




**DAVID
MAXWELL**

Buíochas, Éire! 



Me Publications Thesis Things

Writing Up

The most intense thing you'll ever do?

PhD Writeup Hell - August 2018

What is this Page?

A Friendly Reminder

Doctor's Orders

Your Everest

Before you Start

Keeping on top of Admin

Planning your Time

Writing!

Looking after Yourself

Dealing with Others

Submitting and Viva Preparation

Taking Stock

This page puts together different thoughts, tips and quotes from myself and others to give you a better understanding of the PhD writeup process. I think it's fair to say that for most people, writing up a PhD thesis is probably one of the most intense, drawn-out things that they will ever do. Because of the sheer size (and complexity!) of the document you have to write, it can induce a significant amount of pressure and stress. I hope that the advice (or just being able to freely acknowledge to you that the process is difficult and time-consuming) can help someone, or provide some form of comfort. **You are not alone, and you will be all the better off for ultimately succeeding, even though it may seem incredibly daunting at the start.**

I was asked to put together a presentation about my experiences of writing up my own PhD thesis. [I gave the talk to PhD students](#) at the [University of Glasgow's School of Computing Science](#) on May 15th, 2019. Those watching the talk said they appreciated the honesty – and also appreciated some of the advice that I gave. Of course, this was originally in presentation form – however, interest from further afield made me think it might be useful for someone if I spent some time writing down what I said, too!

Please also be aware that this was made with a **STEM PhD** in mind. As I'm a former University of Glasgow student, parts of this page are geared towards students in the [College of Science and Engineering](#) at the [University of Glasgow](#) – however, I did try to generalise where I could.

I also submitted and defended a PhD thesis that was hundreds of pages long. It took a lot of time and effort to plan and write. Take the advice and what I write from here with a pinch of salt; your mileage will undoubtedly vary depending on what you're studying, where you're studying it, and what you are looking to achieve.

It's a bit long, but I have a lot to say. To make things a bit easier to digest, I've also put in summary boxes to give you the gist of the important paragraphs. If you're viewing on a computer with a sufficiently large screen, they'll appear on the right-hand margin; otherwise, the key message will be presented underneath the paragraph.

Hello, world!

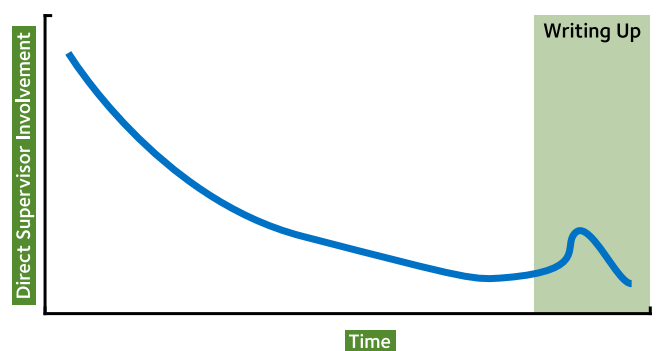
A Friendly Reminder



Doing a PhD sometimes feels awful. Many of my friends (and myself) admit to having suffered from [impostor syndrome](#), where you continually think that your work is not good enough and that *you're a fraud. Yeah, it'll only be a matter of time before your supervisor realises that you're no good(!)*. Remember that it appears to be normal to think that way. I think (you can correct me if you think I'm wrong) that it's a sign of intelligence. The more you read, the more aware you are of how much you *haven't read, and thus don't know*. And because you realise that there is so much that you don't know, you feel stupid. How ironic. But don't let that get you down. Don't expect those feelings of inadequacy to fade away over time — you just get used to having them, I think. A very successful senior academic told me that even after 20-30 years on the job, they still feel like they're [winging it](#) some of the time.

It's a Learning Process

Several of my friends who are early on in their PhD have expressed dissatisfaction and disappointment in themselves that they cannot write a research paper by themselves. They say that their supervisors are doing a bit of 'hand holding' — such as fleshing out sections of a paper they're working on with their student. That's normal, and it's their job (as long as you are involved)! By going through this process a couple of times, *you learn how to do it yourself!* By the end of your PhD, you'll have learned enough to be able to go through the motions by yourself. A good supervisor will be heavily involved in your work at the beginning as you learn the ropes — just as I show on the graph. He or she should take a backseat over time, leaving you in control. *And trust me, by that point, you'll then be experienced enough to be in control!*



From my experience, I remember back in 2014 working with my supervisor every day on the [first full paper](#) I got published (and [subsequently presented in Germany](#)). Towards the end of my PhD in early 2018, I thought of an idea, designed a methodology, ran the experiment and analysed the data all by myself. And [that paper got published](#), too. And yeah, [I got to present that one, this time in France!](#) That's just the process. You definitely notice the transition that you went through upon reflection. However, when you're going through the motions, you might still feel as useful as a chocolate teapot. Don't feel bad that you'll need help at the start. You're a human, and you're learning every day.

Keep Going! You should be under no illusions that obtaining a PhD is a very tough thing to do. Although having intellect is obviously very important, one can argue it's more about showing that you have the strength, determination and depth to *keep going*, even when everything around you seems to be falling apart. Keep going through the tough times, and you'll be rewarded with some good times. And at the very end of the process, when you submit that document you've been working towards for *four-ish years* to your School or College for examination, it'll [feel so good](#).



When I was preparing content for the presentation I originally gave, I was acutely aware that someone could put their hand up

and say something along the lines of *what you're saying is just your experience — how do we know it's not just you, or something that a lot of people went through, too?*

I was curious to see the answer to this, so I asked several of my friends who themselves were former STEM PhD students. I asked them to answer a couple of very high-level questions. I was trying to solicit *their thoughts* about *their experiences* when they were writing their PhD theses. You can see the four questions that I asked below, and the number of respondents. Note that for some, I followed up with further questions. Most of the participants were repaid with a pint of beer at the [Brel beer garden](#). I made a very unscientific scale, and, based on their answers, judged whether they were mainly positive or negative. My judgement of where they fit on the scale is shown below for each question.



Interestingly, most of the respondents had a similar train of thought to me — they were stressed out while writing, but look

You'll likely hate life when you're writing

back on the experience very favourably. They also consider the experience to be very worthwhile, as it 'toughened' them up for the working world.

up, but you'll look back on it favourably.

I use quotes from the respondents throughout the rest of this page to back up my points, express an alternative point of view, and to generally demonstrate what others were thinking when they were in the middle of things.



Sitting down in front of my computer back in early 2018, I had Slack open. I was talking to my good friend who was in the same boat as me. We'd reached the end of our respective PhD programmes, and the time had come to write up. I'm super grateful that I had my friend to talk to as we both went through the process together, finishing only a few weeks apart. I think having someone who knew exactly what the other was feeling about everything was super helpful. Nevertheless, I remember him saying to me:

“

We've both got our own Everest here to climb, David...

”

It's a pretty good way of outlining the challenge you may be facing.

Let's imagine that to get your PhD, you need to get from A to B on a map.

On your way, you'll find many different perils. To continue with the analogy, you'll need to cross rapids, climb mountains and scale back down the other side of each. Thinking about things literally, you may find that experiments may not produce the results you hope for. You encounter a problem that you spend weeks trying to solve, only to realise it's really not worth the effort. You will also most likely make mistakes at times which will mean having to do things again, and maybe once more after that for good measure. Around six months before your final submission date, you'll be probably be feeling tired and fed up — but hopeful, too. The hard work is almost over.

Except it's really not. There's one more major challenge left, one that brings many people to their knees. It's writing up. It's your

Everest. As I'll talk about shortly, you should have been writing things as you go along, and you should have a heap of content which you can shape into something that resembles a thesis. But that's not an easy process. Staring before you is 8,848 metres that you need to ascend and descend before you reach the finishing line. And trust me, you can't take a shortcut around the side of this obstacle. There's no way around it. You have to climb, you have to write.

