

CAREERS

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EDUCATION

The gamble of a PhD hiatus

Pressure to barrel through a PhD can make taking a break seem daunting — but there are ways to limit career damage.

BY ERYN BROWN

Life can get in the way of science, forcing PhD students to take time out from the pursuit of knowledge and the lab.

It can be a tough call for students to make. Immersed in their work with no assurances of a great job, driven to scour the literature to stay current and primed to worry about competition and impressing their advisers, many PhD students think that academic success is everything. For them, nothing comes before their studies and research programme.

Breaks are risky — there is no way to ensure

a smooth return to studies, funding and the bench. University policies governing gap time vary across nations, regions and institutions, and maintaining funding and research continuity can pose hurdles. Attitudes towards time off also differ widely. Many faculty members and potential future employers look askance at a doctoral student's decision to step aside, even for a brief period.

Your capacity to put your PhD programme on hold will depend largely on your field, your institution and your advisers. In general, you can take a break when you need it, as long as you are prepared for the consequences

— particularly if you aim to pursue an academic career. The decision could affect your reputation, publishing record and ability to stay current with your research programme. But with careful planning, there are ways to soften the blow (see 'How to take a successful break').

Few statistics exist on how often, for how long or why PhD students take time off from their studies. In the United States, neither the National Science Foundation nor the Council of Graduate Schools tracks leaves of absence or can point to a central source for such data.

Some individual institutions provide estimates of how many PhD students have ▶

► taken breaks each year. Heather Amos, a spokesperson for the University of British Columbia in Vancouver, Canada, says that about 50 PhD students out of nearly 4,000 across all disciplines, or about 1.25%, took a leave of absence in 2015.

Martin Grund, spokesperson for the Max Planck Institutes' graduate-student organization, PhDnet, says that his group doesn't track leaves of absence.

But, he says, internal surveys show that 7% of doctoral students at the institutes in 2012 were parents, and so had probably taken parental leave at some point.

“The way technology is changing, taking a break can become difficult. How do you stay cutting edge?”

Some funding agencies allow for certain interruptions of study, including care for children and elderly people, professional development and other life needs. Some universities permit students to retain access to campus services while on leave for a variety of reasons; others have no defined policy.

Anecdotally, it seems that few PhD students so much as think about a pause in their programme. “I think most don't even consider it,” says Heather Buschman, who earned a PhD in molecular pathology from the University of California, San Diego, School of Medicine after taking six months off for a US National Cancer Institute communications internship in 2006. “They think, ‘I could never do that. People are on such a focused trajectory and see any wavering as a negative.’”

There is a great deal of external and internal pressure to race to the finish, agrees Gareth O'Neill, a PhD candidate in linguistics at Leiden University in the Netherlands. “Doing a PhD is a relatively focused and driven occupation — once started, you just want to finish it,” he says.

As a board member of the PhD Candidates' Network of the Netherlands, O'Neill is involved with an initiative called the Professional PhD Program, which helps to place PhD students who seek work experience outside academia. O'Neill says that the programme rarely receives applications from students who feel they need to stay at the bench throughout their doctoral studies, but that those who do apply sometimes experience pressure from supervisors to finish their PhD sooner. That pressure, he adds, is misguided or inapplicable — particularly from mid- or late-career scholars, who don't know or who don't want to admit how hard it is for new PhD students to remain in academia now. “We hope to bring about a shift of mindset,” he says.

HIGHTAIL IT OUT

Still, when the need for a hiatus arises, some don't hesitate to take it — and then sail through their leave and back. Earlier this

year, Anna Miller earned a PhD in parks, recreation and tourism management from North Carolina State University (NCSU) in Raleigh. She says that she never questioned her decision to leave her research behind for half a year, when her Brazilian fiancé was offered a postdoctoral appointment in Portugal. The travails of a long-distance relationship had become burdensome, and she wanted to join him abroad. “Academically, I was getting a bit burnt out, but it was really the strain on my personal life that was the problem,” she says. “If I was going to stay in the programme, I needed to deal with the personal part of my life.”

Her adviser was concerned that she might not come back, and Miller herself says that she left for Portugal knowing that might be true. But in Lisbon, she found herself drawn to nearby parks, and started studying how they were managed, just for fun.

“It was a refreshing way to look at the same questions from a different perspective and reaffirm my desire to study this subject,” she says. “I came back with new energy for being a full-time student.”

Re-entry turned out to be easy. To get approval for a leave of absence, Miller and her advisers had already agreed on a formal plan for her return, charting out how she would later complete course work, research and exams.

