



Credit: Nianping Liu

A PhD is more than the sum of its publications

Comparing the experiences of students at Menzies Institute, PhD student Fan Li reflects on the importance of publications across disciplines, but argues that these should not detract from the benefits of PhD training.

At the Menzies Institute for Medical Research, in the study room on level 3, there are two types of PhD students. One is the biomedical PhD candidate (laboratory-based) who works on a basic research topic in a wet lab, just like me, whose study focuses on retinal gene editing in animal models. The other is represented by my neighbours, students pursuing a PhD in epidemiology and clinical research. Despite these branching clades of science, each track comes with its own challenges.

My first challenge was overcoming the steep learning curve at the start of my candidature, mostly in part due to limited experience in basic laboratory research. The classical adage, ‘see one, do one, teach one’ emphasized in clinical training suddenly becomes ‘see one, do one, fail one’ in the laboratory setting. Here troubleshooting is just a part of life. Although my experimental techniques became more reliable over time and my project later came to a promising fruition, my time spent at Menzies was never without its fair share of drama. Sometimes, a hypothesis that would seem very promising would somehow end up with negative or unexpected results. The manuscript of my first PhD project recently got accepted. Looking back, I realized that I had spent far more time on the project as a whole than the published data would seem to indicate. If the time spent generating publishable results were to be considered as productive moments, were the other countless hours spent troubleshooting not worth acknowledging? The answer is of course they were. The research training and the troubleshooting with my supervisors helped me throughout the rest of my PhD.

Comparatively, the epidemiology-based PhD pathway that my neighbours are taking seems smoother. At the beginning of their candidature, they took statistics courses and then employed these sophisticated statistical analyses to investigate various health-related areas from multiple sclerosis to sedentary behaviour, etc. At the onset, their data was already available to them. This allowed

them to start the writing process sooner than most lab-based PhDs. As such, it was not uncommon for them to have more published papers during their candidature and to experience, overall, less stress during the final write-up of their theses. This didn’t mean, however, that they didn’t have their own obstacles during their PhDs. For example, students may have had different yields in papers due to differences in the original study designs, data collection speeds and statistical analysis methods. Because the data was secondary, they had little control over it. What is more, their progress could be hindered by outsourced work, such as primary data collection or complicated analysis done by a professional statistician. The grass is always greener on the other side, but the fact is, many of our concerns are shared.

Despite being occupied by our own tasks under different daily working schedules, sometimes we managed to have a little chat over a coffee break. Collectively, we shared an interesting and recurrent Tuesday symptom—stomach churning—right before our weekly group meetings, during which we would report progress with our supervisors and fellow students. The mutual challenge for us regardless of our disciplines or topics was that we were all expected to finish three or more high-quality research projects within our 3.5-year PhD timeline, ideally generating one paper per study within the scope of our thesis. Although there is no formal publication requirement for PhD graduation at Menzies or other institutes in Australia, we are still burdened by the weight of our expectations to publish in high-impact-factor journals.

We share these pressures across not only different PhD tracks, but also across different universities and countries. The focus on high-impact-factor journals and the requirement to publish is also prevalent in my country of birth, China. In China, most PhD students in medical research have to publish one or more papers prior to graduation, with varying journal impact factor requirements. This is particularly

stressful as the overall trend is for the journal impact factor requirement to rise every year. Other countries may have different PhD graduation requirements, but nonetheless, the pressure to publish remains a shared symptom among students worldwide.

Publication pressure during PhD training is not all bad: getting research work peer-reviewed and published is a vital training process for PhD students. This process can improve one’s reading, writing and data analysis and can help us gain new insight into a finished project. What is more, getting papers published indicates the official completion of one study, enabling us to move on to the next project and providing us with visible milestone towards the completion of PhD.

Nevertheless, published papers should never be viewed as the most important aspect of PhD training. What is more important is that the processes underpinning publication—original and critical thought—is learnt and applicable to a wider scope beyond the PhD candidature. Although this invaluable skill may be less tangible than a portfolio of published papers, critical thinking is a lifelong job requirement for a career in research. Therefore, publication output should not be the sole measure of success for PhD students.

A PhD should be viewed as a precious training journey, not a race. Students and supervisors should not lose track of the importance of the many other aspects of what it means to train for a PhD. □

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