Towards the start of my writeup phase, I was feeling the pressure already. I remember thinking things along the lines of "*I have so much to do, I need to get on with the writing now.*" I sometimes woke up in the middle of the night, finding the cogs in my brain turning rapidly. I was thinking about things like how I could structure that chapter, what I could say in response to this criticism of my work, and so on and so forth. With hindsight, that nervous energy was a blessing in disguise: it gave me the kick up the backside I needed to get on with the planning and exploring that I needed to do before I properly began writing properly. From my experience

Start thinking about your writeup early. You need to spend time figuring out how to tackle the task ahead of you.

(and others who have talked to me), it's crucial that you properly plan and test the waters before you begin the full-on writeup effort.

Int-Based Heuristics

Before you Start

Satisfaction and

Resource Threshold

You should roughly know when to start writing. I guess this varies hugely depending on how long your thesis should be, where you're studying it, and how fast you can write. For students at the University of Glasgow, you should really be thinking about starting to write up your thesis after your third year progress review (if you haven't already). To those studying elsewhere, this roughly translates into one year before your final submission date. That's what I did — and while I had not totally finished my experimental work by that point, I was glad that my mind had started to think about bringing all the different pieces of work I had done together. It takes a very long time to get it right.

Ideally, start to think about writing up around one year before your submission date.

Everyone arrives at *t-minus one year* in a different position. Someone that I know had already completed his or her PhD thesis one year before they absolutely had to submit! I think that's an amazing achievement, but it seems like a rarity, rather than the norm. This individual had done a lot of their experimental work *before* they became a PhD student, which probably isn't allowed in most places — and is probably a little unfair on others. For me (along with many of the individuals that I talked to), I started my

You should pretty much know what you're going to be writing about by the start of your final year...

final year as a PhD student with the following components (almost) completely nailed.

Good Scope

You should have a good scope for your PhD project — not too broad being the key! Don't spread yourself too thin.

LOTS OF WORDS

You should have **a lot of words written up** describing the methodology, results, analysis and conclusions of each of your experiments. If you haven't published those words, you should have written them down somewhere. This is crucial — having lots of words, graphs, tables and so forth means you are not starting from a blank slate!

A Chapter Plan

You should have formulated a rough chapter plan. You should roughly know the order in which you will present each major component.

Research Questions

You should have the overarching research questions you want to address in your thesis nailed, perhaps still open to wee tweaks here and there.

A Coherent Set of Experiments

You should have a set of experiments that help you to tell your story, or at least the infrastructure to get the coherent experiments run quickly.

While these don't have to be perfect, it's good to know that they're pretty much done and you are confident that your

project's scope is good, and not too broad. Your research questions should however just about be there. Without these questions, structuring and writing up a thesis would be pretty difficult to do!

If you are still unsure about these with one year to go, you should really have a conversation with your supervisor about them. If you chop and change the scope of your project and the questions you are looking to address while you write up, you're going to go round and round in circles and waste so much time.

This is an unfortunate trap that my friend fell in. While he managed to pull himself out of it, it was a struggle.

“

I should have defined my thesis topic earlier in my PhD. And I should have stayed on that topic a bit more closely. I should also have looked at the thesis structure more earlier on in the PhD to better understand the expected deliverable... This lack of understanding drew out the process by months, and made life so much more stressful.

”

Another one of my friends found himself in the same basic trap: lots of really good work, but a bit of an uphill task to join everything together. It took this second individual at least *three months* to find that good narrative that made everything fit together. Be warned: it can take a while, especially if it is not immediately obvious!

”

I had different parts/components in my PhD research, which made it difficult to form a coherent story. This caused problems when writing up my thesis. For example, it was not easy to write a good thesis statement to cover all the parts. If I could go through it again, I would like to have a coherent story and statement at the beginning of the PhD and then validate them.

Personally, I changed the focus of my PhD after my first year. The ideas that I had stemmed (perhaps with some encouragement from my supervisor) carried me all the way to the end. My experience wasn't that of blind panic at the end in the sense of not knowing what I was going to write about. It was more about putting the finishing touches to my research questions and thesis statement, from which I could write my thesis.

What *exactly* do you have to write, though? What is the final deliverable? This again heavily depends upon where you're studying. In the [College of Science and Engineering at the University of Glasgow](#), you need to write a PhD thesis that provides a clear narrative — and ideally will demonstrate the advancement of your methodology as you progress through your thesis. Each chapter needs to flow nicely onto the next, rather than individual chapters sitting independently from one another.

Working out what story to tell is probably one of the most difficult things to get right for your thesis, especially if you have a lot of disjointed experiments. [More on this later.](#)

At a minimum, you should consider having your **thesis chapter plan**, your **thesis template** and your **backup plan** all sorted before you start writing. I discuss each of these below.

Your Chapter Plan Having a chapter plan to work with — even a draft — was probably one of the most useful tools that I had at my disposal during my writeup, as [I'll discuss later on](#). Being able to produce one of these for your progress reviews (if you have them) is probably going to also be a very useful way of showing your supervisor/examiners that you know what you want to do. A rough chapter plan was useful for helping me to sort out my thoughts for what I wanted to write. I think I went through four iterations of rough plans before arriving at one I felt comfortable to discuss with my supervisor. *Four!* I had so many ideas and there were so many ways to present what I had done that it was a major challenge to work out the best way to do it. When starting with a blank slate, you'll probably panic a bit, too. Just stay calm. You've done a lot of work, and with a calm mind, you'll be able to start lifting things from your previous work and bring them into your thesis.

A chapter plan was crucial for me — but it takes several iterations and a lot of thought to get it ready.

Start with the basic five chapters, and expand from there.

- **Chapter 1** **Introduction** — introducing the problem area, your research questions and thesis statement.
 - **Chapter 2** **Background/Prior Work** — discussing previous work related to what you want to solve, along with a discussion of the limitations of prior work which helps you further cement the credibility of what you want to do.
 - **Chapter 3** **Your Approach** — or your methodology. How did you run your experiments? Why did you do this over that?
-

- **Chapter 4 Your Experiments** — presenting your experimental results, perhaps over multiple chapters for each experiment. A consistent approach to your presentation and analysis will only count in your favour.
- **Chapter 5 Conclusions** — an important chapter where you must bring all your findings together, discussing the implications for the future.

Apologies if that seems obvious, but starting with those five chapters helped me (with a little inspiration from prior theses, as I'll mention below) get a much better idea for how to structure my thesis. The concluding chapter, by the way, is where I think you will do most of the *philosophising* to earn your *Doctor of Philosophy* degree — you need to have a proper philosophical discussion about what you've found in your work, and where it's going to lead the field that your thesis has made a contribution to.

To give you a concrete example, here's my final chapter plan. Over the four iterations, I also decided that I could split the chapters into four parts that closely mirror the basic structure above. Note that Part I munges together the introduction and background chapters.

- **Part I Introduction and Background** — bringing together the first two chapters above.
 - **Chapter 1 Introduction**
 - **Chapter 2 IR Background** — covering the basics of my broad field of study.
 - **Chapter 3 Stopping Background** — a more detailed examination of the main focus of my thesis.
 - **Part II Model and Methodology**
 - **Chapter 4 My Model** — introducing the model that is core to my thesis.
-

- **Chapter 5** **My Strategies** — discussing the different (stopping) strategies that I trialled in my work.
- **Chapter 6** **My General Methodology** — a pretty neat idea that I discuss more below.
- **Part III** **Experiments** — where all the results and analysis belong. I did three main experiments, each of which merited their own chapter.
 - **Chapter 7** **Experiment 1**
 - **Chapter 8** **Experiment 2**
 - **Chapter 9** **Experiment 3**
- **Part IV** **Conclusions**
 - **Chapter 10** **Conclusions** — where I *philosophised*.

