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New CVs formats allow researchers to highlight contributions beyond their publication list.

# RETHINKING THE CV

## Researchers are pushing to make CVs more relevant and realistic. **By Chris Woolston**

In December 2021, UK Research and Innovation (UKRI), the largest public funder of UK science, announced that it was abandoning the use of the conventional CV — curriculum vitae — in funding applications. The funding body said it would adopt a new type of CV to "enable people to better demonstrate their contributions to research, teams, and wider society".

As institutions and funders around the world reassess their approach to researcher evaluations, there's a growing call to revamp the academic CVs used to support applications for jobs, funding, promotions and awards. Researchers need to find fresh ways to document their accomplishments and value beyond a mere listing of publications, and committees overseeing promotions and grants need to change their protocols and expectations, says Needhi Bhalla, a cell biologist at the University of California, Santa Cruz. "CVs should reflect the authentic experience of being a scientist," she says, including mentorship, work on committees, outreach and many other contributions that don't result in publications. "I'm excited that we're in the process of rethinking them."

CVs have long been part of the currency of scientific promotion. Scientists seeking a position or a grant often feel obliged to list every publication, presentation and award in a single document intended to sway committees through its sheer length and volume. The typical CV follows a time-worn template, says Robert Morrell, an education researcher and former director of the New Generation of Academics Programme at the University of Cape Town in South Africa. " 'I was born, I went to school here, I had these publications, these are the students I graduated.' People who write CVs like that are missing the boat."

The UKRI is not alone in seeking to rethink the CV in response to a renewed focus on team science and equity, diversity and inclusion (EDI). It modelled its new CV format on 'Résumé for Researchers', introduced in 2019 by the Royal Society in London. Similar initiatives have been unveiled by research councils in the Netherlands and Luxembourg.

In response, researchers are learning how to rework CVs to emphasize quality over quantity, and to include narratives about their broader impact. Meanwhile, hiring panels and grant evaluators need to rethink how best to assess these documents.

The core problem with standard CVs is that they tend to reduce scientists to numbers, says Rebecca Pillai Riddell, a behavioural scientist and associate vice-president of research at York University in Toronto, Canada. Evaluating researchers on the basis of sheer number of publications or using related measures, such as the impact factors of the journals in which they publish, ignores many things that go into a scientific career, Pillai Riddell says. Conventional CVs "are supposed to be quick-and-dirty summaries", she says. As someone who has seen many over the years, she knows that those summaries can contain valuable information, even if the emphasis is often misplaced. "They focus on counting, not on what's important."

The 'quantity above quality' approach is especially short-sighted and unfair in the wake of the COVID-19 pandemic, Pillai Riddell says. Many researchers simply didn't have the time or opportunity to conduct experiments or crank out papers at their normal pace during shutdowns. And as schools closed their doors, many scientists who were also parents had to shift their priorities from work to home, especially women. "If we continue to emphasize quantity, caregivers are not going to be eligible for grants or awards," she adds.

Scientists and institutions alike need to reconsider the entire purpose of a CV, says Wolfgang Kaltenbrunner, a sociologist of science at Leiden University in the Netherlands. "To make science work, you need to accomplish a lot of tasks that are not easily represented in a CV," he says, such as communicating science to the general public and collaborating behind the scenes on big projects. "Are we selecting for the right things in grant funding or tenure? There's widespread discontent with it in science."

### Contributions that count

Kaltenbrunner co-authored a 2021 commentary in *Humanities & Social Science Communications* that offered ten suggestions for revamping academic CVs to make them a fairer gauge of scientific talent[1]. They include

## Building a standout CV

**Researchers should give weight to their broader contributions to science.**

When he was director of the New Generation of Academics Programme, a South African initiative to recruit a diverse cohort of promising scholars to academia, Robert Morrell worked to give young researchers an edge. In many cases, that meant helping them to build a CV that truly captured their skills and potential, says Morrell, who retired from the position in 2021. "My job was to help people get promoted."

He encourages researchers to "harvest evidence" of their work and its impact. It's especially important to keep track of things that can't be measured easily, including positive feedback from students or collaborators.

"I urge people to keep [complimentary] e-mails and file them in a separate folder," he says, such as messages of praise for participating in a big team project. "Those types of examples are really helpful, and people don't think of [including] them. They think it's immodest."

Likewise, Rebecca Pillai Riddell, associate vice-president of research at York University in Toronto, Canada, always keeps meticulous track of time and effort spent on mentoring, teaching and serving on committees. "Nobody is going to track it for me," she says. "To survive in academia, to get leadership roles, you have to advocate for yourself."

