Topic: TRANSISTOR (INTRODUCTION TO RESEARCH)

Unit: B
Place Visited: University of Udayana
SMAN 3 Denpasar
Duration: 28 January – 10 February 2013
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1 Objective

In this lesson, each student was expected to:

- become familiar with how transistors work; and
- be able to realize that creativity and open mindedness are important in producing inventions.

2 Flow of the lesson

The lesson was conducted for 45 minutes each to four classes. Each class had 40 students. The discussion focused on transistors, and how this technology could be applied to displays. Afterwards, the students were asked to use their creative imagination in designing a "technology of the future."

Figure 1. Experiment on visual illusion

Table 1. Flow of the lesson

Time Allotment	Activity	Teaching Materials
2 mins.	I. Self-Introduction - Introduce the group members in Indonesian language.	Papers
3 mins.	II. Introduction to Transistors A. Emphasize that transistors are indispensable, since they are used in many electric appliances.	Power point presentation on transistors
5 mins.	B. Introduce the concept of "Displays" through an animation called, "Detective Conan." Later on, this concept will help students realize that transistors are used in displays. C. Function of transistors in displays 1. Displays have lots of tiny lights 2. Demonstration about 3 primary colors of lights →By turning the lights on and off, we can produce various colors 3. If we want to turn on or turn off the light, a switch is needed. →"transistor"="switch"	Movie/Short Animation (Detective Conan)
10 mins. 5 mins.	D. Characteristics of transistors 1. Ask the students to describe the physical characteristics of a transistor. 2. Emphasize that transistors and electric devices possess the same characteristics. 3. Relate the transistor to Conan's glasses, which can project displays.	Transistors
5 mins.	E. Timeline of development of transistors - Show a movie about the technological development of transistors, from its inception until the invention of organic transistors (the most recent one).	Movie/Video clip

Time Allotment	Activity	Teaching Materials
8 mins. 5 mins.	III. Activity A. Ask the students to draw a picture of the technology they want to be realized in the future. B. Sharing of outputs IV. Conclusion Help the students realize that creativity and open mindedness are important in producing inventions	

3 Realizations

These were the realizations of our group, after we had our internship in Indonesia.

Plus points

a. Using audio-visual aids (movies, video clips) was effective in keeping the students' interest, and in delineating the flow of the lesson.
b. We were able to get the students' attention by using, "Detective Conan" as a springboard for discussion of transistors. He seemed to be really famous in Indonesia.

Minus points

a. It was difficult to explain about "transistor" in the limited time, because the students were not familiar with this concept.
b. We were not able to make a detailed instruction for our activity.

4 Implications for future activities

Before the class, we were very anxious about the possible responses of the students with regard to the activity that we prepared for them. But after the class, we noticed the importance of feelings that trying to convey.

We watched how the facial expressions of the students shifted from one activity to the other. We believe that teachers should use these expressions as indirect feedbacks from the students. We realize also that instructions should be specific and short. Students should be encouraged to ask questions before executing the next activity.

Topic: FUKUWARAI

Unit: B
Place Visited: University of Udayana
SMAN 3 Denpasar
Duration: 28 January – 11 February 2013
Name: Haruka Takase
Affiliation: Faculty of Education

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1 Objective

In this lesson, each student was expected to:

- be able to realize that there are many unique towns in Tokyo; and
- experience the enjoyment of playing, "Fukuwari," a Japanese traditional game and acquiring vicarious learning experience about snow in Japan.

2 Flow of the lesson

The discussion focused on some Tokyo districts, and how to play, "Fukuwarai." We added another topic on snow and Japanese lessons since the original 45-minute lesson was extended to 90 minutes. Table 1 shows the flow of the lesson.

Table 1. Flow of the lesson

Time Allotment	Activity	Teaching Materials
10mins.	I. Introduction A. Self-Introduction B. Introduction to Chiba University	Power point presentation Video clip
45 mins.	II. Development: Part 1 A. An Introduction to Tokyo Districts 1. Akihabara 2. Harajuku 3. Shibuya	Power point presentation and video clips

Time Allotment	Activity	Teaching Materials
	4. Ginza 5. Asakusa Play game (FUKUWARAI)	Fukuwarai goods
5 mins.	III. Conclusion: Part 1 Compare areas between Bali and Tokyo	Power point presentation Maps
	BREAK	
15 mins.	IV. Development Part 2 A. Snow in Japan B. Japanese expressions	Power point presentation Whiteboard
5 mins.	III. Conclusion: Part 2 Question-and-answer portion	

Tidbits about the lesson;

During the first class, a lot of students expressed their keen interest in Chiba University, so we had to extend our time for this activity.

Although we only chose 5 districts for our discussion, we informed them that many other areas in Tokyo are left unexplored. We invited them to visit them someday.

We wanted the students to become adept with both the traditional and the latest Japanese culture. In this regard, we taught them how to play FUKUWARAI, a traditional Japanese game (see figure 1).

Since the lesson was extended, we added a second topic, which dealt about snow in Japan. We chose this topic because we thought that most students have never seen snow. To aim for simulated experience, we played a short video clip; even the sound produced when one steps on snow was recorded.

Figure 1. Teaching how to play, "Fukuwarai"

3 Realizations

Plus points

a. Using the language of the students during self-introduction was a good strategy to get the students' attention. It implied our willingness to connect with them.
b. Using audio-visual aids was effective.
c. Introducing, "FUKUWARAI" was an effective motivational strategy.
d. We found out that objects in the environment and natural phenomena could be used as springboard for discussion.

Minus points

a. The students already knew most of the words we taught during the Japanese lesson.
b. We could not some of their questions on the history of Origami, and Japanese ghosts.
c. The time was cut short for the question-and-answer portion.