Again, notice the similarity in the basic structure: I just found that certain things became so big and/or important that they *felt* like they deserved to be in their own chapter. You can only know that as you go through and write the damn thing! But you have the freedom to structure your thesis as you see fit. For example, I found that splitting my background into two chapters — one about the broad area of [Information Retrieval](#) and one more focused on my specialist area, stopping behaviours — worked pretty well. And the effort I put into making everything consistent meant I could write a *general methodology* chapter, an abstracted methodology for the experiment chapters. And the abstracted parts to my methodology (i.e. the things that were varied) were filled in in each experiment chapter. That was neat, and it saved a lot of duplication!

Every thesis is different — but remember, you have relative freedom in terms of how you structure your own!

As I alluded to earlier, you can find inspiration from other prior PhD theses — it's worth checking your university's library for prior examples. For example, the University of Glasgow Library has [Enlighten](#) that allows you to search for prior Glasgow PhD

theses. Go have a look at some in your field, and draw inspiration from them.

Remember though, you're working with a draft chapter plan until you submit. Don't be disappointed with yourself if you find if your chapter plan has to change during the writeup. *It most likely will!*

I didn't think of the abstracted methodology approach until much later on in the process, for example. However, with proper preparation and a thorough discussion about it with your supervisor, any changes will hopefully be minor – and will result in less work to readjust things later on. If you don't invest the time preparing *early on*, it'll be more painful for you *later on*.

It takes time to get this right. Make sure you nail a rough chapter plan early on. It's crucial for your success.


Prepare your Template You should take steps before you start writing seriously to make sure the template for your thesis is prepared and ready to go. Try and think ahead, although that is admittedly easier said than done. What bits and pieces are you going to include? Here's a list of things that you will probably want to include.

- **Title page** – with, er, your thesis title and your name. And the submission date. And whatever your university requires you to add.
- **Abstract** – making sure you abide by the word limit (at Glasgow it's anywhere between 250 to 1,000 words).
- **Declaration of Originality** – an important requirement at Glasgow, where you state that the work is original and the result of your studies.
- **Acknowledgements** – a nice section to include to show your appreciation for those who helped you get to the point you are at



Modelling Search and Stopping in Interactive Information Retrieval

David Martin Maxwell

School of Computing Science
College of Science and Engineering
University of Glasgow
Scotland 

A thesis submitted for the degree of
Doctor of Philosophy (PhD)

© David Martin Maxwell

now!

- **Table of Contents**
- **List of Figures/Tables**
- **List of Abbreviations/Glossary** — optional, really. Do you have a lot of abbreviations that you use throughout your work? Consider including something like this. There's a brilliant, well-documented LaTeX package called [glossaries](#) that can help you out here.
- **Bibliography** — guidelines here vary. Consult your School/College for more information on what bibliography style you should use. It seems as though you can use whatever style you like at Glasgow; guidelines here are pretty much non-existent (from my observations).

Of course, what is required can be dictated by your university, too. You will want to check with them to make sure that everything you require is present. At Glasgow, the College of Science and Engineering have a [document that tells you what you must include](#).

If you know how to use a typesetting system such as [LaTeX](#), please, please, please use that. If you don't know how to use it, now may be the time to [get used to it](#). This is what such systems are designed for! Using a WYSIWYG editor such as Microsoft Word can prove to be a nuisance for such a large document — especially a STEM PhD thesis, highly likely to be full of illustrations, tables and so forth. We all know what happens [when you try to move an image in Word...](#)

Please consider using a typesetting system. They are there for a reason!

Your university will also likely offer a template that you can use for your thesis. [Glasgow offers one](#); you'll want to check with your university and obtain their template if you study elsewhere. The advantage of using such a template is that you know it complies with all the rules set out by your university on aspects such as margins, page numbering and so forth.

Going the Extra Mile

You can of course, if your university permits, work on your own template. I call this *going the extra mile* because if you are prepared to invest the extra time in preparing your own template that complies with all the rules your university imposes, you can make something that really stands out from the rest. I'm not ashamed to admit that I did this, and am really proud of the [outcome](#)! There are also several people I know who spent considerable effort making their thesis look really pretty, too — either by designing their own template or by drawing their own beautiful illustrations to visualise parts of their work. You might not be convinced with the extra investment required in order to do this — it's not for everyone — but trust me, *people will notice*.

However, be wary that going down this path can eat up your time.

If you're a perfectionist, you'll find that you can invest ridiculous amounts of time playing around with the layout.

I probably spent a month on and off during my third year playing around with LaTeX and developing my own template. Some people will question my sanity here: but I digress. I learnt a lot about how the typesetting system works, and feel it was quite a valuable experience. It didn't impede my studies either, so I consider it to be a good thing to have done.

Under time pressure? Just write. Don't worry about this. Just get the thesis written.

The Backup Plan

This is obvious, right? As a final thing to consider before you start writing, **back your stuff up**. You never know what's going to happen. Use a version control system to keep track of changes you make to your thesis. If you know how to use Git, make a private repository on [GitHub](#) and commit to that. Since [Microsoft bought GitHub](#), you can make free private repositories — so there's no excuse here.

Your experiment data should also be backed up, too. Or at the very least, configuration files (if your apparatus is just computer programs). These data can add up quickly, and committing gigabytes to your Git repository is not a great idea. Consider cloud

storage — or if that's still not enough or really viable, back things up physically with external hard disks.

I didn't want to lose anything, so my strategy was to set up my Git repository and commit my changes to that whenever a section was drafted. At the end of each day, I'd back up my complete PhD directory to an external hard drive, and two USB flash storage drives. These would be stored at home in different places. That's probably a little excessive, but I'd be very happy to have alternative copies of my work if something bad were to happen to my laptop *and* external hard disk!

*Back. Your.
Stuff. Up.
Daily. Don't
leave things to
chance.*

Keeping on top of Admin

This section is hugely dependent upon where you study. In Glasgow's College of Science and Engineering, there are several forms that you need to fill out towards the end of your PhD programme. They are important; they keep the Graduate School in the loop with your progress, and they also facilitate the organisation of your final viva once everything has been submitted. If you don't submit forms on time, there could be repercussions for you — so [make sure you know what to submit, and when!](#)

It's also important to remind you that it is **your PhD, and therefore your responsibility to fill out paperwork.** If you don't, it may well be that nobody will come chasing after you for that elusive form.

*Filling out
paperwork is
your
responsibility.*

When you realise that the form needs to be completed, it may be too late — or significantly delay your final viva date. The College of Science and Engineering at Glasgow don't seem to remind you when forms need to be submitted, so make sure you know. [I'll come back to that shortly.](#)

It's your PhD, after all.

Making sure that you keep on top of your forms may seem like a blindingly obvious piece of advice to give, but you'd be surprised how difficult it can be to motivate yourself when you're neck deep in writing your thesis. You'll probably be frustrated that you have to deviate away from writing up and spending time filling out paperwork. This is a mentality that I unfortunately developed; and I know I was not alone. Hence why I think it's important to tell you:

If you don't take care of the admin side of things, you'll start stressing out about it. Don't repeat what I did.

don't feel tempted to let your paperwork slide. It'll come back to bite you if you do. For me (and several others that I know), dealing with admin was one of the biggest contributors to stress and anxiety that I faced during my writeup period. Here's a quote from my friend that backs this point up perfectly.

“

The actual writeup wasn't stressful. The main cause of stress: feeling obliged to hit some arbitrary deadline (e.g. the four year limit). Think in advance: are you going to hit or not. If you are not 100% confident, you probably won't.