Pillai Riddell says it's easier to build a case for yourself if you organize your work systematically. "You need to create structures," she says. For example, as an advocate for under-represented students, she has set aside 2 hours of office time every week specifically for them. She doesn't keep track of everything that's discussed, but she can report how many students have dropped in. "It's about getting credit for what you're already doing."

Equity statements have become an increasingly common requirement for CVs, and universities that require such statements have experienced greater diversity in subsequent recruitment[2]. Riddell recommends including such a statement even if it's not required. "You can say, 'My commitment to equity requires that I tell you about this.'"

a new focus on "activities and outputs that are relevant". That means moving away from exhaustive lists of publications and presentations, and cutting down on 'noise' that doesn't reflect qualifications for a job or grant. Instead of including everything that has ever carried their name, researchers should list a few meaningful publications that hiring managers and evaluators could realistically take the time to read and appreciate, Kaltenbrunner and his colleagues say. "Focusing on only a few outputs saves researcher and evaluator resources, discourages salami slicing of results, improves comparison between early- and late-career researchers and renders publication hiatuses as a result of career breaks less apparent," they write. Importantly, such an approach would help to level the playing field when early-career and senior scholars are directly competing.

Pillai Riddell would welcome a résumé revolution that cuts down on reading for those who assess applicants. "I'm thinking about reviewer burdens," she says. "In my dream scenario, you'd pick two papers and provide a 200-word summary of the importance of the paper. It allows for contextualization."

Kaltenbrunner notes that many academic jobs require a covering letter, which gives applicants another opportunity to tell the story of their careers and highlight their most important papers. "They can use the narrative to fill gaps that are left by the publication record," he says.

Publication lists aren't as meaningful today as they might have been for previous generations of scientists, Kaltenbrunner says. "Science has become increasingly competitive in the past 40 years, so the publication lists have become much longer," he says. "It's not necessarily true that people have more ideas, but publication conventions have changed. Competition actually reduced the informational value of CVs."

Appraising someone according to their number of publications and how many times these have been cited also greatly favours researchers in particular fields, Pillai Riddell says. "If you're studying bird mating calls instead of cancer, you aren't going to have the same number of hits," she says. She adds that medical researchers can show up on 20–30 papers a year, an impossible standard for someone in a field such as behavioural science. Such comparisons can become important in the context of international awards that attract applicants from across the scientific spectrum. Grant-awarding bodies should embrace diversity of scientific fields as well as other forms of diversity, she says.

CVs could be more effective if they allowed room for narratives — brief statements that tell a story about a scientist, their accomplishments or their impact. "A narrative section would give them room to explain their achievements and contributions to science that do not fit traditional CV categories," Kaltenbrunner says. With a narrative section, "they could tell stories of successful engagement with a stakeholder, contributions in terms of community service, or excellence in teaching or supervision". (See 'CV snapshots' for examples.)

The term 'narrative CV' is gaining traction, but Kaltenbrunner says he's not actually a fan of that label. "It's binary," he says. "It suggests that a CV is either narrative or not narrative." He prefers 'contextual CV': "It's more about supplementing traditional CVs with other elements." He notes that the use of alternative CV formats by research councils in the Netherlands and Luxembourg has dismayed some, more senior, researchers. "Some see these experimental CV formats as an undue intervention by funders,"

ROBERT MORRELL

**Robert Morrell (in purple top) on a retreat with early-career researchers in South Africa.**

Kaltenbrunner says. "They have made a career based on existing criteria."

The Luxembourg National Research Fund says the narrative CV model, introduced last year, will "allow an applicant to be more fairly evaluated on their scientific vision, appropriate experience, and contributions to science and society". Similarly, the Royal Society's Résumé for Researchers is a narrative-based document that is focused on four key questions: how have you contributed to the generation of knowledge? How have you contributed to the development of individuals? How have you contributed to the wider research community? And how have you contributed to broader society?

## Documenting diverse work

A new era of CVs could help to promote diversity in science, Bhalla says. "Traditional metrics of what you've published, where you've published and who you've published with, are definite barriers to diversity, equity and inclusion," she says. Scientists who might not have wowed evaluators in the past with their publications and impact factors would have a chance to explain their mentorship, outreach and committee duties — areas where women and people from minority ethnic groups and other under-represented demographics often excel (see 'Building a standout CV').

In a 2019 article in *Molecular Biology of the Cell*, Bhalla laid out a series of strategies to improve equity in faculty hiring[2]. Among other things, she suggested augmenting conventional CVs with short statements that summarize an applicant's research contributions during their graduate studies and as postdocs.

