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The PhD journey: how to choose a good supervisor

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Shared interests are the building blocks of your relationship

“Choosing a supervisor is tricky because you don’t know much about them until you start working with them,” says Lewis Wolpert, professor of biology at University College London. “Instead, start by choosing a problem that interests you – it’s easier to do and just as important.”



“It might sound obvious,” says Jim Hough, director of the Institute for Gravitational Research at the University of Glasgow, “but it’s amazing how many students don’t do that.”

John Cowpe, a second-year PhD student from the University of Salford, agrees. “To get the most from your supervisor, you have to be interested in what they do. My supervisor will leap at any chance to discuss – often at great length – a topic he’s passionate about. You learn just as much from anecdotal chatting as you do from your own research.”

A good supervisor says all the right things

Your supervisor will be a mentor, friend, confidante, adviser and also a voice of reason, so make sure it's a voice you'll want to hear. "Over the course of three years, it's crucial to have someone who can encourage you when your experiments fall flat, challenge you when you become cocky and help steer you towards successfully submitting your thesis," says broadcaster and writer Simon Singh, who did a PhD in particle physics at the University of Cambridge.

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Choose a supervisor who excites you

It is essential to find a supervisor you believe in and whose work you find exciting, says Susan Greenfield, professor of physiology at the University of Oxford. "Scientists are made up of all types of people – thinkers, dreamers, practical workers – all of whom are important, but you need to find someone who thinks in the same way that you do."

You'll see many of your peers going to the City and into industry, earning much higher salaries than you, and who also seem to have more time off, says Greenfield, "so it's vital that you have a real passion and belief in your work".

Supervisors can be stereotyped – pick your favourite

So says David Hand, professor of mathematics at Imperial College London. "At one extreme, there are the most eminent senior academics with considerable experience. Their reputation and influence can rub off and they can introduce you to other big names, but they may not be able to give you as much of their time as is desirable."

At the other extreme is the junior academic, says Hand. While they have less experience, they have more time to spend on your project. This is an important factor to consider, says Vivienne Raper, a recent PhD graduate from the University of Bristol. "If you're not at your most motivated, an absent or distant PhD supervisor can be a recipe for months of procrastination."

Another option is to choose a supervisor close to retirement, suggests second-year PhD student Stefan Rohmoser from the University of Southampton. "They are more likely to have a relaxed attitude, as they've seen it all before. Their students won't be running blindfolded into an overly ambitious project. They will be given interesting work which their supervisor knows is going to provide enough results to comfortably finish a PhD."

Personal chemistry is important

Once you've found a supervisor you'd like to work with, go and meet them, says Greenfield. "The real issue is to see whether the chemistry is right," she says. "Think about whether your prospective supervisor seems like the sort of person who will be there when you need them."

While you're visiting potential supervisors, try to meet some of their current students as well as other colleagues in their group. "I always tell PhD candidates to talk to my students," says Carolyn Stephens, senior lecturer in international environmental health at the London School of Hygiene and Tropical Medicine. "They know things about me that I don't know myself."

You can get a real feel for the mood of a department by chatting to current PhD students, agrees Singh. "Buy them a coffee and a doughnut, and ask them if they enjoy being part of the research group."

See a variety of people

If you have the opportunity to sample different supervisors at the beginning of your PhD, definitely take it, says Gerd Gigerenzer, director of the Max Planck Institute for Human Development in Berlin. "That gives you more time to work out who you would work best with."

Research councils are also starting to move towards multidisciplinary projects, which means you might get to work with more than one team, says Stephens. "There's a lot of encouragement to cross boundaries between disciplines. If this is the case, make sure your supervisor is willing to put you in touch with scientists from other subjects."

You will also find help from those closer to home. “Remember that on a day-to-day basis you will spend more time working with students and postdocs than your supervisor,” says Hough. “So it’s important that there’s a good social environment. Usually that means a reasonable-sized group.” This was important for Singh: “Being surrounded by postdocs, lecturers and other postgraduates willing to advise and guide me was invaluable.”

Keep channels of communication free from static

If you feel like your supervisor is talking in a foreign language, don’t panic. “Often in one-to-one meetings, you will understand what your supervisor says at a basic level, but will only have a good grasp of the implications and ramifications towards the end of your PhD,” says Hand. “Don’t be afraid to ask questions if you don’t understand,” agrees Gigerenzer. “Openness is key.”

Prepare to take the reins

“A PhD is part apprenticeship and part equal partner. Ideally, the balance between these two modes shifts to the latter as time goes on,” says John Krebs, professor of zoology at the University of Oxford. “It’s a bit like learning to ride a bike,” says Greenfield. “You start off on the back of your mother’s bike. Then you get your own tricycle, then a two-wheeled bike with stabilisers. Finally your stabilisers are removed.”

Science shouldn’t be too safe; you shouldn’t be too protected, she says. “Being trained to cope with failure is one of the most important parts of your PhD. If you don’t know failure, then you’re not being stretched enough.” That said, you will reach the point where you know more than your supervisor about a specific aspects of your research. “This should certainly be your goal,” says Gigerenzer.

