

Teaching Experience on Metals and Power Plants for High School Students in Bandung, Indonesia

Unit K, Destination  Institut Teknologi Bandung (ITB)

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Schedule at ITB Bandung (Itinerary)

Day	Date	Activity	Place
1	8 th . Sep.	Arrival from Japan at Bandung	Jakarta→Bandung
2	9 th . Sep.	Meeting with representative	ITB
3	10 th . Sep.	Go to 2 high schools	2 high schools
4,5	11,12 th . Sep.	Lesson practice (1 st , 2 nd time)	SMA Negeri 22
6,7	13,14 th . Sep.	Sightseeing of Bandung	Bandung
8	15 th . Sep.	Preparation for Lesson Practice	Hotel
9,10	16,17 th . Sep.	Lesson practice (3 rd , 4 th time)	SMA Taruna Bakti
11	18 th . Sep.	Preparation for Final presentation	Hotel
12	19 th . Sep.	Final presentation	ITB
13	20 th . Sep.	Departure	Bandung→Jakarta

Science lesson practice -Metals and Power Plants-



Realizations and improvements

•Good points

- We tried to make our lesson as humorous as possible to draw students' attention.
- We tried to explain concepts in a simple manner.

•Bad points and improvements

- We thought that contents were unclear.
 - We focused on few items.
 - We added more explanations.
- We couldn't use appropriate words.
 - Made handouts.
 - Changed the explanation from using technical terms to common words.
- We couldn't fluently speak English.
 - Memorized our script.
- The video was too long.
 - Re-edited the video.
- The lesson was still difficult to understand.
 - Used some Indonesian language.
 - Rearranged the flow of contents.

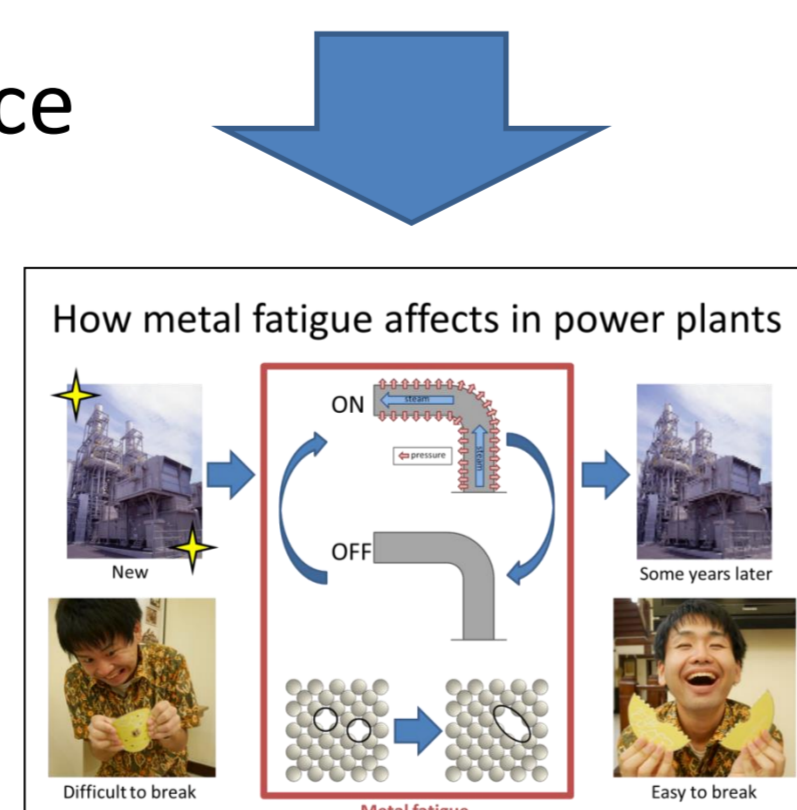
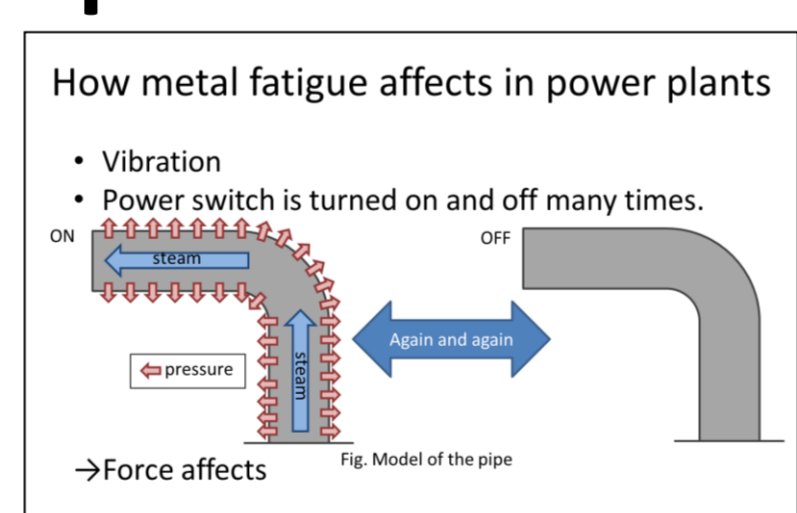
Example of the improvement in metal fatigue part