Bhalla says that there's been some pushback in the science community against any sort of narrative sections on CVs. Some say that asking scientists to explain the impact or importance of their work provides an unfair advantage for people with strong communication skills while hindering people who might not be as persuasive, including scientists who speak English as a second or third language. But Bhalla says being able to explain one's research is a fundamental part of being a scientist. "Those are skill sets that you're going to need anyway if you're writing a grant," she says. "So that's one of the skills that we should be assessing."

Such messages, no matter how well crafted, will only work if evaluators are ready to accept them, Riddell says. She's encouraged by the growing number of institutions that have signed the San Francisco Declaration on Research Assessment, a framework that, among other things, discourages the use of impact factors in hiring and funding decisions.

In March, Pillai Riddell and her team at York University launched POLARIS, an online training course to help members of the university's hiring and funding committees to update how they evaluate researchers. One of the course's main goals is to encourage participants to look beyond CVs to consider EDI issues in their decisions. It includes modules in which participants rank hypothetical candidates and discuss their choices with the EDI programme manager. The training also includes videos of experienced evaluators discussing best practice. Pillai Riddell says that some of the videos captured real-life arguments, signifying the tension and passion that goes into researcher evaluation. After completing the course, participants receive a certificate that, naturally, can be included on their CV. (A version of the course is available to external researchers as well.)

The current use of CVs also hinders the career progression of scientists in developing countries who must get by with limited resources and infrastructure, says Olumuyiwa Asaolu, an engineer at the University of Lagos in Nigeria. In a 2020 opinion piece for the academic news site The Conversation, Asaolu called for a fresh approach to evaluating African researchers, including rethinking the CV. The emphasis on publications and impact factors is especially problematic, he says, partly because of costly publication fees. "It's not easy for Africans to publish in the big journals."

Asaolu, who completed a postdoctoral position at the University of Tennessee at Knoxville in the early 2000s, says that publishing while working in different countries has given him insight into disparities. "The response you get if your address is in Africa is not the same as the response or treatment you get if you're sending your manuscript from a Western institution."

In 2018, a web-based survey of 267 African researchers conducted by Asaolu and his colleagues underscored doubts about standard metrics[3]. Although the majority (59%) of respondents agreed that impact factor is a true measure of a journal's quality, only 40% agreed that publishing in journals with high impact factors should remain a major component of winning grants and promotions.

An approach to CVs that focuses more on real-world contributions — including projects that help local communities — and less on impact factors could help to level the playing field for African researchers who are applying for positions or grants overseas, Asaolu says. But he adds that young researchers can't take it on themselves to reinvent the system. As a mentor, he often assists others with their applications, and encourages them to follow existing instructions and templates as closely as possible. "Change has to be incremental," he says.

Incremental or not, changes to the format of CVs are inevitable, Pillai Riddell says. Early-career researchers can do their part by expanding their own definitions of what's worth listing and, more fundamentally, what it means to be a successful scientist. They can certainly mention a paper of theirs with thousands of downloads, but shouldn't ignore the impact they've had on their communities: "Both have a place."

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1. Strinzel, M., Brown, J., Kaltenbrunner, W., de Rijcke, S. & Hill, M. *Humanit. Soc. Sci. Commun.* **8**, 251 (2021).
2. Bhalla, N. *Mol. Biol. Cell* **30**, 2744–2749 (2019).
3. Atolani, O. *et al.* in *Globafricalisation and Sustainable Development* https://doi.org/10.2478/9783110671049-010 (Sciendo, 2019).

## CV snapshots

**These excerpts are from the narrative CVs of successful applicants to the Luxembourg National Research Fund in 2021.**

• "Alongside scientific goals, I also follow leadership ones. A four-day professional leadership course and three months of personal coaching in 2020 taught me to reflect on myself, develop my scientific vision and learn about key attributes of successful teams. I also sent my postdocs on similar courses. As a result, my team is extremely productive, with two manuscripts at the submission stage only 2.5 years after the launch of my own group."

• "I give regular talks at foundations, charity clubs and student associations, telling young people about scientific research and new therapeutic avenues in cancer. I also regularly write for national newspapers, again to transfer my passion for research to younger people."

• "I invest in the development of individuals and build up a strong team spirit by regularly taking leadership and conflict-management courses. During the COVID-19 pandemic, I put into practice various ideas on remote leadership and team communication."

• "I made a 52-minute documentary about contemporary psychiatry in my country, together with a visual anthropologist and a local production company. We worked as care assistants on a ward for three months before introducing a camera. The film proved to be a stimulating exercise in public engagement."

These excerpts have been edited for length and clarity.