”

Kind of a bit deflating, but probably true. As I said, this hits the nail on the head perfectly for me: **I was hesitant to fill out forms because I was so worried that I wouldn't be able to hit the deadline, given the mountain of work I had to do at the time.**

Don't repeat the mishtake I made here. Just do the

Filling out forms saying you're going to hit a deadline six months down the road is a very difficult thing to do because it's just so damn hard to grasp whether or not it's doable. It's like national politicians talking about spending billions here and billions there; the scale of spend at that level is just so large you can't really comprehend it. With your PhD writeup, it's unlike anything you've probably done before, so being able to confidently predict how long it'll take — and whether you'll be able to finish everything in time — is hard. [More on this later.](#)

paperwork. If you are really going to struggle, talk to your supervisor before you do.

The "arbitrary deadline" is the four year limit imposed on students studying a PhD in the UK. I believe this was imposed because, in the past, many people were taking way too long to complete their PhDs. To try and curb students perhaps overstaying their welcome, [research councils](#) imposed a four year limit on students. This is why at Glasgow (and elsewhere in the UK) it's such a strict rule — bad things can happen if you go over this time period. And it's probably why most scholarships are three and a half years long. Going the final six months unfunded is a strong incentive to finish up early!

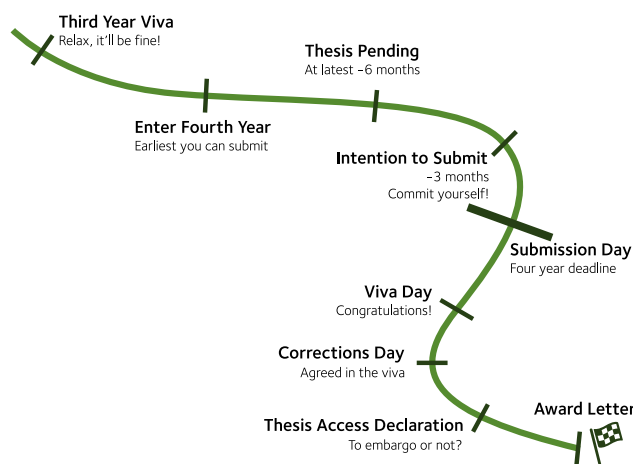
This is why my advice to start writing up as soon as you can is so important — please don't cross that four year barrier if you're in the UK. If you genuinely don't think you can submit before four years are up, you need to have a chat with your Graduate School as soon as possible. If you start writing early, you can get a better idea earlier on how long it'll take to do things, and thus avoid a disaster at the end. [I'll write about this later.](#)

One way you can mitigate stress and anxiety about this is to be absolutely clear and upfront with your Graduate School about when exactly your four year deadline is. I wish I had done this earlier! After your third year progress review (or whenever you enter your final year of study), work out your four year deadline from the point at which you commenced your PhD studies. This is straightforward if you didn't go away anywhere (e.g. to do an

Work out when your four year deadline is — at least one year in advance. You can thank me later.

internship). However, if you did, you'll need the paperwork you filled out when you left, and you'll be looking to add the time you were away to your original finishing date. Work out the date, e-mail it to your Graduate School, and reach an agreement as to when exactly it is. The sooner you do this, the better — you'll feel a little less stressed knowing that you have a concrete date to aim for. And having that date in the back of your mind will push you along to get stuff done, rather than freaking out wondering when it is.

As a final thought here, I put together a graphic showing when Glasgow students studying in the College of Science and Engineering need to fill out and submit forms — along with the basic series of events that happen in the final six(ish) months. This was originally a slide in my presentation and was well received. There are some bullet points underneath that provide additional information. Note that the details are correct as of May 2019!



Starting from your third year viva...

- **You enter your final year.** At this point, you should have the basics ready to go, and know *exactly* when your final finishing date (or submission day on the graphic) is. You could submit your thesis at this point — if it's ready!
- **Go thesis pending** No later than six months before submission day, you need to hand in your thesis pending form. This tells the College you no longer need to pay tuition fees because you are now writing up your thesis. Get writing seriously if you have not already! Note that you should have completed all of your major experiments by this point — but that doesn't mean to say you're out of the woods. You may still have to re-run some things in order to get things nice and consistent for *telling your story*.

- **Intention to submit** Three months before your submission day, hand in your intention to submit form. This form commits you to submitting within three months of handing the form in. This is important because a lot of things start happening in the background, mostly to do with your viva date. The College and your supervisor start actively looking for an external examiner for you. If you fail to submit within three months of this date, you'll have a major headache to deal with.
- **Submission day** is a good day in your life, although very anticlimactic. As most things in life are. But when you get there, you should feel rightly proud of your achievement.
- **The viva** You then have your final viva. Congratulations, I know you'll pass!
- **Corrections** It's likely you will have some things to correct. For most of the people I know, a month was given to correct everything — you may be given longer. I was only given two weeks to fix everything up. *However, it's not uncommon to hear of a six month period being granted to fix corrections.* Milage varies here significantly. However long you are given, your corrections day (as I call it) is the date your examiners tell you to submit everything for re-evaluation. Hopefully, they will agree with all your changes and you can then move onto the next step.
- **Submitting the final copy** You then need to get your thesis printed off. Take it to a [bookbinder](#). Submit one physical copy to the College. [Deposit](#) your thesis online, too. When submitting your physical copy to the College, you will also need to hand in your thesis access declaration form. This will only be an issue if you make use of copyrighted material or material that may require an embargo. Talk to your supervisor about that.
- **The end** Once everything has been satisfied, you will receive an award letter in the post. **Congratulations!** You can now graduate. Easy peasy, right?



Planning your Time

This is tricky. Time planning is really important, primarily because you are very much time limited! I started my writeup with several publications under my belt. From each of those publications, I had learned a little bit more about how to plan my research projects out properly.

Writing my thesis however was a different ballgame — it was much more drawn-out than anything I had done previously, and given the increased size of chapters (when compared to sections of a research paper), these may require more time to write, too. Indeed, even if you are basing a chapter on something you've already written up, it can take *an age* to shape the narrative to fit the story of your thesis. That's something I had not done beforehand — and so I was in the dark regarding how long it could take.

You also need to remember that you'll have other commitments that you need to deal with, too. Maybe working another job, or dealing with children. You need to remember that you have to sleep, eat, and occasionally relax, too. Not doing these things well can lead to all sorts of problems, [as I'll talk about later](#). I was incredibly fortunate not to have to worry about financial issues as I was writing. I know that makes my experience perhaps somewhat different from others. I was lucky. I freely admit that now.

Regardless, if there's anything you take away from this section, please let it be this: **however long you think it will take you, it will almost certainly take longer than that.** This is something that I learned — not only through writing up — but in life generally. *If there's something worth doing right, it'll take time to get it right.* Let that be your mantra, here: do not leave things until the last minute. That is why I keep repeating: **start writing as soon as possible!** Give yourself the time buffer that will make things much more bearable.

However long you think it will take, it'll probably take you longer than that. Be careful.

The sooner you start writing, the more time you afford to make mistakes with your planning. Through mistakes, you learn. I found that my ability to plan the time I had available for my writeup went through two distinct phases.

1 Learn the Ropes

Investing the time and effort to see how long it takes to get things to an acceptable level — like, *how long does it take to write a chapter?*

2 Plan like a Pro

Using the knowledge you obtain from developing your understanding of how long things take to do, make a more realistic plan — make a Gantt chart!

Annoying as it is, I think it's vitally important to get a feel for how long it takes to get things done. Experiments should broadly be written up by your writeup phase, and analysis should really be done too; this is more about investing time and effort to figure out how long it takes to shape things up into a thesis.

At the start of your writeup phase, spend some time writing up a chapter — or at least a few sections of one — and be conscious of how long it's taking you to get *to a completed draft*. You can then begin to make more precise extrapolations as to how long it'll take you to get the next chunk of work completed, and so forth. I'm

A word of warning: background chapters may take longer!

sure that you will find it much easier to work out how long things will take to plan.

