Is DIY really just for the scholarly poor?

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Abstract

Writing in the latest issue of Lab Times, Alex Reis portraits two sections of 'do-it-yourself' in the biosciences. One is the group of 'citizen scientists', some of which are organized in DIYbio.

Keywords

Cognitive Neuroscience (Subfield), Digital Humanities and Scholarship (Topic), Literature and Literary Theory (Subfield), News, DIY, Equipment, Science

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Writing in the latest issue of Lab Times, Alex Reis portraits two sections of 'do-it-yourself' in the biosciences. One is the group of 'citizen scientists', some of which are organized in DIYbio. The other group covered is that of cash-strapped biologists who create "low-cost customized devices" "out of necessity", instead of "heading for the nearest catalogue to find the best equipment to buy".

I'm not so much concerned with the attitude that the catalogues apparently hold the "best" equipment – as opposed to that equipment which will make grants more expensive and hence pull in more overhead for the university and more prestige for the PI. I'm more concerned with the impression this article gives that only the scholarly poor need to resort to DIY, whereas the first-world, well-funded, top-ranked laboratories of course always buy the best equipment from the catalogues for their cutting edge, world-class science.

Instead of denigrating laboratories who try to refrain from wasting tax funds on overpriced equipment, shouldn't one instead ask what kind of research this is, where the equipment is already being sold by for-profit companies? To look for the one thing that hasn't been put under a microscope, yet? To sequence the one gene or genome that hasn't been sequenced, yet? To amplify the one sequence that hasn't seen a PCR machine, yet? To obtain a band from the one protein that hasn't been sent through a gel, yet? To spin the one liquid that hasn't seen the inside of a salad spinner, yet? I'm exaggerating and oversimplifying, of course, but to make a point.

Quite logically, if you look at things nobody has looked at before, there cannot exist a company that provides you with a handy machine, so you just have to build the equipment or reagent yourself. Thus, in fact, every cutting-edge science by definition has to be DIY. The super-resolution microscopes for which this year's Nobel was awarded couldn't be bought in a store: Betzig, Hell, Moerner and colleagues had to build them themselves. If you can buy it in a store, also by definition, someone must have looked at something like this before and you're just following in their footsteps.

One may argue, that perhaps most, if not all breakthrough science must be DIY, simply because you cannot sell equipment that doesn't exist.

P.S.: Obviously, this post is not meant to denigrate all my many colleagues who buy all of their equipment or reagents. This research is of course very valuable and also in our lab we mostly use equipment that was designed by others than ourselves, even if it cannot be bought, and only rarely design it ourselves. I object to silly rankings and trivial comparisons in general and I only want to point out that it is very easy to argue in exactly the opposite way to counter the impression that this article is giving.