

## Advice on “Success” in a Scientific Career

John R. Hutchinson, RVC, 21 May 2014

Before we go further, there are two huge questions to consider.

**Who are you as a scientist?** This is a struggle you will need to focus on from your PhD until at least sometime early in your permanent employment later in life: to find your identity. What I mean by this is not just the summary of what you do (see below for more on that). More importantly, I mean what you stand for; how you make key judgements and how you behave around other scientists. What are your values, scientifically and as a human being? You need to be reflecting on this and looking around you in life for inspiration. What is your work-life balance (or integration; do you even draw such a line)? How hard will you push to get success and what won't you do? How much time per day/week will you work and how hard or efficiently can you work when you do? What does “trust” mean to you?

**What would success look like for you?** What are your goals in life, and how does science fit into that? There is all the stuff non-scientists have to figure out like partners and kids and location and family and money and such. Then there is the reality of employment in science: it's tough out there. My advice here is focused on the “traditional path” in our field, which is to do a PhD, some postdoc/fellow time (2-6 years?), then eventually get a lecturer post and begin the climb up the academic ladder, maybe someday making it to Professor. But much of this advice would also work for other career paths, which I totally respect and support, and would be glad to speak to you about individually.

You will hear that the “traditional path” is nigh impossible these days, if you listen around the internet in particular. This is true on average, depending on what demographics you look at. But the variation about the mean is telling. Our lab has a very good record, so far, of getting its graduates into “traditional” jobs in academia, as well as in other careers. It is not 100% success but so far it seems way better than the mean. We shall see. Anyway, there is no question that it is a lottery: there are many elements of chance and coincidence involved, no matter how awesome you are. You may need to consider an alternative career at some point; keep an open mind. My advice here, which anecdotes and limited data from my past team's success support, is based on maximizing the chances of success in terms of things you can control. Worrying about the chance elements too much is not healthy, but be rationally and realistically aware of them, and consider the risks as you steer your career.

As you begin to define your answers to these two questions, you should be formulating your plan for how to make that success happen based on how you define yourself. Here are some tips for ways to do that; somewhat in order of importance especially at the beginning. There are two ingredients to success in science: your informal, intangible interpersonal self and reputation (intangibles; subjective factors mostly) and your formal, concrete on-paper-self (CV and application; blunt and fact-based, but the backbone of your argument for why you are the best candidate for a job).

**1. Reputation matters a lot!** This falls under “people skills.” Yes, there is still hope for losers and assholes in science. Just like there is “someone out there for everyone” in love, there is probably some committee member on a job panel somewhere in the world, maybe many of them, who will think you are the best thing ever once they encounter you, no matter how well you stack up against everyone else in the world in science. But you should aim to take the high road in science and not be a bitter loser or a selfish asshole, as that is probably very risky to assume you will meet that “academic soulmate” and that they will happen to be in a position of power that can ensure you succeed. How you plot that course depends on your answer to the first question above, about who you really are. I don't want my team to breed assholes. We don't need more in the world. At the very least, in your professional conduct in public and in private, aim for earning and maintaining a reputation as a fair and

honest, motivated person, and avoid a reputation as a selfish or lazy person. There are infinite ways you can do that. How you act at conferences (e.g. asking questions of presenters, interacting at pubs/coffee breaks), in peer review, on the internet, and around the lab will build that reputation. The huge importance of the human, interpersonal element in science is not to be forgotten. Related issues include:

**Letters of recommendation:** This gets talked about too little, but it's so very important. You want ~3 senior colleagues (e.g. in faculty posts) to be able to write a strong reference for you, by the end of your PhD/postdoc, from anywhere in the world. They should know your papers and your qualities well. They should be able to cover your butt if there is something about your CV that is missing, like a gap in your employment, or a nasty interaction with a past supervisor. Don't just focus on getting to know one main supervisor, but at the same time ensure that you behave so that your supervisors/colleagues can and do write you good letters. This takes some dialogue—they need to be able to manage you, but you need to manage them, too. It's hard to advise on just how to do that; you have to find your own way. Much of it comes as a side effect from good behaviour, per this document.

**Networking:** Whom you know matters a lot in a successful career. Scientists are not islands. This takes a lot of work to cultivate, and being passive about it is a bad move if you want to attain whatever success means to you. But there are so many ways to develop interpersonal relationships and build a reputation! You have the campus, the broader London/UK science community, and the world (via conferences and social media/internet) as potential audiences and environments. To engage with them, you have to become comfortable in your own skin and put yourself out there, whether by just showing up to Science Monday events and having coffees with lab/campus colleagues, going to seminars in London, whatever—just do it! Rooming with other students (e.g. outside RVC) at conferences can be a great way to meet new colleagues. Do not be afraid to make friends!