I always thought that I hated the idea of Gantt charts. I realised during the writeup that I don't hate Gantt charts per se, but I hate being told to make one when I'm really unsure as to how long each activity will take. Be kind to yourself. Give yourself the time and flexibility to play around with figuring out how long things will take, then go make yourself a detailed Gantt chart based upon your experiences. You need time to develop that feeling or intuition. And this is something that people have told me has served them well in their careers since finishing up their PhD. Time management is crucial in any walk of life, let alone writing up a PhD thesis!

Play around with how long it takes to do things, then make a proper plan.

Increasing your Resilience However, your best estimates — even with some prior knowledge — may let you down. You may encounter an unexpected stumbling block that means you have to spend a few weeks running an experiment again, for example. This happened to me twice. I realised that although my experiments were originally sound, *they really didn't fit well together and tell a coherent story*. Getting sidetracked like this is incredibly frustrating and upsetting, but you can again plan in a means to mitigate these unfortunate scenarios: **slack time**.

This is another reason why I have said so many times you should get writing as soon as you can. **Things can (and probably will) happen that are very difficult to foresee.** Cue a quote from one of my friends:

“

You know what it's like! You think it'll take you a day, but at the end of the week,

you're still writing the same section. It's so frustrating. It just goes on and on. The one thing that I think we both learnt is that you slack time the hell out of things!

”

Yeah — we (being my friend and me) both learnt this. If you think it's going to take you a day, give yourself an extra day of slack time. If you think it will take you a week, give yourself half a week slack time for that activity. That may be overly generous; it's better to have a safety net than to not. Realistically, you probably cannot schedule such generous slack time. Even if you could, would you yourself then begin to slack? Be wary of this. From your learning the ropes phase, you should also be aware of how long you *think* something will take, and how long it *actually* took to do.

Slack time is good. Try and add a little slack time for each chapter/major part of your writeup.

Regardless of what you think, please do consider adding some slack time into your overall plan. My final Gantt chart had a full month of slack time for the final three chapters of my thesis. I used one and a half weeks of it. Again, better to have it than to not.



Writing! (or Typing)

When you've got a rough chapter plan, get into writing. I always find it takes a very long time to get into the frame of mind to write well. But when I do, it kind of feels like a state of hypnosis. I just wanted to keep going, and the section I was writing was always on my mind. Even walking home in the evenings when I felt like I needed some downtime, I'd find my brain would still be thinking about it; still thinking about those little details that show you've really thought about what you are writing.

It was all-consuming, and this is definitely not something that was unique to me. Plenty of people who went through the experience expressed the same basic sentiment. As I'll talk about later, you'll probably change a bit as you work through your thesis, and if you have friends who are going through their writeup too, you will likely notice a change in their behaviour. It's tough. Think back to the message I had about [keeping on top of admin](#). Sounds obvious; when you're so engrossed in your writing, you probably don't even care about it (even though you *really* should).



Don't forget to take breaks and remember to exercise, even though sometimes you'll just want to sit down and keep going. You do need to eat, socialise and sleep. That stuff can't stop, although it may mean that you will have to get away with doing less of the fun stuff you are used to.

But a wee word of warning here: don't pressure or force yourself to sit down and write, especially at the beginning. Getting into the mentality of writing quickly and efficiently takes time. When you are there, you'll know. Words will effortlessly flow from your brain straight onto your computer's screen. When you aren't in that frame of mind, it'll be torturous. You'll be lambasting yourself for not doing things quickly, and force yourself to do something. When you read back what you wrote in that state of mind, it'll

probably not be very good. You'll make yourself feel worse, and this turns into a vicious circle.

When you start writing up, **try and find some peace and quiet when you feel like you want to write** ... and write! Keep distractions to a minimum. Eventually after a week or so, you'll want to keep writing — and that's when everything starts to flow. It takes time, which is why I'll say again — start writing early to give yourself the space to do this! Don't get into that frame of mind, then disappear off for a week. That'll frustrate you even more, because you may find you have to get back into the writing mindset again when you return!

Getting into the writing mentality can take time. Be mindful of this!

It won't Stop! But by far the biggest thing that floored me and others who have talked to me about their experiences is *how long it takes to write your thesis up*. **It's highly likely it will be unlike anything that you have ever done before,** both in terms of the volume of things you have to do, and the limited time you have to do it in. It's been likened to **mental torture** by one of my close friends. By my own admission (and those of others), it can be hard to get out of bed in the morning when all you have planned for the day ahead is *writing* — especially when that's all you've been doing for, say, the past two months.

“

You just want it to stop. But the finish line seems so far away, and you simply cannot afford to stop!

”

Given that I have admittedly set a pretty negative tone about the writeup experience so far, how can you make it more bearable? Apart from giving yourself breaks and allowing yourself a little downtime here and there, there are a few tricks that I learnt as I

When you finish a section, stop, and scroll back

went along the process that definitely helped. When you finish drafting a section and/or a chapter, stop. Compile your PDF. And just sit there for a few minutes and *scroll through what you have done so far*. This sounds ridiculous! But it actually really helped and made me realise that *even though I feel like I am buried up to my eyeballs in work, I am making progress*. Remember the mountain analogy from the beginning? It's like stopping for breath and looking back at how far up you've climbed. Small goals. It is satisfying. It'll inspire you to keep going; to keep climbing. Challenge yourself to write another section! And another. And another. And another...

through what you have done. It is a satisfying feeling to see how far you have come.

The above is pretty useful because it attempts to compartmentalise the huge task of writing up a PhD thesis. *I think that is what makes your writeup more manageable — splitting it up into a series of small(er) chunks.* This is why I think that having a chapter plan drafted up at the beginning of my writeup phase was so useful. I used a printed out copy of my chapter plan to keep track of my progress, and it went with me wherever I wrote.

At the start of each day, don't fall out your bed in a depressed state and go *"oh crap, this is never going to end!"* Instead, I recommend that you sit down and highlight on your chapter plan a section that you're going to spend the day tackling. You might want to even invest some time (like I did) in writing a series of todos for the section you will be tackling. *"I need to write the introduction to this section. I know I have this data, but I need to regenerate the graph I had from before to include the standard errors here because I didn't have them before. That'll involve opening up the script I had before and doing some modifications. Then I'll need to take the narrative from my existing paper and move things around to make it fit with the flow of my thesis."* Something like that. Make bullet points out of that, and stick to completing that activity.

Use your chapter plan to check off each section, one at a time. Turn the mountain into lots of little! 🐢

Again, with some prior expertise on seeing how long things to do, you should get better and better at working out how many

sections you can write in a day. You will feel super satisfied with yourself when you complete the day's activities. Trust me. And that spurs you on to do more the following day. It works; trust me.

By the end of my writeup, I had sheets and sheets of paper that was originally a printed copy of my chapter plan — but with heaps of additional other todo lists, all scrawled down, but importantly ticked off. Looking back on it now, it's quite an important document to me. It shows that I climbed my mountain, one checkbox at a time. And you can do it, too.

Iterate your Writing Don't fool yourself here. I fooled myself thinking that just because I had things written up and published, writing up would be easy. It wasn't. Just because you have papers published doesn't mean that they will all fit perfectly together the first time around in your thesis. I fell down this trap when writing my first chapter: I quickly began to realise "*oh no, this is going to take several stabs to get it right!*" With hindsight, I don't know why I didn't immediately think this, but whatever. It's done now. Don't repeat that mistake!

“

At the start of my writeup, what really struck me is that it takes an age to get each chapter to a standard that's acceptable. Probably a fortnight more than I had originally planned.

”

It will take at least **two iterations** to get a chapter to a good standard: your first draft, and a second draft taking into account feedback from your supervisor. And two iterations are for

Plan for a minimum of two iterations per chapter.

content that was pretty much already there beforehand. If, for example, you base a chapter on published work, two should be sufficient (it was for me, at least). If the work you base a chapter on was a rough draft, expect more iterations to bring it up to scratch. If you don't, be prepared for a lot of questions and interrogation on this work in your final viva. And please make sure your supervisor reads what you have written.

