

# 1 Introduction

Writing a Ph.D. dissertation is a daunting task. But my experience was not that extremely hard; for my case, the hard part was not with the writing, but with managing the research process. This was actually much, much harder than I had expected — and I heard similar things from my friends who already got their Ph.D. degrees ahead of me.

But for writing part, believe me — it can be *strangely* fun. Writing is a great process that conveys your thinking to other people. Of course there are other ways to express your thinkings; presentations, discussions, lectures, and so on. However, the point of writing is that it is like a construction process that eventually leads to a *great* building. If I rely on analogy, presentations and lectures are like creating small rooms and facilities *inside* your building. Only writing can connect and organize them into a huge, great-looking skyscraper.

In this manuscript, I intend to lay out my lessons writing my Ph.D. dissertation. Well, I do not think that my writing, especially my dissertation, is a quality one. But my writing experience has been felt great most of time. And I want to share my experience — particularly in terms of what you need to prepare — with other ABD<sup>1</sup> students out there. In addition, I want to specify good tools out there for dissertation writing. Different people use different tools but the technical advances in “writing support” have been amazing to me while writing my dissertation. Be sure to get the benefit out of them.

## 2 What you need

### 2.1 Write regularly, but not that much

One thing you will realize after you are done with your first dissertation draft — is probably that you have been writing one page per day on average (double-spaced, 12 pt.).

But please note that this measure is “on average”. Sometimes you might be writing a lot, with your fingers gliding on the keyboard. Of course some other times you might be looking at the blinking cursor for hours and hours without typing anything at all.

The point of writing, in my opinion, is to realize that this is a mental process of pouring down the flow of your thought into a organized form. And like it or not, your mental process is dominated by your cognitive state at this moment; first comes your subconsciousness. You cannot control it but somehow you will notice that your subconsciousness plays a big part with your writing performance; not all of your thoughts are created from your consciousness. If your subconsciousness is not feeling well, you will be facing a strange paucity in the amount of any thoughts in your brain.

Therefore, you cannot avoid writing almost nothing when you do not have any thoughts to write. This is actually very natural; when there is almost nothing in your brain, stop writing. Do something else. A good news is that your subconsciousness is still working even when you are sleeping. When your subconsciousness creates sufficient amount of thoughts, you will be naturally writing a lot.

Second, your thoughts have water-like streaming characteristics. They are not like a stack of materials stored inside a closet, as we typically imagine. When your thought comes up, you need to “save” it somewhere because it is flowing and going away soon. You can retrieve it

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<sup>1</sup>Informal acronym for all-but-dissertation

from your memory later, but a lot of time it is hard. When thoughts are coming up, do not let them flow away. Sit down and write — at least several words (which can be a queue for easily retrieving all the thoughts you are having right now). If you don't have computers nearby, use a pencil and a piece of paper.

And a habit of writing right at the moment when thoughts are coming up helps the current flow keep going. This is important. If the stream dries up completely, you will be having a hard time taking the water from deep down the well of ideas. But if you keep writing — not too frequently but sufficient enough to keep a very shallow thought stream — then you will keep rollin' on.

So the point is that you do not stop writing completely, especially for a long time.<sup>2</sup> If writing your dissertation feels like too stressful, work on “writing” something else. Keep your brain warmed up and mobilized at all the time.

### **2.1.1 Write some other stuffs**

Unfortunately, becoming a good writer takes a long time. I need more time to become a good writer too. As an international student with English being my second language, it is much harder than my English-speaking colleagues. To make matters worse, the Korean language is quite different from English in every aspects; a lot of time I envy my Chinese colleagues because Chinese is way much closer to English in terms of grammar, not to mention people from countries speaking Indo-european languages.

But what writing actually requires, especially academic writing, is your reasoning skill, not much as language skills. Training your brain into generating a stream of well-organized reasoning thoughts takes a huge amount of time. 10,000 hours? [CITE]

Therefore, always write something. Anything is fine. Diary, notes, e-mails, and so on. But one of the best writing practice can be keeping an online blog. Blog postings are typically longer than other form of online writing and this is the environment that induces your brain to organize your thoughts.

In addition, reading books can be important too. Creativity usually starts with imitation. When you read a lot, you will have raw materials for better writing. When you want to take a break, feel free to read. For academic writers, reading is actually another form of writing practice.

## **2.2 Work smart, not hard**

You do not want it and I do not like it either. But put the highest priority on your writing work from your to-do-list for today. Only when your brain is fresh, you can write. When you start your work, get the writing done first and do other things later. Even a small bit of fatigue with your brain will greatly hamper your writing performance.

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<sup>2</sup>This can be different when you are writing a paper instead. For paper writing, a process of “stop writing for fermentation” can be helpful to upgrade your work into a quality one, as if fermentation transforms milk into great cheese. Refer to [CITE, Varian] for more information

## 2.3 Separate writing and editing

# 3 Tools

## 3.1 LaTeX

No wonder LaTeX takes care of numerous chores in dissertation writing for you. For example, you no longer need to pay attentions to the layout of the figures. Table of Contents is automatically generated, and the numbering for tables, figures, math equations, theorems, and so on are all automatically taken care of.

But the most significant feature of LaTeX, in terms of researchers' perspective, is its citation management feature combined with BibTeX. A researcher has to know *where* his knowledge comes from and that is the reason why we need to keep it a habit of tracking citation records. The number of citations for a Ph.D. dissertation easily surpasses 100. If you do not do the record keeping, you will be always lost in recovering your memory.