The relationship between fundamental knowledge of metal fatigue and its occurrence in power plants was difficult to understand.

We put pictures of experiments to understand the relationship more easily.

Results of improvements

Many comments from students referred to the research. This implied their lesson comprehension.



Objective

To identify the relationships between (metal) material science and the society through learning, "metal fatigue" and "creep phenomenon"

Flow of the Lesson

- Thermal power plants
- Metal characteristics
- Deformations (elastic deformation and plastic deformation)
- Metal fatigue
- Creep phenomenon
- Explanation of our study



Before going to Indonesia

- We put a video to motivate students.
 - To simplify, we decided to show actual examples to students.
- Even though we made these preparations, we thought metal fatigue and creep phenomenon might be difficult to understand.

Comments from students

•Good points

- Contents and experiments were fun.
- Difficult thing but easy to understand (understandable).
- Useful for life
- New knowledge

•Bad points

- English (pronunciation)
- Difficult explanation, Difficult words



Valuable Experience in Bandung



Batik

Batik is a technique of manual wax-resist dyeing applied to whole cloth, or cloth made using this technique. We made our own batiks. We thought it was similar to indigo dyeing in Japan. We thought that Indonesia and Japan we have some similar cultural aspects.

Cultural Sessions

•Sundanese culture

The Sundanese are an ethnic group native to the western part of the Indonesian island of Java. We wore Sundanese traditional clothes. Their colors were more vivid comparing to Japanese clothes. We guess the difference came from different environments; e.g. color and variation of plants.



• Balinese culture

We tried traditional Balinese musical instruments called, "Gamelan," and traditional dancing. We felt the instruments' sound was so mysterious. The dance has a unique movement and it was so difficult for us.



Hot spring



When we go to "Onsen" in Japan, we take a bath without clothes. But in Indonesia, we got into hot spring with clothes.

Bandung Tamansari Zoo

We were surprised that animals were human-friendly than those in Japan. We played with an orangutan and a snake.



Conclusion

The good point was we have made remarkable progress from the first class to the last class.

In this program, we learnt a lot. There were so many first experiences in Indonesia; for example, different food, different clothes, different religion and so on. Each time, we were surprised and eventually we felt we became stronger and wiser.

We believe that we obtained wider point of view, and the friendship we made in Bandung and Chiba should be everlasting. Terima kasih banyak!

Language barrier is inevitable. I felt it is difficult to tell what I think in different languages, but we can try expressing ourselves by using body languages and other means. In addition, I noticed relationship between speakers and audience is important for communication. These findings will be priceless for my future as a global researcher. Junya Ono

As it was difficult to explain creep phenomenon, we decided to use more fundamental knowledge. The idea allowed me to have opportunities to reconsider about my research from fundamental aspect. This will be useful for my future research. Wataru Eto

The program changed my point of view. For university students, it is not so often for us to focus our attention to Southeast Asia. It was a big chance to us. I was so lucky that I could participate in this program. Now I love Indonesia and Indonesian people. Chion Okamoto

Comparing to high school students in Japan, I felt Indonesian students were more active. I want to be a teacher. I thought we, teachers in Japan, should be more active to get students more motivated. Hirotaka Nishimura