4 Implications for future activities

The main challenge here to be able to prepare interactive and interesting activities for the students. The Japanese students who will conduct internship in the future should also be adept about Japanese history and culture. It will leave a good impression to the Indonesian students, who are also adept in their own culture and history.

Topic: INTERNATIONAL EXCHANGE IN INDONESIA

Unit: B
Place Visited: Udayana University
SMAN 3 Denpasar
Duration: 28 January – 11 February 2013
Name: Sho Hasegawa
Affiliation: Faculty of Engineering

This is a narrative of our experience and realizations after we had our internship in Indonesia.

Life in Bali: A Personal Experience. Our group decided that since we were in Bali, we should make the most out of our visit in that place. That's why we tried renting some cars. More often than not, we would use rental cars to go to the classes, have our meals, or even go sightseeing. While driving, we noticed that 80% of vehicles on the road are motorcycles. We even saw a "child" who was driving a motorcycle. In Japan, this would not be allowed, so we were a little surprised.

When we went to schools, we noticed that as compared to Japanese people, Indonesian students seemed to be very open to mistakes. For example, in one English class, most of the students would try to converse with each other, even though their grammar was not perfect. In Japan, we would converse using textbook or dictionary grammar.

During our visit, we met a high school student, who eventually became our friend. After class, we went over to his house after we got invited for dinner. From our conversation, we learned that he has a Japanese mother and an Indonesian father. He could also speak Japanese. His Japanese mother has been living in Indonesia for 20 years already, and she has been managing a family restaurant. She said that she would often receive many questions about Japan from her customers. We ate curry, and it was very delicious.

As we travelled from one place to another, we met some locals. We talked with them, and we learned that there were many Indonesians who

knew Japanese manga (comics), animations, and songs. Mayumi Itsuwa's "Kokoro no tomo" was the hype at that time; they quipped that the song was, “the second national anthem of Indonesia.”

When we tried to buy our meals, it was remarkable that Wi-Fi environment was set-up in convenience stores, café, and restaurants. In Japan, we could use our smartphones using Wi-Fi connection. However, few locals carried smartphones because we heard that they were expensive in Indonesia. But high school students used laptops in their schools. One problem that we had was the toilet. More often, toilets were hard to find in these places, and tissue rolls were sometimes not available.

What struck us most was Indonesia’s practice of Bali Hinduism. It seemed that there were a lot of Hindu temples in Bali. But giving offerings was not limited to temples. We saw people placing religious offerings thing in front of buildings, convenience stores, and classrooms. Because owe were able to explore on our own, we believe that our experience in Bali was an enriched one.

Topic: PRE- AND POST-TRAININGS IN INDONESIA

Unit: B
Place Visited: Udayana University
SMAN 3 Denpasar
Duration: 28 January – 11 February 2013
Name: Sho Hasegawa
Affiliation: Faculty of Engineering

This is a simple outline of our pre- and post training experiences, and realizations on our internship in Indonesia.

For the trainings, we had to conduct two sessions. One session focused on self-introduction, and the flow of lessons during science and culture classes. The other session was the summary of feedback from the students. After which, the teacher gave their own insights regarding our internship and lessons.

a. The pre training (Before the actual lessons were conducted)

- We introduced our research works, which became the topics of our lessons.
- We showed the flow of each lesson in science and in culture (table 1).
- We received some advices for our lessons.

Table 1. The flow of lesson: Science and Culture

Science	Culture Class
1. Brief introduction to transistor 2. Introduction to function of transistor 3. Current transistor and futuristic transistor (i.e. Conan's glasses) 4. Introduction to the most recent types of transistors and the displays 5. Activity (students were asked to draw futuristic devices)	1. Introduction to Chiba university 2. Introduction to Tokyo districts - Akihabara, Harajuku, Shibuya, Ginza, Asakusa 3. Activity: "Fukuwarai" 4. Japanese snow 5. Japanese expressions

b. The post training (After the lessons were conducted)

We presented the reactions of students in our class, and the teachers gave some pointers for our improvement (Table 2).

Table 2. Post training Activities

Science	Culture Class
1. Brief introduction to transistor • Students were interested with photoelectric products using transistors. • The students' motivation seemed to improve when a video-clip of Detective Conan was shown. 2. Introduction to function of transistor • The time allotted (45 minutes) was not enough to explain transistors in detail. • Our use of audiovisual aids was inefficient. We needed to use more materials to help them understand our research topic.	1. Introduction to Chiba university • Varied degree of interest toward Chiba University were observed between first and second grade. 2. Introduction to Tokyo districts • Using movie seemed to be very efficient. • Unlike most Japanese students, Indonesian students responded very actively. • Students showed much interest toward certain aspects of modern culture than that of traditional culture.

Science	Culture Class
3. Current transistor and futuristic transistor • Showing a device, which used a transistor was effective. • When we asked, "What are the characteristics of transistors?" we got few answers. The students needed more wait-time for this question. • It seemed difficult for students to grasp the characteristics of transistors. 4. Introduction to the most recent types of transistors and displays • The students seemed interested in the movie. 5. Activity • We encouraged them to believe that imaginations can become a reality (e.g. invention of airplane) • Many students got inspired by Doraemon. • Quoting Thomas Edison seemed effective to improve students' motivation to think of ideas and never give up.	3. Activity • The students could experience playing, "Fukuwarai." • The degree of enthusiasm of the groups was obvious. 4. Japanese snow 5. Japanese expressions • We introduced what is not seen in Indonesia; i.e. snow. • We had to change the level of e difficulty of Japanese words, because the students had learned basic Japanese in their classes. **Conclusion:** • Importance of having mind that everything could be teaching materials. • We introduced what is not seen in Indonesia. • We didn't know students have Japanese class in the high school. For the second time, we change difficulty of Japanese words.