

# **One Condition for Successful Global Engineers: Teaching How to Make Peace with Differences**

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## Abstract

This paper discusses the teaching method to lead Japanese college students to awareness of one's cultural identities, and of understanding the significance of working and interacting with people from different cultures. This teaching attempt is an on-going program. The identified problems are Japanese students' difficulty in self-disclosure, inclination to perfectionism, peer pressure that can lead to passive attitude in classrooms, and difficulty grasping abstract ideas. To stimulate classroom activities, sharing thoughts and ideas through writing instead of speaking seems to ease Japanese students' tensions. Creating a non-judgmental atmosphere in classroom cannot be overlooked as well. Most of all, students should be reminded that they can make conscious choices – ignoring, struggling, rejecting, or hopefully, accepting and making peace with people of different cultures –.

## 1 Background

With increasing opportunities to work globally, understanding local cultures is crucial for successful engineers. One such example is the fact that product specifications are partially or entirely defined by cultural norms and codes. In Japan, many industrial products need to be extremely small, perfectly clean, scratch-free, and almost overly well wrapped (from Western standard) even for home use. These characteristics can be attributed to Japanese house structures, notion of *Kegare* (impurity) and *Harae/Kiyome* (purification), tendency of perfectionism, and gift-giving customs. One cannot categorize these practices as being ridiculous and must be able to avoid applying one's own value system to them. Another example is business practice. It is extremely important in business transactions to have banquets to share drinks and meals in China. There, your character is being tested as well as your ability to hold alcohol. The same practice is also true in Japan. Business decisions are often made in banquets but never discussed in detail. When one establishes good relationships with people in Western countries, one is often invited to their homes. It rarely happens in Japan. The person may wonder if his/her Japanese friend is really a friend. On the other hand, Japanese people feel ashamed to have their Western friends coming over for Japanese houses are generally very small. In fact, foreigners are not invited because the Japanese people are afraid of insulting them by inviting them to their small houses. These discrepancies in interpreting cultural behaviors can be problematic.

Understanding different cultures and their core values helps answer these questions and could save one from misunderstandings and failures, and can lead to a career success. However, even the first step, being aware of one's own culture and its value system and the second, not using them for judging other cultures are no easy tasks. Moreover, analyzing one's own reaction patterns towards different cultures and modifying them require maturity, intellect, and patience.

## 2. Rationale for culture learning in engineering

### Students' awareness and needs

The Deans' Board of Eight Colleges of Engineering 2004 report shows the questionnaire results by their students <sup>[1]</sup>. There, they were asked to give answers if they felt confident in skills for their future career development, such as problem finding skills and communication skills. 81.3 % of the respondents express confidence in information gathering skills, and 78.6% in other information related skills. On the other hand, only 20.2% of them feel confident in their English proficiency and 20.1% in their cultural adaptability. It confirms that the students are aware of their lack of readiness in communicating and working with people from different cultural backgrounds.

### Effect of culture on product design

Herbeaux and Bannerot report a comparative study in product designs by American and Japanese engineering students. <sup>[2]</sup> Both groups of students were asked to design a chopstick rest (Hashioki). It is a familiar product in Japan. American students created a unique design but would probably be commercially unsuccessful. The reasons are that the design makes picking up chopsticks difficult and would not keep the tips of chopsticks from being touched. The latter reason would break the Japanese cultural code of cleanliness. It is an example that insufficient cultural knowledge can lead to unsuccessful design.

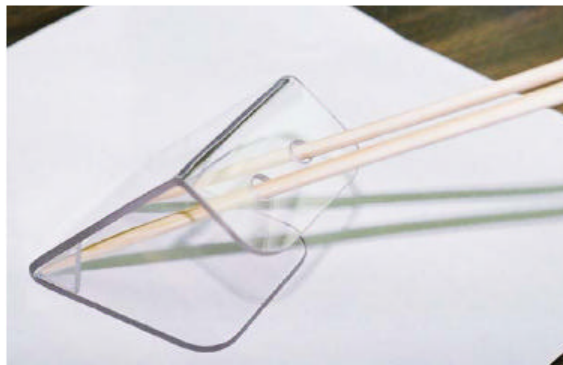


Fig. 1 Chopstick design by American engineering students

Providing students with concrete reasons and examples why they should learn about cultures is essential to motivate them.

## 3. How culture can be taught

### Giving students tools to decode cultural clues

Some theoretical tools such as Hofstede's multi-layered model are helpful for students to interpret cultural symbols, rituals and practices, in order to understand the core values of the culture. <sup>[3]</sup>

### Addressing one's cultural identity through other cultures

We tend to be unaware of own cultural influences on our behaviors and judgments until we encounter different cultures. Comparison is one effective way to make one aware of one's cultural identity. Presenting diversity of cultures and ways of life of people helps students

become aware of differences and similarities among cultures. Discussion is necessary to exchange and share these students' findings. However, Japanese students have difficulty expressing their thoughts in classes or in groups because of their fear of making mistakes and appearing "imperfect".

