

# Advice from a Researcher #1

Dear PYRN Members,

We are starting a new periodic series of advice columns in collaboration with researchers who have recently become professors. Our goal is to gather the advice and experiences of early career researchers and share them with PYRN members to mentor their future careers. We sent a series of questions to Dr. Kevin Turner, an Associate Professor at Brock University in St. Catharines, Canada, covering a wide range of topics such as career, research, and work-life balance. Below are his answers to these questions, and we hope that they may provide some guidance for you wherever you are in your career.

Dr. Turner completed his PhD at Wilfrid Laurier University in Waterloo, Canada, focusing on describing the hydrology of thermokarst lakes in the Old Crow Flats, in northern Yukon. Since his PhD he has continued to work in the area with a focus on how climate change is affecting the hydrology and permafrost, while working closely with the Vuntut Gwitchin First Nation.

## General Advice

### ***What advice would you give to your former self during your Master's/PhD/Post-doc?***

Negative feedback on ideas, whether written or presented, is needed for development of research and important skill sets. You learn to defend those ideas and it helps to develop them so they have potential of turning into great contributions once surviving the gauntlet.

### ***What was the most unexpected challenge you've faced in your career? What did you learn from it?***

Not receiving grants that took a great deal of time and effort from many during the development phase. You have to be prepared for negative results with limited feedback

no matter how important the research or how well developed the proposal are. This happens to scholars at all levels, not just early career folks, but also more senior researchers with proven records. You just have to roll with the punches as you develop research programs and eventually those well-developed ideas get the support required to make them happen.

Another challenge would be that research programs hang in balance based on the commitment of the students. I have been lucky to have some great students who are committed to seeing their work through. However, it can require supervisors rolling the dice a bit and this can be stressful.

***What new challenges exist for Master's/PhD/Post-docs that didn't exist 5-10 years ago, and how should they deal with these challenges?***

Challenges come and go depending on political, institutional, and individual situations. The current Ontario political situation is accompanied by some serious question marks but we can be hopeful that students will not lose the resources needed to be successful in their studies and careers.

The price tag on a graduate degree, from tuition to groceries, continues to rise. A pitcher of good beer 7 years ago may have been less than \$14. That same pitcher now costs \$18. The price of coffee has inflated too. While these may not seem like essential costs, the point is that it takes a great deal of discipline and effective time management to not develop financial issues. External employment might help but it can often be a limiting factor on research outcomes and may not be permitted when holding certain scholarly awards.

Students who want a PhD or masters need to remember that they do not have to dive in right away if there are too many lurking question marks. Working in a related field can be quite beneficial and add skillsets and contacts that will only strengthen your performance during grad studies later on when the time comes. (Besides, life expectancy is up and 30s are the new 20s). One very beneficial role could be a research technician for a strong lab group. You would pick up skills and potentially datasets that would make the PhD more efficient when the time came. On the other hand, there are also

great options in private and public sectors. I was employed as a geomatics specialist and land survey manager for a geophysical exploration company for almost five years prior to entering grad school. I developed useful skills and saved money for my education. The classes I teach now also benefit from the experience I gained during that time.

### ***Extra Advice to add?***

If interested in a PhD, consider the reasons. It is a huge investment in time and money. Go for it if you have the right reasons to move forward on it. I was encouraged early in my masters to fast track to a PhD, I demonstrated the skills necessary and the project had a lot of depth. But I held off until almost 1.5 years through. I was weary of the cost and new that I would be dependent on my partner (who was a teacher) until I managed to land scholarships. I did know that the research was absolutely at the core of what I wanted to pursue and it won over after careful deliberation. My trepidation transitioned into motivation.

During your program, do not be so stressed out by the unknown outcome of your PhD (e.g., will I finish in time, what job will I get, where is next year's money coming from). While some stress is actually good for motivation, it could make you up tight when things are not going as you plan. It is easier said than done though, but find the mechanisms that help you deal with stress if you find yourself susceptible to it.

If there are skills you want to learn, do it now during your grad studies. If all goes well and you land that great career following graduation, chances are that you will not have as much time to focus on picking up new specialized skills. For example, in addition to my regular lab and fieldwork, I took the time to become proficient with R many years ago. The time put in really paid off given that it is a key software used in my research program and teaching.