*Make sure
your
supervisor
reads your first
draft.*

If your supervisor does not read your thesis as you along and give feedback, I really do not think that they are doing their job — they would be letting you down.

Making it Flow I've already written this several times, but I'll dig a bit deeper here as to why I think this really means. It's one of the most difficult things to do in the entire writeup process. One individual that I know submitted their thesis without making it flow well, and had a hard time in their viva because of it. Take what you want from that. Here are some things for you to consider.

Flow!

Each chapter brings you neatly onto the next or segues onto the next without much effort.

Exploit Structure

Make use of the structure of your thesis — build on things that you have explained previously. Don't keep repeating yourself unless absolutely necessary.

Prevent Isolation

Do not leave a chapter hanging alone by itself in isolation. They need a purpose and a link to the rest of your work.

To reiterate, the idea of making a thesis flow means that everything you discuss has a purpose, and is linked to other components. You can help this by presenting a similar set of experiments where you change as few variables as possible — or

*Aim for
consistency
between
chapters.*

build up the complexity of your experiments as you progress through the chapters of your thesis. Consistent reporting of results (e.g. consistent colour schemes and other presentational aspects) will help you, too, and gives the effect of a highly polished piece of work. Maybe you'll even want to go further than you did before and compare results from one chapter to another. If you base your chapters on prior studies, it may be unlikely that you will have bridged them before, so this would require a lot of time and effort to do.

Everything should have a purpose. If you want to include a section, ask yourself why you want to include it.

Background chapter(s) These are a little different from the rest of your thesis. These take time to get right and obviously require a lot of reading (if you haven't done this already, but you really should have). Be wary of including stuff in the background chapters just because you feel you have to, or because others have. Ask yourself: *do I make reference to x later on in my thesis?* If not, you probably don't really need to include it. However, if it lays the foundations for something you *do* utilise, maybe it's worth discussing at a high level, before moving onto the more relevant work. I learnt a lesson here: I included an in-depth discussion of some Information Retrieval concepts that I didn't really make use of later on. Surprise, surprise: my supervisor told me to take that section out.

Background chapters can take longer to write up than your experimental chapters. Don't think you need to include everything – think sensibly about what you rely on.

Don't simply copy and paste in your papers – it is highly unlikely they will fit perfectly from the very beginning. They will require work to make them fit. For example, you might find the background section from one paper would belong as a (expanded) section in your background chapter(s), rather than sitting awkwardly in an experiment chapter. It takes time to shape things, as one of my friends found out.

Thankfully I had a lot of published work that made some of the writing up easier, however, making everything coherent required considerable rewriting and reorganisation.

Also, make sure that every chapter serves a purpose. Don't leave a chapter hanging by itself in isolation. Don't have a chapter in your thesis talking about something totally different from the main narrative of your work. If you want to include it, find an argument to include it. You may find that it could better serve you by taking it out altogether. Not everything that I worked on during my time as a PhD student made it into my final thesis!

On Reflection It might seem horrible — and for the most part, *it is kind of horrible*. It's relentless, backbreaking work that will most likely push you to the edge. Remember the [unscientific survey](#) that I conducted back at the start? Most people I asked said that they hated the experience at the time. However, the experience is also incredibly rewarding — and everybody looked back on it favourably (including me!). One of my friends who is now an academic thought that the experience was more beneficial to him now than it was three years prior when he was writing.

I think the writeup experience was valuable for me to construct a holistic picture of my work over the last couple of

years which has been influential for my career since. To look back and find a way to describe your quite different pieces of work as a single consistent and convincing story has been very important for my understanding of what I truly find interesting.

”

I cannot agree with the first part as my career hasn't advanced much in the short time since I've finished my PhD. However, I do agree with the second part entirely — one could go so far as to say the writeup is really when you do the philosophising, where you try and fit everything together. It can be a tremendous challenge, but ultimately one that is super rewarding.

Why Invest all this Effort? You may well be asking something along these lines: *is it really that difficult? Do I really need to invest all of this time in making it flow nicely, and so forth?* Someone once remarked that they wanted to get away with doing as little as possible to get their PhD. My response to someone like that would be to say *"enjoy your difficult viva, then."* It's likely that if you don't invest the necessary time and effort, you're doing it wrong. Do the best you can. Submitting something quickly may well mean that you haven't properly considered things like thesis structure. If the thesis structure isn't great, it shows to your examiner(s) you haven't put enough thought into it. Their reaction won't be overly positive. That's my guess, anyway, judging from things I have heard about other people's experiences.

If you don't invest the effort in making everything flow, your viva may be more intense than it needs to be.

If your examiner(s) think that, then it's a pretty sure thing you'll be squirming in your viva. You'll probably end up with some major corrections to work on, or worse still, be asked to resubmit at a later date. This is nightmare scenario territory. My argument here is that if you invest the time now, you'll reap the rewards later. If you don't invest the time now, you'll have to fix it up properly post-viva. Either way, I don't think you can get away with doing a half-assed job. Even doing "the minimum", whatever that is, would probably set you in for a more challenging viva. You need to invest the required time and effort *at some point*. You might as well do things properly and do everything to the best of your abilities *before* your viva!

How Long will it Take? Only you can know the answer to that question. I asked some of my respondents to tell me how long it took them to get their theses written up. Five gave me an answer — you can see the responses (including mine!) below.



It's likely going to take several months; you just have to get on with it. Sorry.

Although the spread ranged from two to ten months, everybody on the graph passed their vivas with minor corrections. I am up there — I took seven months to get everything completed. Glasgow gives you at the latest six months to finish up when you go *thesis pending*. However, from the figure above, only three out of six finished in that time! Cue, for the hundredth time: **start writing as early as you can.** I make no apologies for saying that again. The more time you give yourself, the more space you have to breathe in towards the end.

The minimum time Glasgow gives is six months; it may well take you longer than that. Start writing early!

Don't Stop Finally, whatever you do, *do not give up*. Think about how far you have come just to get to this point. Why stop now? If you really feel you are struggling, please go and talk to someone. If

You'll probably want to give up. But just

you don't want to talk to your supervisor about it, it is important you find someone in your School or College who can help you.

remember how far you've come...

I had these thoughts like this quite often.

“

I really don't think I am capable of completing this. This is too much. Maybe I should just give up.

”

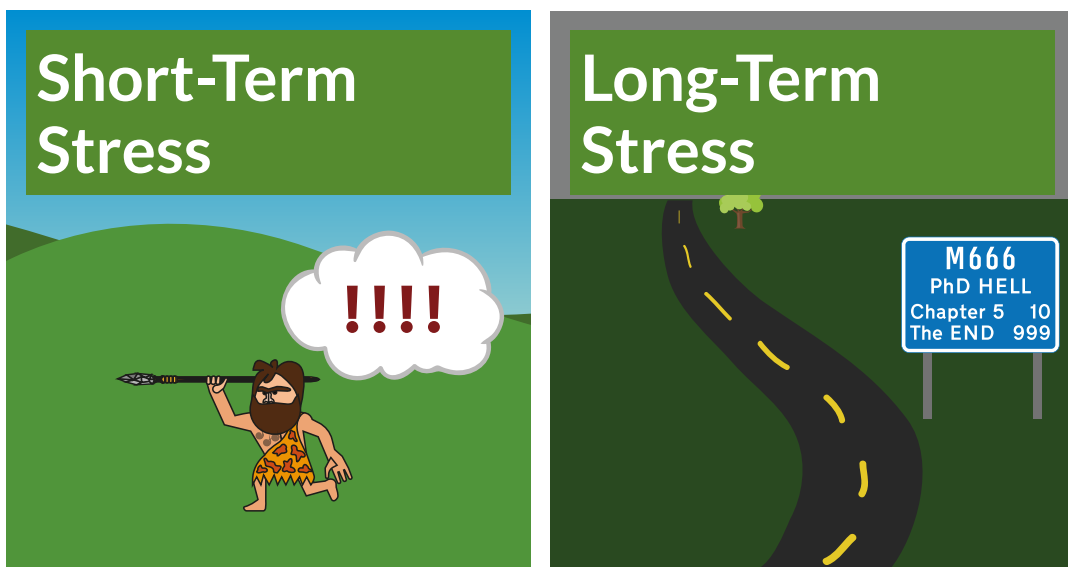
Don't give in to these thoughts. You are tired. Go have a nap, and come back to it. You will get there. If I can, you certainly can, too. And remember how far you have already climbed! If you need something to recharge your batteries, go back and scroll through what you've written so far. Do you really want that to all go to waste? No.

