amanda Crowfoot, director of Science Europe, a group of European research institutions and funding agencies, based in Brussels, Belgium. This organisation [recently published](#) a [report](#) on research integrity practices among its member organisations. "The ultimate responsibility is with the researcher," she noted, "but the funders and performers have a huge role in actually supporting that and allowing them to actually carry out good research practice."

To do so, researchers could, for example, undergo research integrity training. "There's not a lot of training available right now," said Crowfoot. She thinks that what is needed is a "train the trainer approach to really make sure that the quality of training is there." She also believes, that, where possible, provide training throughout the whole career span of a researcher from postgraduate, postdoctoral researchers right up to senior researchers.

## Disconnect in practice

However, there is a lack of awareness in the community. Currently, "Young researchers don't talk about research integrity and don't know much about it," pointed out Slobodan Radicev, member of the *EuroScience* Governing Board, who was representing the voice of early career researchers. "And when they do know about it, it's because a policy came out after a scandal happened," he noted. He believes that many young researchers say that their institutions are "reactive instead of proactive." And they stressed that funders should fund more training for research integrity and as this is what's missing.

Funders clearly have a role to play. "If you want to go down a slightly more formal route, it's even possible to look at mandating researchers who receive money from a particular funding source to undergo training in research integrity," said Crowfoot. She also believes that funders can support scientists through the provision of guidance about "how to manage your data, encourage researches to make raw data available,.... support the transition to open access."

## One size does not fit all

For example, "EMBO has a policy programme where we look at research integrity and other issues in responsible conduct from a policy perspective: looking at options, understanding gaps, thinking about how we can improve the process," Michele Garfinkel, manager of the science policy programme at the European Molecular Biology Organisation (EMBO) pointed out. This resulted in EMBO setting up training for the scientists they are funding. The organisation became involved in [EPIGEUM](#), an online training programme on research integrity.

There are, of course, [differences between the disciplines](#) when it comes to research integrity. "We decided that it should be broken down into natural sciences, humanities, social sciences and

engineering," added Garfinkel.

In interdisciplinary research, for instance, there was a question about how much scientists themselves need to understand about others' speciality to ensure interdisciplinary research integrity. A good example of this dilemma occurs, for example when using statistical methods in multidisciplinary research. When we examined this matter, "there seemed to be too many students that did not have proper statistical competences," points out EC's Klumpers.

## Trust and reliability

Many recognise that fostering research integrity in Europe partly hinges on training. However, some critiques question the reliance on private companies for implementing such training. To remedy this situation, the European Commission itself is now planing to fund research integrity training programmes. Two calls for Horizon 2020 grants will be dedicated to such training, according to the EC's Klumper. EMBO's Garfinkel expressed her support for the introduction of standardised, open and well-vetted training.

Clearly, training cannot be the only solution to remedy research malpractice. But it helps to create an "overall climate of trust and reliability," noted Crowfoot. She added: "Most of the issues are about people who did not understand the subtleties of the practice rather than stopping someone who would actually commit fraud."

Despite training's own limitations, it can still help raise awareness of the need for ethical behaviour in research. "We know many institutes have nothing [no formal research integrity policy] and we know training isn't perfect," concludes Garfinkel, "but at least there is some recognition that [research integrity practices] are important things that you as a researcher should be thinking about."

This is a topic that is far from resolved, and the EuroScience Science Policy Working Group will be looking into this issue in more depth over the coming year. If you are interested in being involved, just contact EuroScience.

EuroScience Science Policy Working Group

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