Find activities to balance your office work. There is always time to get out and do something that gets the heart rate up. Be active outside when possible. This will certainly reduce stress, plus your brain doesn't shut off. Many ideas that go into my work are initiated away from my laptop while engaging in physical activity. Triathlon

training and races gave me my fix throughout my grad studies. Playing music is another source of enjoyment that can keep the blood pressure in check. Time with family and friends also provides needed balance.

## Career Advice

***Other than their scientific background, what qualities do you value most in Master's/PhD/Post-Docs who you're considering bringing on to your team?***

For senior positions like a PhD or Post Doc, I would highly value strong writing skills and the ability to be a great mentor for the lab.

Having a positive personality goes a long way in the research group.

It depends on the project, but at times students have to be physically capable of hiking long distances through difficult terrain and able to cope with mosquitos, dirt, and everything else that comes with working outside in the north. This is where that positive personality also plays a big role. I do have positions for those who do the vast majority of their research at a computer or in the lab.

***Are there any current changes happening in academia that you think young researchers should prepare themselves for, and if so, how?***

Tenure-track positions seem to be quite competitive since there aren't many of them and there are very strong Post-Docs out there, not to mention established faculty that want to move to a new location. Cuts in university funding do not help this situation. While my preference was to land a tenure-track position, I recognized the low chance, which made me open to the idea of working in private and public sectors outside of academia. I was very lucky that the call for my current position, which was very well suited for me, came a month after defending my PhD thesis. I know that something would have worked out if it was not a good fit, but it may have required me to be open minded about my career. Just because one receives a job elsewhere doesn't mean they

don't have to keep applying for academic positions. However, you must maintain academic ties and continue to make scholarly contributions.

***Other than their scientific background, what qualities do you find Master's/PhD/Post-Docs you're considering for a position most often lack?***

Effective time management can be challenging for many. Treating grad studies like a job and having routine is crucial to accomplish what is needed.

***Is it still "taboo" to do all your schooling in one research group? Under what general circumstances is it not, if any? What does it depend on?***

It isn't taboo if the leaders of those research groups have a network of collaborators who provide additional insight that strengthens research outcomes. Also, many programs can have different elements that allow students/post docs to acquire varied skillsets as they move through their studies.

***When looking for a new position, how do you assess the research group/institution you're interested in?***

Do what you can for researching the group online, read their papers, etc. You need to meet with a shortlist of potential supervisors/employers to get a sense of whether you are a good fit. Make sure to introduce yourself and explain your interests at conferences. Talk to students and Post Docs who work with the supervisor of interest.

***How do you make the most out of conferences, how should students?***

Don't hide in your room watching TV. Make sure you get the most out of the talks to keep up with the latest and greatest research. Follow up all the talks with conversations during coffee breaks and try to meet people you can see yourself collaborating with. A lot of collaborations are sparked over lunch and dinner. Get some sleep and exercise to balance out the sitting, eating and drinking.

***Social networking related to your research is important for many researchers. Do you have some suggestions for young researchers to develop an online presence? How important do you consider it?***

It can be useful for marketing your ideas and accomplishments, and finding resources that keep you up to date in your discipline. Make sure you focus on your research though and don't get caught up with the number of followers and likes you get. How will it impact research outcomes if you spend a couple hours a day chatting/posting on social media. It can be good if you are digging up new resources, but you can find unrelated rabbit holes where time is lost.

***What should students who are having difficulty deciding between a career in research/academia vs industry consider when making their decision?***

I've done both and it has been highly beneficial to have industry on my CV. Initially, it separated me from the other candidates when applying for research programs. The skills I picked up during my time at a geophysical exploration company were highly useful throughout the rest of my grad studies and career, in the field and office. Currently, that experience provides a great deal of teaching resources including content in geomatics, but also an ability to express what students can expect when pursuing private-sector employment after graduation.

You don't have to have your intended dream job right off the bat. You need to continue to develop the skills that are useful for your dream job. And if academia is your dream job, then you cannot stop writing and doing what you can to contribute to that community. Keep those collaborations going.

## Research Advice

***How do you identify good collaborators, and if a project is worth collaborating on?***

Get to the conferences where the potential collaborators are going to be. You can also involve yourself in a research organization or association of some sort. PYRN, APECS and ACUNS are great ones to check out.