And at conferences, this engagement matters immensely. Hanging out with regulars from our lab is good as a “comfort zone” and a base to retreat to when you want to relax, but you need to get out and meet new scientists and talk about science, careers, etc. That is one of the main points of attending a conference. Think about this next time you go to a meeting and set goals, like trying to meet a new person at lunch/coffee at least once a day and talk to them. You'd be surprised how much many senior researchers enjoy hearing someone say “I enjoyed your [talk/paper] and would love to talk to you more about stuff like that—are you free for lunch or a coffee sometime?” Having those semi-private moments can be valuable in learning lessons/getting advice or bouncing ideas around, as well as just becoming well known or even developing new collaborations. That risk you take by saying “Do you have 5 minutes to chat to me?” could turn into your full-time job in the future.

It is a good idea to carry business cards with you to conferences and seminars. This can be particularly important with colleagues used to Asian cultures, where exchanging business cards can be part of normal social graces and introductions. Printing out A4-sized copies of posters to hand out with your poster is a good idea IF you are in no worry of being scooped- be careful, not all people will use those fairly (or they may accidentally use them in published work), but they can also be helpful reminders to people of who you are and what you're doing.

**Internet presence:** These days in academia, if you don't have a noticeable existence as a scientist (as a faculty member, especially) on the internet you might as well give up. Any savvy person looking to hire you will Google you and see what your digital persona is like. If you just have a couple of sentences on the RVC website and an outdated list of your papers, and no email address listed, you will miss some (perhaps many) opportunities. Keep your RVC site up-to-date and comprehensive; more or less a CV. Maintain other pages on Academia.edu and ResearchGate.net; also Google Scholar. Connect these pages with links to make it easier for your information to be found (this can boost search engine hits, too). Perhaps have a personal webpage or blog. These are just a few ways to build a digital

identity; most of these are essential in my view. Just only do a blog if you really want to; never see it as a chore you must do or it will be no fun. **At the same time, be aware that your reputation will be influenced by how you behave on the internet.** Avoid acting desperate, unhinged, scatterbrained, procrastinating, foolish or just plain inappropriate—you have no idea who will be watching you and judging you at any moment. BUT be human, show your fun side, share and try to be trusting and open- that's the kind of colleague people want. The power of the internet to build a visible, likeable, impressive persona can be incredible. It can also destroy you if you are sexist, racist, or criminal. Even at home, watch out for your online conduct. But do make pdfs of your papers available (the risk is negligible)- - you want them to get cited, and availability of papers will tend to influence citations.

In emails, watch your tone which is easy to read as it is anywhere on the internet, but emails are more personal and private, which can lead to mistaken perceptions about wording and intent. Be polite, not too familiar, and customize it to what you know about the individual. If you don't know them, be especially professional.

**Ethics:** Following the Golden Rule helps; be constructive and generous to others. Pick your battles carefully; you can't win them all, and in the long run it's often not worth a battle. But stand up for yourself without treading on others. This will help you feel good about yourself as a human being, and build a good reputation. No one is a saint, but try to take that high road. There are always decisions to be made in how we react to a tough situation, so pause at those moments and think about them carefully. If you make a mistake, admit and correct it. If someone else does, help them learn from it without shaming them. It is easy for enthusiasm to carry you through research so much that you don't notice crushing others' spirits. Try not to. This is a human experience, and you will be working with colleagues for decades to come, so you want good relationships to predominate your environment. But again, how you achieve sound ethics depends on how you see yourself and your values.

**2. Focus your efforts on building a strong CV and job application.** Key elements include:

**a. Papers, papers, papers!** Number matters, but quality matters. High profile papers still matter A LOT in many fields but the balance is slowly shifting, and papers in specialty journals (e.g. J Anat, J Exp Biol, JVP) seem to be declining in "value" compared with generalist journals (e.g. PLOS One, PeerJ). Impact factor and "prestige" are declining in importance, replaced by other subjective factors like "quality of the paper" (which has always been a criterion) as well as metrics like citations. Anyway, at the end of a PhD you should have 2-3 real peer-reviewed papers published/in press, and the rest to come as quickly as possible. Don't fall behind... playing catch-up is a dangerous game. Publish in journals, not books. A postdoc should be publishing ~2 papers a year. So at the end of a 3-year postdoc, an average scientist should have about 8-10 papers on their CV, most of them as **first author**. Watch out for playing too much of a supportive role and seldom getting 1<sup>st</sup> author papers... this can hurt you. Putting a link to your Google Scholar page (you should have one once you start publishing!) on your CV for H-index, citation statistics, etc. is a good idea. Using "alt-metrics" like social media citations is controversial but there are websites like ImpactStory that collate these for papers.