They had also predetermined how Miller's funding, which was suspended while she was away, would be reinstated. Everything unfolded as planned — and Miller became treasurer and then co-president of her department's graduate-student association. She also began to mentor other students and to organize career panels and other programmes.

Three years on, Miller and her fiancé have since married, and she is now a resident lecturer at the School for Field Studies Center for Marine Resource Studies in the Turks and Caicos Islands. She teaches undergraduates

who are studying abroad. “I can't think of any negatives of taking the time off,” she says.

Others also report a positive experience. “Ideally, I'd say don't take time off, but if you do, don't judge yourself harshly,” says Jen O'Keefe, a geologist and science-education researcher at Morehead State University in Kentucky.

She took a pause from her PhD studies in 2002, after a working relationship with an adviser fell apart. Ultimately, she devised a new plan that combined part-time work on her doctorate with a full-time teaching schedule.

Looking back, she thinks that her research career benefited from the five-month break, which enabled her to refocus her work towards palaeoecology and curriculum and instruction, as well as a variety of other pursuits that she loves. “Everything from fly-ash geochemistry to honey studies to sinkholes,” she says. “No two PhD situations are the same. You have to do what's right for you.”

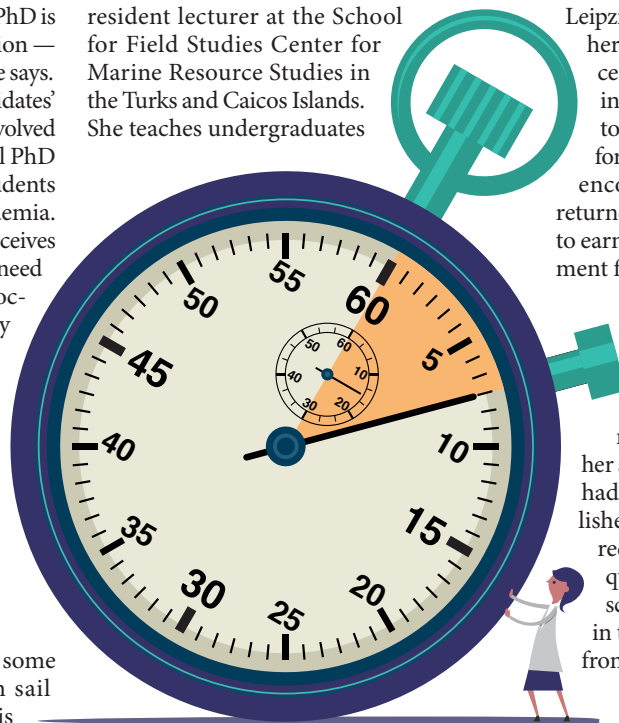
Some think that their field of study smoothed the way. Benedikt Herwerth, who studies theoretical quantum physics at the Max Planck Institute of Quantum Optics in Garching, Germany, says that he had little trouble setting up two stints of paternity leave, for a total of seven months, after the birth of his daughter in February. He says that Germany's generous approach towards parental leave helped, but that his field of study might also have facilitated the interruption. “I'm not doing experiments,” he says. “It might be an advantage.”

PERSONAL BARRIERS

Even when there are no obstacles to taking time off, trouble might arise that complicates a student's return. Eleanor Harding, a doctoral candidate at the Max Planck Institute for Human Cognitive and Brain Sciences in Leipzig, Germany, has taken two breaks from her PhD research on how the brain processes music and language. The first was in 2011, when her mother died. Harding took several months off. “I lost my edge for quite a while,” she says. “But my adviser encouraged me to keep going.” Harding returned to work later that year and expected to earn her degree in 2013 — until an experiment fell through, which caused delays, and pregnancy complications rendered her unable to work.

In May 2014, after her daughter was born, Harding returned to her research, but she found that she could not afford enough childcare to resume her studies full-time. In addition, while she had been out, other researchers had published work in her area, so she had to redirect her research to examine a narrower question that would respond to the other scientists' work. “Now, unfortunately, I'm in the middle of the pack instead of at the front,” she says. “I can't say I was the first.”

A gap of just one year can put a PhD candidate behind when it comes to



DAMAGE CONTROL

How to take a successful break

Even when you know that stepping away from your PhD studies makes sense, it can create problems, from disruptions in your research to unmerited damage to your reputation. To finish your programme and launch your career, try to take these steps.