***What has helped you improve your journal article/manuscript writing the most?***

Getting my papers torn apart by my supervisor early on in my grad studies.

***How do you stay up to date on research gaps and generate new and novel research ideas?***

Make sure to get article alert emails from key journals. The lists don't take long to scan through to see if there is something useful for your own work. Follow people on Twitter who do research that interests you. They often make posts or references to their latest papers. Have a database of articles that are arranged by area of research. I use Papers<sup>3</sup> (for Mac), but there are other options. I'll initially have folders arranged by subject (e.g., remote sensing, thermokarst/permafrost, carbon, vegetation) and make new folders according to my individual publications and proposals as they develop. Each publication's folder will have all of the cited papers in it.

Make sure to get to the conferences where people who are doing research of your interest will be.

Exercise scientific creativity. The core of your novel contributions is built on your ability to develop research ideas and approaches, and synthesize your findings in intuitive ways. There are many ways to express data. Don't be afraid to try stepping outside of the box once in a while.

***There are many resources on how to write a journal article, which can be overwhelming to new researchers. Are there any resources or pieces of advice you'd recommend to a student writing their first manuscript?***

I have a writing process that is similar to my former supervisor's. I start with the abstract and figures. Developing cool figures is fun. Especially when you consider how much work went into acquiring those data points. They are priceless. Pull together a concise abstract that will provide a guide for the rest of the paper. (The abstract will continue to evolve as you work up the rest). The next step I take is refining the key figures and develop their captions. I also make a list (in paragraph form) of the key points each figure shows. This evolves into your results and discussion sections. Once you have an idea of what figures stay and go, you can know what methods have to stay or go. Get them in there to take up some of that white space. Break the intro into a few pieces that include background, research gaps, objectives, and study site. The conclusion is the race to the finish. Before you know it, you have a working draft. In most cases, this will be torn apart by your supervisor. So make sure to get it to them early but make sure it is as complete as possible.

I personally do not like having built in links between citations and reference sections. My method is to keep the citations highlighted as red text so that I can quickly find them if changes need to be made. Some people like writing with R markdown now. I do not (yet). Feel free to give it a try, but make sure you don't take on any unnecessary learning curves or get stuck in rabbit holes when you are coming down to the wire when producing a thesis or publication.

***Many students do not enjoy writing, how do you make writing more enjoyable/bearable?***

I may have fit in this category at one time, but not now. Writing is a vacation away from many other faculty responsibilities.

Start the writing as soon as possible. Those early conference abstracts and scholarship applications are the basis to get going on your writing. You can hit the gas on it once you get some data and figures together. Have designated writing time each week regardless of other responsibilities. Turn your cell phone off or over during these times. There will come a time when you have to have a long list of things you need to do,



but you have to put the rest aside to get writing done. Enjoy the time that you have during grad studies to only have focus on your research.

Know that your work is going to be a valuable contribution. It is very satisfying to polish off a great paper. This enjoyment comes in stages though along the way as you accomplish the various components. It will be a positive feedback for more writing.

***What things do students often not consider when planning fieldwork?***

Being physically comfortable in the field is important. You have to have the right gear for this. You don't necessarily need the best, but you need the right gear. I work with local Vuntut Gwitchin First Nation guides in northern Yukon. They are quite proficient in the field, and not because they are tough and can bull through the elements, but because they are knowledgeable about the land and smart about how to be comfortable and safe out there. Be smart and safe out there. This starts by learning from those who know more than you about how to work safely in the field. Wilderness safety courses can also help with this.

***Is there any part of the research process that students overlook/don't give enough attention, which could help them become a better researcher?***

Present your work to your lab group and supervisor/committee members whenever possible. You get a sense of where things are working and where improvements or additional analyses are needed. I did this all the way through and it paid off a great deal. I even presented my faculty interview to them since I was basically still in the lab. I saw a lot of improvements that were needed during the practice run and nailed it during the interview.

***How do you manage the constant pressure to continue funding your research?***

I try to not over extend the resources available to my lab. Since it costs a lot of money to do work in the north, I often keep a small number of grad students. One has to apply for as many grants as time permits, but it is important to not allocate funds before they are awarded.

It is impossible to go after all grants independently. Other than NSERC Discovery and Northern Supplement, most grants require a team effort. This comes with the benefit of sharing workload providing there is enough time to form a strong and willing team.

