

(For JSPS Fellow)

Form B-2  
(FY2018)

Date (日付)  
18/12/2018 (Date/Month/Year: 日/月/年)

**Activity Report -Science Dialogue Program-**  
(サイエンス・ダイアログ事業 実施報告書)

- Fellow's name (講師氏名): SONG Mengjie (ID No. P17365)

- Participating school (学校名): Takezono High School (竹園高等学校)

- Date (実施日時): 06/12/2018 (Date/Month/Year: 日/月/年)

- Lecture title (講演題目): Phase change and culture bridge: Face-to-face communication with a researcher (相変化と文化橋: 研究者との対面交流)

- Name and title of your accompanying person (講義補助者 職・氏名)  
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- Lecture format (講演形式):

◆Lecture time (講演時間) about 50 min (分), Q&A time (質疑応答時間) about 20 min (分)

◆Lecture style (ex.: used projector, conducted experiments)

(講演方法 (例: プロジェクター使用による講演、実験・実習の有無など))

Presentation used prpjector and experimental setup explain

- Lecture summary (講演概要): Please summary your lecture 200-500 words.

The lecture contains three sections, presentation, the Q&A, and experimental setup show in chronological order. In the presentation section, my mother country, self-introduction, my two research topics, and my final suggestions to students and two teachers there, were given. When I introduced my mother country, China, the map was used, to further explain the resources, economy, population, and languages, etc. To make it more interesting, I specially introduced the delicious foods in different regions, as well as some super transpration projects to describe the China government development drawings. This is followed by my shortly experience, as required. My two research topics, flowing boiling for data center cooling and frosting/defrosting for heat pump, both around phase change, were carefully introduced. In my final two important suggestions, the cluture barrier was mentioned, taking the reason why willow planted near Kaminarimon as an exapmle. In Chinese, the pronunciation of willow is *liú* (柳). It is similar to another Chinese character *liú* (留), which stands for *stay here*. People used willow to express welcome and memory, and said goodbye to relatives or friends with willow branches as gift. So the willow has some culture meaning. However, in the Japanese pronunciation, the two words are totally different, *ya na gi* (やなぎ) and *kokoni ite kudasai*, respectively. This maybe one

reason why most Japanese do not know why the willow is planted near Kaminarimon. I also used dialect imitation to interest them, by speaking *what do you want to say* in English, Mandarin, Changsha dialect, and Cantonese. I encouraged students to speak this sentence in Japanese, and feel their differences. It is so interesting, and would encourage them read more books, and do more travelling. The other suggestion is to cherish the time, which is so valuable for anyone, especially for students at high school.

After the presentation, about 20 mins were used for Q&A. Students asked some questions, and I answered them. For example, a boy asked me, why you decided to be a scientist. I explained that, I am not a scientist, just a researcher. My career road is not simply decided in one time, while I tried many different jobs, and found this one is what I like and I can do it better. I used an old Chinese poem to explain it, *you can enjoy a grander sight, by climbing to a greater height* (欲穷千里目, 更上一层楼). Meanwhile, I showed them in the Chinese map, where is *Guanque Lou* (Heron Tower, 鹳雀楼), about the poem, and where is *Huanghe Lou* (Yellow Crane Tower, 黄鹤楼), about another popular Tang's poem. Although I am a researcher on *Phase change*, but I always try my best to act as a *Culture bridge* for them. When we go across the time and space, the answer is always there. In this way, I believe they will remember my answers, and consider my suggestions.

In the last section, I showed series of equipment I took there, including different types of micro-channel heat exchangers, specially made electricity heaters, pressure (difference) sensors, insulation materials, thermocouples, and tailor-made connectors, etc. All the students and teachers came to desk where I stood. They held them in hands, and I explained to them. The micro-channel heat exchangers attracted most attentions. The diameter of channel is small, from 1 mm to 10 mm. The refrigerant, such as water, flows inside of the channels, and takes heat away by boiling. The phase change process takes a lot of energy, at a latent heat style. They became interested in the energy topic, and I invited them visiting our lab when they have some spare time, at any time.

After the experimental setup show, they also asked me some questions about personal future, such as travelling and eating in China, reading research degrees in Hong Kong, and choosing different majors, etc. I answered them, and the most memorable things is the economy consumption level comparison between Japan and China. The transportation fee is about USD 7.84 per 100 km in China, while it costs USD 29.51 per 100 km in Japan. Also, the hotel in China charges by room, for example two persons, while charges by person in Japan. The unit price is also much higher in Japan. It is easy to understand that, Japan is developed, while China is still developing. Using these information, I just encourage them do more travelling, and broaden their horizons as young.

It is a very good and memorable presentation for me, and for them I think. I also learned a lot from the communication. It is a good chance for me to understand and know more about Japan society and youngsters. I think it is very valuable for JSPS research fellows to understand more about Japan. After all, it is a good way to make contributions for the Japan society.

- Overall advice or comments to future participants in the program (今後の講師へのアドバイス):

1 If the lecture is given later, after JSPS researchers came Japan more time, it would be better.

2 Only presentation is not enough. Equipmental setup showing is a good example.

3 There are some interesting culture barriers existed, which is interesting and useful to make the presentation fruitful.

4 If the high school student could visit our lab, it maybe also good for them.

- Other noteworthy information (その他特筆すべき事項):

1 I do not receive email about the company person, and thus I prepared and presented by myself.

It is a good challenge. Luckily, I have relative experience.

- Impressions and comments from the accompanying person (講義補助者の方から、本事業に対する意見・感想等がありましたら、お願いいたします。)