It was a long time ago, but I still remember the moment. It was the first time I attended an academic conference during my Ph.D. program and a lady approached me for a chat. We exchanged some greetings and suddenly she asked me: **“What is your research question?”** I continued to talk about my research work, but strangely her responses did not feel very positive. As a result, this interaction left a lasting impression on my mind. It took me some time to understand what the she meant by “research question” and how researchers get to know others’ work using research questions. At the conference, she wanted to communicate with me by focusing on research questions and gave me an opportunity to learn the “research question process" by repeating iterations of formulating and answering these questions through our conversation. This experience left me an important lesson that learning scientific research process requires a switch from “studying hard” to “research question process”. As my knowledge of materials and optic / photonics expanded throughout my research career at NASA, I cultivated my research skills by using the question method. Moreover, I had a great opportunity of meeting a number of exceptional, cutting-edge researchers. From my working experiences with them, I learned that they use the research question method by formulating three questions, “What” / “How” / “What if” to organize their research structure clearly.

Now my primary goal as an educator is to provide my students with a toolkit of knowledge and skills that can be applied to their studies and their everyday lives through the research question process. Based on my experience at NASA as a student, mentor, researcher, and educator, I would like to share my experience to help students build their creative, critical, and logical thinking process and effective research proposal / journal paper writing skills. The point of writing is that it is like a construction process that eventually builds up to a great building. If I keep using the analogy, presentations and lectures are similar to creating small rooms and facilities inside your building. But only with writing, you can organize them into a huge building.

**You can write “Smart”, not “Hard” after the series of talk based on my unique experience and tactics on writing and tactics**

Hyun Jung Kim (4th February 4, 2021)

References:

* Techies-guide-for-dissertation-writing *(by Dr. Jung-woo Sohn)*
* Tomorrow’s Professor (by *Richard M. Reis)*: Preparing for Careers in Science and Engineering This book is a classic. Actually, I did not buy this book due to the high price tag. Instead, however, I did subscribe for their e-mail list which turned out to be pretty helpful. Check out the link at http://cgi.stanford.edu/~dept-ctl/cgi-bin/tomprof/postings.php.
* Getting What You Came For (by *Robert L. Peters)*: The Smart Student’s Guide to Earning an M.A. or a Ph.D. This is another good book for any graduate students, particularly for Ph.D. students. And I hear praises about this book from my colleagues too. But one (personal) problem I found later with this book was that I had not quite fully understood what the book was actually talking about; only after I met the situation myself and went it through, I could fully understand what the author really meant. (for example, explanations on the experience examples for a comprehensive exam. The highlight on the miscommunication issue — between what committee look for and what students tend to go for — was described in the book, but it was rather abstract and filled with use of analogy to apply to my specific case.) Still it is definitely better than tackling something without having any knowledge about it at all. So, keep a copy near you.
* How to build an economic model in your spare time (by *Hal R. Varian)*
* On writing well (*by William Zinsser)*