Your publications list is the first thing scientists will look at and judge you based on. If it is not seen as "good", you will not make the first cut in an application process. Avoid being average; stand out in some way. Review/comment/rebuttal papers are weighted less than primary research, but having some can help. "Moderation in all things" is a good guide. Minimal-publishable units (short/low data, superficial papers) can be good in moderation, but disastrous in excess. Be known for substance and rigorous, question-based science. Emailing pdfs of papers to key people that would be interested in them, with a personal note kindly saying that you thought they might want a copy, can be a good thing.

- b. Funding.** You may be well funded already, but consider trying to build a record of applying for and obtaining small amounts of internal and external funds; such as for conference travel. It builds skills in grant-writing, gives you personal satisfaction, looks good on a CV, can take little time, and allows you more flexibility in using financial resources, plus you might enjoy conferences a bit more if you aren't living on the cheap.
- c. Personal statements.** As cover letters for postdoc jobs, or as longer (1-2+ page) Research and Teaching statements for faculty jobs, you need to develop a strong, compelling document(s) that explain who you are as a scientist and what you do. These should be reinforced by good letters of recommendation and definitely be reflected in your CV (papers, especially), but this is where you say what you think you are, what your career goals are, and more. This deserves its own separate advice document, but begin crafting these early on (especially for research, until you get more experience with teaching). By the end of a PhD you should have 1 solid paragraph, at least, that is a well-written encapsulation of you as a professional researcher/academic. Talk to colleagues about it, see examples, but make this your own; try to convey everything that is important and unique about you, without getting cheesy, arrogant or hyperbolic. Tailor your application to the job and location.
- d. Awards.** Not having any awards/recognition on your CV is not unusual perhaps, but having some can be very, very helpful to make you stand out. Apply for competitions for best student talks at conferences or local events. Get your supervisor(s) to recommend you for awards if you have some documented evidence of success (e.g. excellent paper, strong record of public engagement, etc). This is hard to cultivate and may come with just being a good scientist, but give it some thought. Be sure any elected position you get or other formal recognition of professional success goes on your CV! Keep track.
- e. Student supervision/teaching.** Keep track of students you have co-supervised and put them on your CV! Same with ALL class lectures, practicals, tutoring, demos, etc. that you do. Be obsessive. Showing teaching/mentoring experience is very important, and hard to get in the UK (vs. USA, where you have more time for that in a PhD). Talk to your supervisor if you want more such experience. This kind of experience, alone, can be what gets you a job!
- f. Previous employment.** Generally don't put your waiter/salesperson jobs on here, but a notable experience like an industry job of relevance to your field can give your application a unique spark, or explain a gap in your employment. Often these gaps are better treated by letters of recommendation- if you get far enough in application review for those to be read.
- g. Public engagement.** It's becoming more and more important to give back to society and to communicate your science to contribute the knowledge you glean back to the public (and other scientists). There are so many ways you can do this, but keep track of all of them on your CV! List any events (with year) you've helped with (e.g. RVC open day), news stories (give URLs) about your papers etc., blog posts/sites, Twitter/social media accounts (if mainly science and not too much football etc.), and whatever else. Some experience with this can offset weak teaching experience, or help you stand out. In some career paths, it can be incredibly important. A lack of it is glaring and bad.
- h. Service.** It helps to maintain a couple of memberships in professional societies and have this on your CV, to show your awareness of and participation in SEB, SICB, ICVM, SVP etc. But moreover, it is not a bad idea to become more actively involved in something, as long as it is not a big time sink, whether it is an on-campus professional student/staff society, a journal editorial role, a London area science organization like LERN, or something larger, including one of the conference-based societies you attend. Organizing/attending sessions, becoming a student rep, etc. looks good on a CV and teaches you new things plus gets you connected. Avoid a substantial editorial role until you are a settled faculty member; it can be a big time sink!
- i. Peer review.** List journals you've reviewed for. It shows you're a recognized expert. How you conduct yourself in peer review matters for building your reputation. Whether you do reviews openly or anonymously, your conduct will become known. More in a future "publication review" advice document.