The present state of lab safety education for international graduate students in Japanese National Universities and its implications

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A nation-wide survey on lab safety education of international graduate students in national universities in Japan was conducted. The results of the over 230 respondents revealed that lab safety instruction varied from place to place and, while the majority of the graduate students felt that they received sufficient instruction, 31% said that what was provided wasn’t enough and 13% said it wasn’t provided at all. Language emerged as a key issue as the results showed that while one fourth reported that they had good Japanese language skills, half of the graduate students said that instruction was provided in Japanese. Many graduate students wrote pleas for more manuals and instruction in English. Write-in comments indicated a gap between the conditions of labs in their own countries and the well-equipped labs in Japan that was not always recognized by the instructor, resulting in insufficient instruction. The results of the survey imply that action needs to be taken to provide a system for better safety instruction/training and to provide it in English for international students doing graduate research in Japan.

Keywords: lab safety education, international graduate students, Japan

1. Introduction

Since national universities were privatized in Japan in 2004, they became subject to the Industrial Hygiene and Safety Law. In the aftermath of the Kobe and, more recently, the Tohoku earthquakes, great emphasis has been placed on disaster response and safety management. It was recognized that international students had unique needs in such events and universities have responded by providing disaster response training, usually as part of the orientation for incoming students. However, stories from international students about lab accidents or near misses indicated that lab safety training was also an issue to be considered. In order to discover the actual situation of laboratory safety education for international graduate students, a survey of international graduate students was conducted at the Faculty of Agriculture of Ehime University, Japan in 20131) which revealed that not all of the students were receiving sufficient safety instruction. In order to discover if this was the case throughout Japan, and as a first step in determining the needs of the international graduate students involved in laboratory research in Japan, a survey of international graduate students in Japanese national universities was conducted in the fall of 2014. This is a report of the results of the survey.

2. Survey Method

We decided to target international graduate students because that is where the issue arose. At the undergraduate level, all students use Japanese and international students receive the same lab training as the Japanese undergraduate students. However, at the graduate level many of the international students use English and the 2013 survey at Ehime University indicated that language may be a problem. The survey was sent to national universities because not many private universities have laboratory facilities. In order to make it easy for students to respond, the questionnaire was created using Google Docs and administered online. The survey was sent to all national universities and 239 responses were received of which 2 were from non-students (1 office staff person and one professor).

3. Language Ability

The students were asked to evaluate their language skills. When asked how well they could use Japanese, 24% said that they read well and 28% indicated they had good English ability 84% said that they read English well and 80% reporting good listening skills.

4. Student Status

Of the students who responded, 31% were masters course students, 62% were in a doctoral course and 7% were research students. A great majority, about 90%, were
in science-related fields. The other 10% were in the humanities and did not do laboratory experiments. Of those who responded, 70% were at regional universities.

5. Survey Results

5.1 Safety Training

When asked if they had received lab safety lectures, safety training or the equivalent, 40% answered ‘yes’. 21% said they received no safety lectures or training courses and 33% reported that they had had a few lectures or training. Even though there may be no special lectures or training sessions, it is possible that individual guidance was provided so we asked a more general question. ‘Did you feel you received sufficient training in your lab?’ Here again, while 56% said that they felt they received sufficient training, 13% said they didn’t and 31% said they felt they didn’t receive enough.

5.2 Language used for safety education

The training that did occur was provided in Japanese for 50% of the respondents and in English for 41%. 70% reported that instruction manuals for equipment, methods and/or facilities were available in Japanese, but only 39% said that English manuals were provided. One student wrote ‘I attended the lectures…but it was completely in Japanese, which means I understood nothing…I spend the first year there almost everyday more than 12 hours and I felt no good, my eyes became red and I felt discomfort in my throat and headache.’ Another student wrote ‘I found that if the student knows you know a bit of Japanese, they will always stick to Japanese regardless of whether you understand what they are talking about. ….because if you know only a bit of Japanese, doesn’t mean that you will understand’

5.3 Damage to equipment or facilities

In response to the question ‘During an experiment or practical training have you ever broken equipment or damaged facilities due to lack of information?’ 82% of the respondents reported that they had not broken equipment or damaged facilities due to lack of information, but 11% said they did and 6% almost did. Luckily only 3% (6 people) reported having been injured as a result of insufficient information.

5.4 Safety education provider

When asked how safety training was provided, the answers ranged from a formal training session to some one in the lab showing them how to use the equipment. The person providing the training also varied from the main supervisor to a senior international student.

5.5 Safety training background

Another issue which emerged from the respondents’ written comments was the fact that ‘most of the graduate students have no experience on research before they enter the Japanese school’. A majority of the students are from developing countries where the labs are not as well-equipped as in Japan. The students may be knowledgeable about the subject, but have not had hands-on experience using the equipment and materials needed for research. Another student referred to the problem as ‘an assumption of prior knowledge’ where the professor assumed that, at a graduate student level, they would know how to handle the equipment.

5.6 Language barrier

One student pointed out the need to confirm whether or not the students understand when instruction is provided. “It is important to explain to the students the safety information until they totally understand, partly because of the language barrier.” It is not uncommon for students to nod, indicating they understand when they really do not. They don’t want to appear ignorant, or they may think they understand when they really do not. In written-in comments, at least 35 students expressed the need for instruction and manuals in English.

6. Implications

The results of the survey clearly showed a need to provide information in a language that the students understand. A few requested that they prefer to have safety instruction in their own language, but most requested that it be in English. The lack of an organized approach to safety training was evident, suggesting a need for some kind of system, or even a checklist, to insure that the students receive all the information they need. It is also important to confirm if the student has understood completely or not.

Japan is committed to increasing the number of international students, therefore this is an issue that will not go away. One way to attract students, especially at the graduate level, is to offer all instruction in English. This means there will be more students who do not know Japanese well. If nothing else, an effort should be made to provide safety manuals and training in English.

Acknowledgement

This research was partially supported by the Ministry of Education, Science, Sports and Culture, Grant-in-Aid for Scientific Research (A), 25242014, 2013-2015.

Reference