Looking after Yourself

Looking after yourself is important in any challenging scenario. Writing up is no exception. Although I already have highlighted several really important things you should continue to do – such as taking breaks and exercising – there are a few things that I think are worth discussing in a bit more detail – specifically, what

I (and others) felt during the writeup phase. If I can describe the feelings and emotions that I went through, I hope it'll make it less scary for someone else when they read this — to know they are not alone in thinking whatever thoughts they have about their work and themselves.

But first, let's make something clear. Stress can at times provide you with that push you need to get stuff done. I'd like to think there's broadly two distinct kinds of stress.



Short-term stress is what we are used to in our daily lives. It doesn't last for too long. Perhaps you get stressed out before you stand up and give a presentation. Or, like in the illustration above, you are a caveman who has to deal with an imminent threat to your life. Whatever it is, the release of the stress hormones let you deal with the situation at the time. It's probably a good thing on balance. It keeps you going. You feel *alive*.

What I want to talk about mostly however is long-term stress. Writing up your thesis, compared to other activities that you have done, can last a *very long time*. Can you see where I am going with this? You might have experienced long-term stress before when writing up your honours dissertation, or something akin to that. That might have only lasted a few weeks to a month, however. PhD writeups can take considerably longer than that, as I [showed you earlier](#).

Your writeup phase has the potential to have a negative impact on your mental and physical health.

Working under such pressure over such a prolonged period will most likely lead to some form of issue, albeit temporarily. Several individuals I know were hospitalised for a short while due to the effects of stress on their bodies. Some were keen to let me know that they reached out for mental health support — either from friends and family, or from a professional.

Prolonged writeup periods can have huge negative effects on your mental and physical health. Be careful. Take rests.

While I and others found it to be tough, the only way to get past it is to work through it. You can attempt to mitigate any negative effects by doing your best to listen to your body when you know things are getting a bit too much. I know I also said you shouldn't stop, and you should keep going — but I also said you should start writing early. Starting to write early means you can afford to take a rest when you've been working solidly for days. It means you can afford to let your body and mind relax, even just a little bit. However, if you are really struggling, you have to go and talk to your supervisor about it. You won't be the first to struggle, and you won't be the last.

Keep a Routine One solid piece of advice I can give you is to keep a routine. Try and go to bed at a reasonable hour, and wake up at a reasonable hour, too. Given you have so much to do, you may find yourself in your lab at 10 PM with only the glare of your computer screen to keep you company (and warm). What a lovely picture to paint. Try and avoid this as much as possible, and try and stay healthy. Easier said than done, though: I found myself doing exactly that on so many occasions I couldn't even begin to count them. These late nights are a slippery slope — before you know it, your routine could be to start working at 4 PM and leave at 6 AM the following morning. That's not good! Try and keep to a sensible routine.

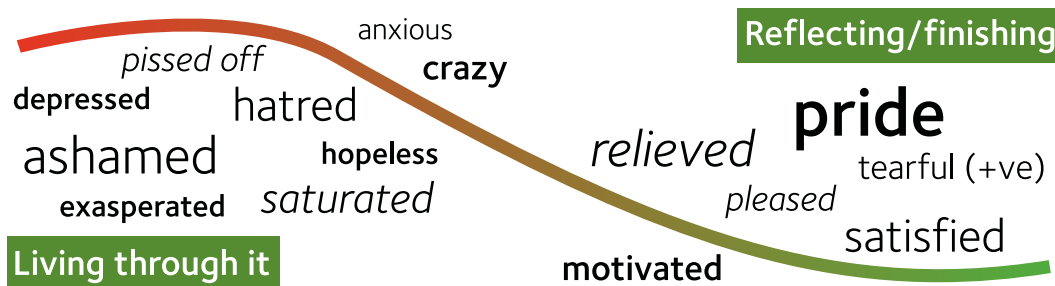
It's easy to let your routine slide. Try and keep a "working day", 9-5 kind of thing going.

A Changing Personality

Don't underestimate how much prolonged stress can affect the way you behave. Towards the end, I saw it in myself. I became more forgetful and a little more irritable. I usually remember things so well! What really got me after the fifth month of writing was *the anxiety* of doing *anything*, which seems to be a pretty common thing that people develop when they are under lots and lots of pressure. One month after everything has been finished off, I still feel anxious about doing things — although I am definitely getting better.

Prolonged stress can make you more irritable, upset, and so forth. Be mindful of how you interact with others.

What did others feel? The graphic below gives you an idea of the way respondents to my unscientific survey felt during their writeup phase, and what they felt afterwards. These phrases were lifted straight from their responses.



Note that as you go from left to right, the terms become more positive. Also note that as you move from left to right, you move from *living through the writeup* to *retrospectively thinking about the experience*. You'll probably hate writing it up, but you'll think the experience was worthwhile with the benefit of hindsight. One phrase that stuck out to me in the above graphic was *ashamed*. Digging a little deeper, my friend said that they were ashamed because they *felt like they were not handling the pressure and stress of the writeup well at all*. They were; they got through it just fine. Your mind gets warped sometimes, and that is why it is important to talk to others to regain some perspective about what's going on. *You're doing something incredibly challenging!*

Yeah, it's tough. No escaping that fact. But it's definitely a rewarding thing to do. Never forget that you will get to the end.

Perfection is Unattainable If you consider yourself to be a perfectionist, you can find this experience to be a little more draining than most (indeed, you probably have felt this as you've gone through your studies). I have perfectionist tendencies, and I found the writeup to be incredibly challenging, but also incredibly useful. I began to realise that there has to be a point at which you simply have to say "*this is good enough*". That was an enlightening moment for me because I now realise that **perfection is simply not possible**. There will always be something you could have done differently — whether it be your argument, your methodology, the way you analysed your results, or even the way you presented your material. If your supervisor says it's good enough, stop. Move on to the next thing. My friend summarised this line of thought perfectly.

Perfection simply does not exist. Don't kid yourself and don't spend ridiculous amounts of time on small things — get them to a decent standard and move on.

“

I can definitely see why a lot of PhDs never complete the writeup, or just go crazy in the process. It's tough, especially when people take it so personally and this that it defines who they are. If I learnt one thing on the writeup journey, it's that perfectionism will end you.

”

I bet you they didn't tell you any of this in your PhD induction, right?! But given how much of a challenge it is, can you start to see how totally satisfying it is when you actually get to the finish line?





Dealing with Others

As I have already discussed, I have noticed behavioural changes in people when they started writing up. And in myself, when I was writing up! Even if someone is normally socially active, they can become recluse when they get into writing. If writing up your PhD thesis can make you more irritable and change your personality, then how do you think others will see you — especially people who are not going through the same pain as you? It's something that may again seem blindingly obvious to you now, but when you're stuck in the middle of writing up a chapter, thinking of others may be something that simply isn't on your mind.

Nor do the individuals in your life who you are close with really understand, either. They may not be doing a PhD, nor even be considering doing one. However, these people *should* understand that you are going to be under immense levels of stress and pressure for a considerable amount of time. They should be able to at least put on *one* of your shoes (stretching that idiom a wee bit there) and realise the experience will make you feel quite negative about things, for a while at least. Any mature adult should know this.