Be unique

It is vital that you don’t compare yourself with other PhD students, says Jim Al-Khalili, professor of physics at the University of Surrey. “Students can get frustrated if they feel they are not making progress at the same rate as others, but your progress depends on so many factors. Some students publish many papers, others only a few. Some will quickly churn out results while many don’t feel ready to carry out original research.” This should not concern you, says Al-Khalili. “There is no standard formula for how research should be done.”

Carlos Alegria can appreciate this fact better than most, having completed not one but two PhDs, first in physics and then in finance. “Each was unique and you have to accept that there isn’t one single rule that everybody can follow,” he says. Stephens agrees: “A PhD is an incredibly personal journey. Be prepared for it to raise all sorts of personal issues about whether you’re up to it.”

Give as much as you take

The later stages of a PhD are when students contribute the most to their field of research, but you should try to make yourself indispensable as early as possible in the process, says Gigerenzer. You will acquire specific skills very quickly. These can prove useful if you find yourself able to help out when your supervisor is under pressure, he says. “It’s like children who find they can do something better than their parents – wonderful.”

You also have a unique perspective as a fresh face, says Gigerenzer. “A newcomer has a better chance of seeing holes in an idea than those who have been immersed in a project for a long time. Any discipline can be improved, and an outsider’s perspective can help.”

It’s a love-hate thing

“People often end up hating their supervisor at some point,” says Stephens. “I usually expect my students to hate me somewhere in the middle of their PhD.”

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“At the beginning of your relationship you don’t know each other well, so things are usually cordial,” he explains. “Then you move towards respecting your supervisor, then to not respecting them at all. Finally you break away and begin critiquing your supervisor and their work.”

A fluid relationship means that if you don't click with each other from the start, it's not a disaster. But if your relationship really isn't working, universities usually have ways to rearrange supervisors, says Stephens. "Quite often it's a mutual decision – the student's research interest might change. It's not looked upon as a bad thing."

Get more out of your relationship than a good degree

"Immediately after my first PhD, I thought the most important thing I took from my supervisor was technical knowledge," says Alegria. "Now it is clear to me that I learned much more. Even rejected papers, negative feedback and personal problems can all add up to an invaluable lesson in life."

"My graduate adviser became a close friend immediately and we've stayed close for 30 years now," says Steven Pinker, professor of psychology at Harvard University. "Several of my former students also remain close friends. Two of them were the official witnesses at my wedding."

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Storm warning

In 2006, Juma Almaskari completed a PhD in atmospheric numerical modelling at the University of Leeds. Just a few months later, Almaskari used the techniques he had developed as part of a team which successfully predicted the landfall of Gonu, a tropical cyclone that was heading over Muscat, the capital of Oman. His calculations prompted the Omani government to take immediate action, potentially saving thousands of lives.

Why did you choose to do a PhD?

I was working for the Omani Meteorological Department when the implementation of a numerical weather forecasting model prompted the need for some local knowledge in numerical weather predictions. This was when I was nominated for my PhD.

What were the best bits?

The overall feeling of achievement and also the experience you get by meeting so many scientists in your field.

And the worst bits?

Getting some odd results from your models which you can't explain. This isn't unusual when doing a PhD, but the hold-up can make you panic, especially towards the end.

Any tips for those thinking about doing a PhD?

As someone who came from overseas, I didn't get to meet with my supervisor before starting my PhD, but if you have the chance, make sure you do. I would also advise students to continually discuss their work with other people in their field – not just their supervisor.

Words of wisdom

"...Check how big your supervisor is in their field. A supervisor who is respected and has lots of connections will potentially be able to draw in help from elsewhere if it's needed."

Russell McLaughlin, first-year PhD student at Trinity College, Dublin

"...Make sure that what your supervisor expects from you suits your own work ethic."

Emily Burden, second-year PhD student at the University of Birmingham

"...Schedule one-to-one meetings at least once a month, even if you see your supervisor every day. It's all too easy to feel like you're keeping up to date when in fact you're on a different page altogether."

Carolynn Dude, final-year PhD student at the University of Cambridge

Jungle fever

Elizabeth Pimley completed her PhD in the depths of the Cameroon rainforest, studying the behaviour and ecology of bushbabies and pottos. Communicating with her supervisor by letter and the occasional fax, Pimley struggled with cultural differences, loneliness and even witchcraft, just to follow her love of research.

Why did you choose to do a PhD?

I thought it sounded like a great project. I had wanted the chance to carry out my own research on these secretive animals in a fascinating and novel country.

What were the best bits?

Living and working in a beautiful rainforest, surrounded by such intriguing primates, and carrying out my own research. It was also amazing to live with people who still practised witchcraft.

And the worst bits?

I found that working in a small, remote village with people of a different culture to me could be quite lonely at times. And although Cameroon was a beautiful country, it was plagued by corruption. You often came across road blocks managed by the police, who would find ways to extract money from passing motorists.

Any tips for those thinking about doing a PhD?

If you have a burning desire to do your own research and don't mind spending a few more years earning a fairly small salary, don't let a fear of the unknown stop you.

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