



The dichotomy between research that aims at tackling specific societal challenges and blue sky research is not as wide as expected. A new Danish study on the impact of research funded by the last two framework programmes reveals that there may be no contradiction between research being challenge-oriented and being academically influential. This gives food for thought to steer future research policy.

Can society-oriented research be academically influential?



New Danish study shows that research aiming to tackle grand societal challenges, could also be of high academic value

The social contract between science and society in Europe, underpinned by European Framework Programme (FP) policy, increasingly requires research to be oriented towards addressing social, economic, cultural, and political challenges. Furthermore, researchers themselves are increasingly expected to provide evidence for the societal impact of their research to be eligible for funding.

One hypothesis is that such challenge-oriented research would tend to lead to high societal relevance and applicability. By comparison, blue-sky research would be expected to have the highest academic impact. It is therefore interesting to compare the impact of such challenge-oriented research with that of blue sky research. This is what a [new study](#) has done. It has focused on the impact of Danish publications linked to both national--grants from the [Danish Research Council for Independent Research \(DFF\)](#) and the [Danish National Research Foundation \(DNRF\)](#) supporting basic, curiosity-driven research--and European funding programmes--namely FP6 and FP7. We found that there may be no contradiction between research being challenge-oriented and being academically influential.

The challenge in challenge-orientation

To many researchers, designing their research to meet grand societal challenges is in itself challenging. Researchers struggle with the 'impact' sections of European proposal forms. This is because the pathways from research to societal impact are difficult to predict and map. But, more so, because many researchers are traditionally more interested in the academic impact of their work.

While securing competitive funding for research is clearly connected with prestige and is increasingly incentivised, aiming for sources supporting curiosity-driven, blue sky research may still be more appealing to many researchers. Ultimately, the impact on the scientific community itself and how well received and useful research results may be, is the primary concern of many researchers.

We examined the academic impact of both challenge-orientated and blue sky research. Specifically, our new study on Denmark examined the [citation impact](#) of journal articles affiliated to Danish principal investigators funded under the sixth or seventh framework programme.

We then compared the citation impact of EU-funded research with that of publications linked to competitive funding from both DNRF and DFF, between 2005 and 2011. These are the two most prestigious national awarding bodies in Denmark explicitly supporting basic, curiosity-driven "blue sky" research. The DNRF is an excellence initiative with long term funding of Centres of Excellence, whereas the DFF has a number of shorter grant types several of which are directed towards individuals.

Impact and orientation

We found a remarkable result: the FP6 set performs on par with the two prestigious national funding instruments whereas the FP7 set performs above them. Crucially, the high performance of the FP7 set is not due solely to the excellence or blue-sky programmes, ERC and Marie Curie, included in FP7. From our data, it becomes apparent that there is no clear distinction between blue sky research programmes and challenge-orientated programmes in terms of impact.

The output generated under the challenge-oriented research theme, [The Ocean Of Tomorrow](#), is not only, presumably, societally potent, it is also clearly academically influential. Thus indicating that challenge-oriented research is not at odds with high academic impact.

The reported study does not provide any causal explanation or clear cut picture of the complex relationship between knowledge production and its societal and academic impact. It does, however, tentatively suggest that there is no inherent contradiction between being relevant towards societal challenges and being scientifically influential. This is, we believe, good news for both science and society.

Robustness

When considering the robustness of this result, at least two questions seem important. First, is there indication of a pre-selection? In other words, do only the best scientists choose to pursue the European rather than the national route to funding? The short answer is no. Both DNRF and DFF offer highly prestigious and competitive grants. And success rates are in fact significantly lower than for European project applications.

Second, can the impressive citation impact of FP7-related publications be explained by the international setting in which they emerged? European projects are typically collaborative and we might expect that the production, dissemination and exploitation of research produced in European projects will benefit from the international networks in which it was developed.

A higher proportion of FP7 publications are co-authored with colleagues located outside of Denmark, compared to DFF and DNRF. However, controlling statistically for international collaboration only to a very small extent diminishes the impact premium of FP7 funded research.

We believe that internationalisation may thus be important, but it does not explain the surprisingly high academic impact of challenge-oriented European research.

The Danish study suggests that when comparing blue sky and challenge-oriented research, the latter can lead to equally high academic impact. It should be stressed, however, that difficult questions have not been tackled. We have not shown, for example, that challenge-oriented research leads to higher societal impact. This interesting part of the equation requires indicators significantly more subtle than citations.

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