So how does BibTeX manage your citation records? BibTeX citation file is a simple text file with specific citation field records. [FIGURE] You just need to add entries whenever you come across any good papers.

There are other alternatives such as EndNote. EndNote is popular with Microsoft Office users. I do not have any experience with EndNote, so I skip it in this manuscript.

### 3.1.1 A process of building and managing your paper collection

Personally, I recommend using the combination of Zotero, BibTeX (and LaTeX of course) for managing your paper collection. Imagine it like managing your MP3 music collections. How do you manage your music collection with, say, iTunes or Google Music? You download or purchase MP3 files of your choice, store them into iTunes folders or Google Music cloud space. Whenever you want to listen to them, you rely on browsing or searching features from your iTunes or Google Music.

Similar process can be true of your academic paper collections. Think of Zotero as the iTunes for your paper collection. You search for a paper and download it. Then you save it to Zotero so that Zotero can automatically add the paper to your collections.

Similar to that iTunes can detect the MP3 tags with artist name, song title, album title, etc., Zotero can automatically detect the paper title, author names, published journal or conference name, publication date, and so on. If Zotero fails to autodetect, you can manually enter the information too.

But you need to *export* your Zotero collection into a BibTeX format text file in order to include the citations as inline ones for your dissertation. This is a step not needed for MP3 collections. You just pick one MP3 file and listen to it. For paper writing, imagine like you are writing a MP3 playlist. But the playlist for your paper has to have an intermediary format and BibTeX is the format for the papers being written in LaTeX.

What is the advantage of having another BibTeX format? One handy feature is that academic paper search services such as Google Scholar or Elsevier provide the citation information for a paper in BibTeX format. You can export from Zotero. But you do not necessarily do it only from Zotero and you are not locked-in Zotero only.

**Managing paper pdf files** This section is my praise for Zotero; when you search for a paper and save the web page to Zotero service, Zotero not only saves the web page but also stores the paper pdf files automatically. This saves you a lot of effort from keeping two separate collections simultaneously: citation database and paper PDF file database.

This feature is very similar to Evernote's. Whenever you click on the Evernote button from your web browser, the Evernote plugin clips your web page of interest and saves it. Zotero does the same but it automatically recognizes the paper PDF file linked on the web page and save them altogether.

## **3.2 Editors for LaTeX writing**

### **3.2.1 Vim + Vim LaTeX-Suite**

### **3.2.2 Sublime Text 2 or 3**

### **3.2.3 TeXMaker, Mac os one, and TeXTronics**

### **3.2.4 Learning LaTeX**

**Tables, Figures, and picture import**

## **4 Tips for writing**

## **5 Mental support**

### **5.1 Counselling**

It might sound strange, but this can be important for your research. Sometimes you can have difficult time making progress as a researcher due to some emotional factors. If this is so, consider talking to a counsellor. Usually the symptoms for any emotional problems for a Ph.D. program student can be roughly referred to “depressions.” However, there are numerous reasons when a person experiences depression and it is often hard to identify the specific cause for the depression.

Counsellors are professionals trained to detect this specific cause of the depression and they can give you “prescriptions” depending on your specific type of the depression identified. For example, some people have trouble with fear management. Others might have problems with concentration. These are beyond the scope of your advisor — actually way up beyond their handling capability.

One tip is that you probably have health insurance coverage for counselling. A good(?) news is that the coverage for counselling is usually very nice when your insurance coverage is coming from your graduate assistantship work. (TA or RA) So use them if you need — not only for your mental health but also for your research output and work effectiveness including your advisor and your department as a big community.

## 6 Fun, hobby work

One thing I regret is that I have not had any hobby (or fun) work during my long Ph.D. program period — note that I use the word “hobby work” instead of “hobby” or just “fun.” Do it. Do it regularly like a work — or do it like a regular exercise or training depending on your personal taste.

The main reason is that your brain does need breaks. Having a break from your research work is hard since it is a mental process. As long as you are awake, some thoughts on your research work will always pop up. Well, sometimes you will see them in your dream as well. So it is extremely hard to let your brain — which is the engine for your research work — have some break.

So you have to figure out a way to *enforce* some regular break to your brain. The easiest way is to make your brain concentrate on a totally different thing other than research. What different thing will be good then? Your hobbies are naturally the easiest choice.

Those can be anything. Physical sports activities are the actually the best since they not only gives your brain a significant break but also heals up your body. In terms of brain activity, you will have more blood flow in your brain after your sports activity. And do not forget: healthy body eventually leads to healthy spirit as well.

I would like to recommend art activity as a second. (Unfortunately I am not a sportsman type person and I do not have enough experience with physical sports activity myself.) Personally I listen to jazz and classics. But that is not sufficient since you need a practice-like activity — even with music appreciation. So I started practicing piano playing a few months ago.

From my experience, the benefits of this piano-playing practice are like these: first, as I said before, your brain can have a real break while practicing piano-playing by focusing on something different from research process.

Second, you can explicitly observe your progress as time goes on. It is often hard to see your research progress since this is a mental activity. But these trainings, or practicing things actually generate the evidence that you are making progress. And this can become a big emotional support for your lonely journey of the Ph.D. program.

And finally, your life deserves something valuable other than the Ph.D. degree. And the Ph.D. process takes a long time. Of course, your Ph.D. is invaluable to your life but . . .

## 7 Conclusions