### ***Extra Advice to add?***

Do work on planes to the field and conferences. You can be very productive on a plane. I wrote the majority of these answers on a flight from a conference (since I know I don't have time to deal with it when I get home). That was despite the person in the next seat over leaning on me, the screaming kid in front of me, the dude that passed out on the isle behind me (lots of commotion there), and the person on the other side of me that had lots to say. If you complain of having so much work to do, then you better be doing some of that on planes instead of watching movies. If you have a really long flight, start with some work and reward yourself with a show. You will feel better about it.

## **Lifestyle Advice**

### ***What routines or habits have you picked up to become more efficient at work, or help improve your work-life balance?***

My wife and I had a couple kids while completing my PhD. That made me even more regimented in my studies. She took two maternity leaves from her job during this time. She also took the brunt of the evening calls from down the hall. While there were time constraints on working days and weekends, there was also more motivation to finish up and provide some support for the family. (Let me be clear though, I do not suggest having kids in order to speed up your grad studies).

Healthy living is no secret. Eat well and exercise. Having someone close to communicate and vent can be very important. Take care of your mental health.

***When you want to take some time away from work, how do you “switch off”?***

This can be difficult to do and can take forcing. It is never really switched off anymore. On a run, on a bike, in the pool, in the washroom, whatever, ideas happen. Enjoy it. You have to shut off the stuff that creates negative stress. This can involve completing tasks that you do not want to do. Do them fast and get them out of the way, or be fine with shutting them off while on hiatus. It helps others involved though if they have a clear schedule of when you will be switching off for any extended period.

***What habits/routines do you use to organize your calendar, projects, to-do lists, etc.?***

It starts with my email. No message that requires something from me is marked as ‘read’ until it is dealt with. (This also includes article alerts from journals). Keep in mind that most of my emails are immediately marked ‘read’ before opening (if I know that they require nothing from me or are just updates from unrelated places). I designate part of my day to the tasks that the more important emails are associated with. Try not to overdue this though when you have other personal research goals that need to be taken care of. Sometimes I won’t look at my email at all so that I can focus on my own work. Once in a blue moon the inbox still gets down to zero ‘unread’ emails, but this is rare.

Do your doodles and keep your calendar updated. Don’t let those meeting email notices pass without updating the calendar.

Keep your expenses organized. Take photos of receipts as they come in and file them accordingly. Have separate folders for expense reports in progress, submitted, and paid.

I also keep a non-digital written list of running tasks that need to be taken care of that is sorted according to teaching, research and other stuff. Preparations for field campaigns require their own list.

***What hobbies have you found are the easiest to integrate into your life?***

I chose activities that keep my physically fit. As much as I like baseball and golf, I get way more out of an intense bike ride or swim. Plus, one can have lots of useful ideas come to mind during those activities. Social time mostly comes after. I am a member of a local cycling club and also go for mountain biking trips. I also have friends in Whitehorse who I get out biking with when I stay with when passing through for research. I did more snowboarding during my grad studies days. I've also played a lot of hockey over the years.

During grad studies I completed many triathlons including a couple half 'ironman' races. The training for these often started at 5:30 am. I am a huge supporter of the mid morning nap. The energy from the workout can carry into the workday for a couple hours max, but you can hit a wall. A 30-minute nap can go a long way for me. Follow it up with a caffeinated tea or coffee and you are charged! However, I don't really take much time off at all for lunch and designated a few days a week to work at night after the kids went to sleep. (And also note that too much caffeine can increase blood pressure and stress).

If you take on grad studies, make sure to maintain your mental and physical health to the best of your abilities. For me, that came in the form of physical activity, time with my wife, kids and friends, getting outside, and travelling. Other serious interests of mine include photography and music (mostly guitar and mediocre piano).

***Have you ever had to move to a new country for a position? If so, how did you adjust, and what was difficult about adjusting that you did not expect?***

No, but I got job offers before grad studies in the US. I did not take them because we wanted to stay in Canada. So I started grad studies.

***Extra Advice to add?***

Work to celebrate. The celebration doesn't just have to come at the end of your program. It happens at the end of the day or week after accomplishing the important smaller goals along the way. A sense of accomplishment will improve the taste of any beverage.