#### Learning the patterns of cultural encounters

According to Nihke, cultural encounters can be categorized as: need for acculturation of minority groups, existing interpretation models of cultures.<sup>[4]</sup> Students can familiarize themselves with this model by doing tasks applying these patterns to analyze some cultural encounters in history.

#### Analyzing one's own responses

When one encounters unfamiliar cultures and behaviors, one feels uncertain and anxious. Uncertainty avoidance, the term first used by Cyert and March, is a common human reaction to the unknown.<sup>[5]</sup> Hofstede states that people with high uncertainty avoidance tend to feel "what is unknown, is dangerous".<sup>[6]</sup> Thus, it is particularly important for people in high uncertainty-avoidance societies such as Japan to be able to see their own reactions objectively.

#### 4 Constraints and problems

There are constraints and problems in teaching cultures in classrooms in Japan. Some of these can be attributed to Japanese cultural traits.

#### Difficulty in self-disclosure

Opening-up oneself and talking about one's feelings and thoughts seem to be a real challenge for Japanese students. It might be partially due to their adolescent age. However, by comparing their Western counterparts, Japanese students tend to contain their thoughts to themselves. They also have a great difficulty leading discussions. One reason is that they have not had many experiences speaking in public. The other reason is that many of the students are afraid of standing out by taking a leading role.

#### Perfectionism

Throughout school years, Japanese students are often criticized by their families and teachers for their mistakes and for being a nuisance by asking questions in class. As a result, they become very careful and do not speak in class unless they are absolutely sure they can say something perfectly well. This poses a profound problem. They can be paralyzed by the idea of trying to be perfect and cannot do anything but sit quietly and listen to lectures.

#### Peer pressure

Relating to a need for perfection, students' peers are also critical of each other's mistakes. Students in general are anxious about appearing unintelligent by saying something obvious or asking unnecessary or unrelated questions.

#### Passive attitude

All of these traits lead to passive attitude in classrooms and in public. Therefore, it becomes difficult for educators to have lively classrooms where students can raise hands, speak freely, and ask questions in their minds. It makes exchanging and sharing ideas very difficult. The whole atmosphere also stimulates more passive attitude. There is a need to reverse this cycle.

## Maturity

Aside from the fact that many college students have few life-experiences, they seem to be less mature than students in the past. They have shorter attention span and have more difficulty understanding abstract notions. Classroom instructions need to be built around many practical examples.

## 5 Addressing the problems and suggestions

Japanese students' resistance to speak in public can be remedied with writing. They are less anxious about writing down brief passages about their findings, feelings, and thoughts than discussing them. Exchanging these writings anonymously can promote information sharing. This preference in written form over spoken form is, in fact, a good example to discuss about Japanese cultural traits. In order to promote a more active classroom, making the classroom atmosphere less judgmental is important as well. It is crucial to remind students repeatedly that it is all right to make mistakes and to ask questions. Instructors should praise students who actually speak up and ask questions in class.

Reminding students that they are the only ones responsible for their own learning is a good way to resist peer pressure. It opens them to learning to stand out and to feel comfortable.

Japanese students have been used to lecture format throughout their school life. With it, they can fall into passive listening. To change the format to active learning tasks, such as project work and oral presentations can help them take more active roles in their own learning. In the process, monitoring their progress and keeping them on track are the keys to successful learning. As for the evaluation of their work and presentations, praise is more efficient than criticism.

For helping them understand theoretical concepts of cultures better, providing concrete and practical examples is essential. Some of the examples should be close to the students' life experiences. Asking them to provide examples of their own is a good idea. To confirm that they understand the theories, having them rephrase with their own words, in writing if necessary, is one alternative.

## 6 Students' responses

The author has finished 3 terms of applying these educational methods to Japanese engineering students. Though they initially have difficulty understanding the concept of cultures because of their unfamiliarity, they seem to enjoy their study through classroom activities, particularly project presentations. The course evaluations are generally positive, and some students expressed that they recognized the importance of learning other cultures as well as their own.

Occasionally, some students misunderstand and think that the course is trying to force them to blindly accept other cultures and their values, and they resist the idea. However, it is of utmost importance to remind them that they have choices. They can ignore or reject other cultures. But, choice should be conscious and rational. To understand and accept other cultures would increase our chance of being understood and accepted. Moreover, as professional engineers, students would most likely work with a diversity of people. Socio-cultural training, as Greenall claims, is not an option.<sup>[7]</sup> It is a requirement.

## 7 Conclusions

Making peace with differences includes, in fact, making peace with one's own identity. It is hoped that more young students will try to embrace differences in cultures and people.

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