Despite this, people's patience won't last forever. And writing up a PhD can take what feels like forever. Half a year is not uncommon.

Your relationships can take a huge strain when you're in the middle of your writeup. This is something that you rarely hear

Relationships can become strained. Be mindful of this, too.

about. It's squishy stuff. But it is vitally important to be open and honest about this. Cue one of my friends.

“

It will affect your mood, your sleep patterns, your personal relationships, your will to stay alive.

”

Several people reported to me that they have found that it is incredibly difficult for those who have not been through writing up a PhD thesis to empathise with your predicament. They may be PhD students themselves, just much earlier on in the process. This lack of understanding can lead to a breakdown in communications, and from that breakdown in communication, your partner making... poor choices, for example. This has happened to several people I know (ouch). My advice is please try and communicate as best you can. Show them what you're up against. And if they still can not understand that you need time and space to get this done... I don't know what else to say. *Please, be wary of this, because the last thing you want to have to deal with when you have a thesis to write is heartbreak.* Trust me!

Patience may wear thin in those who can't empathise with the pressure you're under...



Submitting and Viva Preparation

So, you have spent months working on your thesis, and your supervisor has said that it's now pretty much at a submittable state. You spend the last few days playing around with the references, tidying up the random things that were bugging you for weeks, and then you print it off. As my supervisor told me just before I was about to hand mine in for examination, it is like a million tons being lifted off of your shoulders.

It really did feel that way, although as I mentioned earlier, the actual process of handing it in is so unbelievably anticlimactic. I heard that at the University of Edinburgh, they give you a lollipop at the very least. That's something. Oh well. It doesn't really matter that the party poppers don't sound for you — no, *you should just feel proud of reaching that moment in your life*. You're almost free of it! At least you can take a bit of a rest before your viva. As I'll [write about below](#), you should take some time to reflect on the achievement of getting to this point.

The Viva One thing that you still have to get through at the end is the viva. I had heard lots of scare stories about this, from people all over the world: vivas taking *four and a half hours*, or a student telling their examiner to 'eff off'. I hope that both of those were not true... but I can kind of understand with the swearing. An examiner who is critical of work you've spent years on might hit a nerve, but it is important to stay calm. They're doing their job. And you should be used to criticism when you reach your viva, anyway!

The lead up to my viva was a bout of significant apprehension. Again, it's the culmination of years of hard work. It is perfectly understandable. I was worried that I didn't really know how to prepare for it. And because I didn't know how to properly prepare, I felt like I was going to



mess it up. However, if I had taken a step back and thought about things rationally, *I would have realised that I had already done the preparation.* Writing your thesis is the perfect preparation for your viva! Although it would do you no harm in picking your thesis up and reading it again beforehand, you'll be unsurprised with how much you remember — or rather, you remember *all of it*. Even down to the little details. And so I found my viva experience to be relatively straightforward, and two and half hours long. That length is pretty much the average (from what I heard) for a UK viva defence, which takes place behind closed doors.

While writing your thesis is the perfect preparation, you can also do little things beforehand. My supervisor was a great help. He asked me some questions, like a mock viva, in the weeks leading up to it. The answers I gave were greeted with some friendly and constructive feedback from him. Ultimately, this feedback made me realise one or two things about my work that I should sell more, and that led to a more confident performance when it really mattered.



Once you've finished everything up, I think it's really important to take a while to just stop doing anything and think about where you've got to. Put everything down and look behind you — you've ascended and successfully descended your Everest. Well done! You should feel so incredibly proud of your achievement. A very

small percentage of the world's population have [attempted to do what you have achieved](#); an even smaller percentage actually [did succeed](#)!

“

It is a very good point to look back. Recognise the work I did. Feel proud of it. Feel amazed at what I found interesting and important three years ago.

”

That's a quote from my friend who is now a successful academic, three years after successfully defending his PhD. Although I'm sure the achievement wears off a little bit as you move on throughout your life, I'm sure you'll never forget the sheer amount of effort, courage and determination it took to get you that qualification.

I think it'll do you the world of good to take a rest after everything is done, too — of course, only if you can afford to do so. You'll be worn out and looking for time to yourself. I have found it incredibly hard to remember what it was like to have a life before the PhD, and it really does take months for you to get back on your feet after everything is over. My advice for you in that phase is to just be kind to yourself, and know that there are now so many opportunities that have opened up for you with this degree. They'll come to you in time.

Try and take a rest after everything is finished, if you can. You deserve it.

So, what am I trying to tell you? For one, it's absolutely worth the sacrifice. You'll feel so damn proud of yourself at the end. The skill set you develop will be incredibly useful to you going forward.

Everyone in my unscientific survey agreed: writing up was a tough experience, but the result is something to be happy with.

“

With hindsight, the scale of the writing and challenges probably set me up really well for what I do now. The thesis writing experience – and indeed, PhD as a whole – has undoubtedly helped me for that.

”

“

If successful, once you have been broken [by the PhD and writeup], a whole new person will emerge. You will be unmeasurably stronger, more resilient, and ready to take on any challenge life will send your way.

”

But what I've tried to articulate on this page is just how challenging that it can be. For some, it'll be straightforward – but I am sure that for a majority, it'll be the toughest thing they will ever do. I wanted to open your eyes to the challenges that you will face, and just tell you straight without sugar coating over anything.

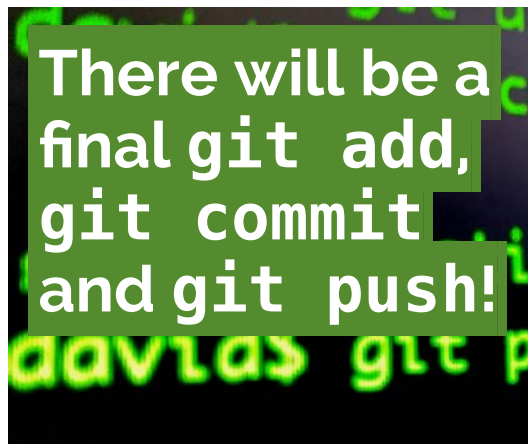
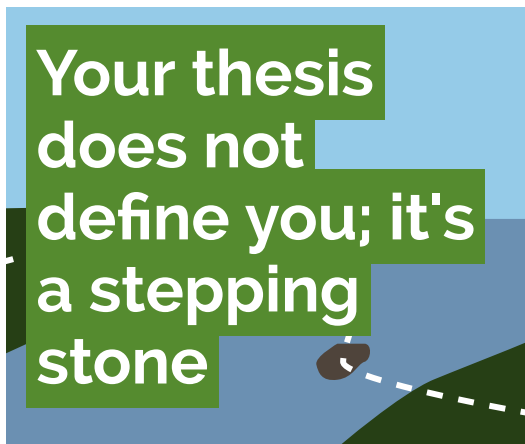
You need to be ready for something that is likely to take you months to get to a good standard. You need to be ready for long,

lonely writing sessions. You need to be ready for the horrible moments when you realise you need to run that experiment again or re-write that entire section. You need to have an understanding that the pressure may temporarily get the better of you, and you may face problems outside of your writeup, *because* of your writeup.

Try not to be too disheartened when things do go wrong, because you will be able to fix them. **And start thinking about (and writing!) your thesis early.** Don't leave this to the last minute, because I am sure that you will quickly come to regret it.

If you're in doubt about something, talk to your supervisor. Get it sorted quickly. It'll make life easier if you deal with the issue swiftly.

Good luck to you! And remember:



© David Maxwell 2019.

Several of the illustrations used on this page are taken from the [freepik.com](https://www.freepik.com) website. Thanks to all of the talented artists whose work I have included here. Thanks also to the six participants who responded to my 'survey' — I appreciate the time and effort that each of you spent thinking about the questions I asked!