- **Plan, plan, plan** PhD candidates who successfully take leave say that charting out their eventual return was as important as departing in the first place. Make sure that you understand how your time away will affect your funding, teaching responsibilities or other roles in your department. Plan how you'll continue your research once you return, even if you think its specific direction could change.
- **Find your champion** Make sure you have a person in your corner — ideally, your adviser — to stick up for you when you encounter resistance. “You have to have someone who would say, ‘This person is worth carrying for six months, or a year, because they bring great value to my lab and to the institution,’” says Nathan

Vanderford, who researches training issues in academia at the University of Kentucky in Lexington. “You have to have an advocate.” Others, including savvy administrative staff, can prove key in the nuts and bolts of making arrangements.

- **Open your mind** One reason that students decide not to take a leave of absence is because of fear that it will damage their chances of getting a conventional academic job. But a little experience outside the ivory tower might teach you that you would actually be happier applying your degree elsewhere — in industry, for instance. “All the things I really liked the most were the things most scientists hated,” says Heather Buschman, who earned her PhD from the University of California, San Diego. In Buschman's case, having an adviser who had worked as a clinician and encouraged her to pursue a different direction — communications — was crucial, she says. **E.B.**

mastery of important technological advances, warns Kim First, president and chief executive of the recruiting firm Agency Worldwide in Encino, California. As a headhunter who searches for PhD graduates for jobs in biotechnology and pharmaceutical companies, she says that she encounters few candidates who have interrupted their doctoral programme. “The way technology is changing, taking a break can become difficult,” she says. “How do you stay cutting edge?”

Other recruiters say that taking time away to have children or for other life events can hurt a researcher's scientific reputation, and that students should find ways to incorporate those obligations into their PhD programme without putting their research on pause.

Some think that the stigma might be worse for women. Justin Schwartz, head of the materials science and engineering department at NCSU, has helped students to organize leaves of absence. When it comes to parental leave, he says, women are more likely than men to take the time off — but those who do are often terrified (sadly, with some reason, he notes) that faculty members will think that they lack the drive to be the best and will extrapolate that women aren't suited to doing science.

But whether female or male, most students experience one clear consequence after taking the break: they lose momentum. Harding says that although there was a benefit to delaying her dissertation — a competing paper helped her to solve a problem in her data — she now has few job leads near

her husband's medical residency in the Netherlands, and attributes that to having lost potential publications and chances to attend more conferences.

“Your worth is based on quantitative measures like an impact factor,” she says. “They want people with publications. Life doesn't always cooperate.” Harding is now networking locally — getting involved, for instance, with a organization in the region that funds research into Parkinson's disease.

O'Keefe wishes that the harsh judgement weren't there, but says that it seems specific to academia. “People feel badly and a lot of scientists out there judge them harshly,” she says. “There's a lot of, ‘If you had to take time off, you're not really good enough to finish.’” She says that many early-career scientists she knows who interrupted their PhD programmes eschewed academic research in the end, and instead, accepted positions in industry or teaching. Now in her early 40s and a mother, she says that she wouldn't have done anything differently, and looks forward to expanding her research.

“I was on the fast track and I was moving too fast,” she says. “A lot of good comes from taking a break and reassessing your priorities. A year off is sometimes the best thing you can do. The big message is, it's OK and you're not alone and you can go on to be what you want to be.” ■

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TRADE TALK

Industrial shift



As a staff scientist at Thermo Fisher Scientific in San Diego, California, Shikha Mishra investigates how to deliver DNA and other materials into cells and organisms. She explains how

and why she left academia for a job in industrial research.

Describe your workday yesterday.

I had run an experiment the night before and had a bunch of data. I analysed them for about an hour and talked with my manager about what I'd seen and tried. Then we formulated a plan and I went back into the lab and set up another experiment. That was pretty standard — very similar to what goes on in academia.

How did you learn about jobs outside academia?

My father was an industrial physicist, and I knew that he was happy. But my biggest difficulty was that my friends and I didn't understand where we could fit within the biotech industry. I didn't know the different sectors: manufacturing and quality control, marketing, product management and development. The way I learned was buying many, many cups of coffee for working people who agreed to meet with me. I'd ask: “What do you do? How did you find this opportunity?”

When did you decide on industry?

Four years into my postdoc at Harvard Medical School in Boston, Massachusetts, I was happy and my projects were going well — but the commitment time-wise was extraordinary. It was 7 days a week, and there were times when it was 14 or 16 hours of work a day. I was coming to a transition because I was about to get married. I thought: “Life has got to fit into my career plans.”

What do you wish you had done differently in your job search?

I wasn't thinking past the grant deadline or the next publication. I should have had a LinkedIn profile before starting my job search, because I had to track down old friends — contacts whom I may not talk to every day, but who'd be happy to help me. ■

INTERVIEW BY MONYA BAKER

This interview has been edited for length and clarity. For more, see go.nature.com/2fwrzyg