談話室 (海外研究体験記)

Living Abroad

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When I was in middle school, my father told me that I should go as far as I can and this has encouraged me until now. My hometown Guizhou is in Southwest China. I stayed there until I was 17 years of age after that I went to Beijing to continue my studies. Luckily, I was offered a chance to study in the Department of Chemistry at Peking University, one place I never dreamed of when I was a child.

It might be a cultural aspect, but more than half of the students in the Department of Chemistry at Peking University study abroad after finishing undergraduate school. Most of them go to US because of the better education quality and, perhaps more importantly, because of the financial support from US graduate schools. Most students start preparing for English assessment tests such as GRE from the first year onward to be admitted to a US graduate school. Everyone followed the same path and even I followed my friends without further considerations. This process turned out to be pretty important and, at least, my English improved.

Then, the September 11 attacks took place during my sophomore year and this attack shocked the world. This largely affected the students who wanted to study in US. For security reasons, getting a student visa became very strict as background checks took a very long time. Several students having a background in chemistry did not get a visa even though they were already offered one from their respective US University. Several senior students had to find a part-time job

in Beijing while waiting for the visa information. In the same year, I met my current wife who was a Japanese exchange student at Peking University, and this largely changed my mind. I started to consider the possibility about getting my Ph.D. in Japan although there were two important barriers. The first was the language issue as I had never studied Japanese before. The second one was financial support. At that time, I felt I needed some advice from others. In this sense, Prof. Zhongfan Liu was one of the professors in my department who had studied and worked in Japan. I mailed him and it was nice of him to answer all my questions. Approximately two weeks after I contacted him, he asked me to attend a symposium in Beijing and told me that there were several professors attending this meeting and that it would be a good chance to have a talk with them.

I attended all talks during the symposium, but I could not follow them at all. During lunch time, Prof. Liu introduced me to Prof. Kazuhito Hashimoto from University of Tokyo, and he mentioned that my girlfriend was Japanese. Prof. Hashimoto said it was a very good reason to study in Japan and made me an offer right away. It surprised me, but I was also very excited about it.

Later, after I got the confirmation from Prof. Hashimoto, I was informed that there were two things I needed to do. First, I had to pass the entrance exam to the University of Tokyo Graduate School after arriving in Japan. Second, I needed to prepare a proposal for a MEXT scholarship. The good thing was I did not really need to study Japanese because the official language at the lab was English. I was lucky enough to get the scholarship and to pass the exam without much trouble. I still remember my classmate Xiaocheng Jiang helping me revise my proposal until midnight just before I submitted it to MEXT. I have fond memories of the same.

Prof. Hashimoto's lab is huge but definitely well-organized. I was assigned to the subgroup that was led by Prof. Keisuke Tajima who worked on organic solar cells and organic thin-film transistors. Studying in the Hashimoto's lab was joyful and efficient. Education was strongly encouraged in the lab since there were several discussions, seminars, and study meetings. All these meetings were held in English as there were many non-Japanese speakers in the lab. Surprisingly, the Assistant Professors typically did the experimental work with the students while also teaching them on how to design and conduct the experiments. I believe that the students learned a

Fig. 1. (color online). Photo of the Hashimoto Lab members taken in Korea.

lot about things that cannot be known from a text book. There were at least five subgroups working on different projects including photocatalysis, artificial photosynthesis, microbial fuel cells, molecular magnets, and organic semiconductors, during my time there. It was impossible for me to fully understand the science developed in other subgroups, but the time spent there was valuable because I could ask any question I wanted to know (even the very naive ones) during the group meetings. I realized that this experience would be extremely important once I graduate. In addition to that, the lab travels were really fun (**Fig. 1**).

After I got my Ph.D., I applied to pursue a postdoctorate at the University of Massachusetts Amherst (UMass) under Profs. Jim Watkins and Alex Briseno on R2R fabrication of large-area devices. The working style at UMass was very different. Everyone was independent and you was nicely supported if you had a good proposal (e.g., having a drink with them). Jim and I were from different backgrounds, but we could combine ideas to make the project work. The weekly group lunch was one of the most expected events during my stay there (**Fig. 2**). I met many friends from China, India, and Korea in Amherst, but the number of researchers and students

Fig. 2. (color online). Photo of Watkins' group taken in a restaurant.

from Japan was really low. I think this was due to cultural differences rather than population issues.

I started to carefully think about my career after a year's stay at UMass. I wanted to continue my academic career by finding a faculty position in the US. Jim told me it might be possible but I needed more experience in different groups because I did not have many contacts. (This is nearly similar for all countries). The situation changed after the 2011 Tohoku earthquake and tsunami, since my wife and I felt it was better to move close to our family. In that year, I met Dr. Takao Ishida at AIST during the MRS meeting in Boston. I decided to join his group to work on organic thermoelectric materials. This is my 4th year in Tsukuba, and I have to say that Tsukuba is a really nice city.

I have been living abroad for more than 10 years. As people often say "Time flies when you're having fun," I did enjoy my life abroad. I do not think that cultural differences and language issues make life difficult at different places. The most important thing is to be honest and communicate with people from the heart. One can learn a lot from different people in different countries. I strongly recommend all students and young researchers to take a chance to live abroad while studying or carrying out a scientific career.