

# CROSS CULTURAL EDUCATION IN ARCHITECTURE: FINDINGS FROM TEACHING INTERNATIONAL STUDENTS TRADITIONAL JAPANESE ARCHITECTURE AND GARDENS

Arno Suzuki<sup>1</sup>

<sup>1</sup> Graduate School of Science, Kyoto University, Kyoto, Japan

**Keywords:** architectural education, international students, Japanese architecture, vernacular architecture, Japanese gardens.

**Abstract:** Architectural educators in Japanese higher education institutions have been discussing how to establish a global-standard school system and to internationalize our students. Traditional Japanese architecture and gardens were almost forgotten in this trend, despite its ever-lasting popularity in the global market. Traditional industry is endangered domestically, but it teaches us many good ideas such as sustainable design, and we may revitalize it with internationalization. For this purpose, the author examined how to teach traditional Japanese architecture and gardens to those who came from different cultures. Observation in classes and surveys with both international and domestic students have indicated that anyone can understand Japanese design as long as it was introduced properly. Only each student's experience and motivation seemed to influence how they see the subject. This article shares some of these findings to open up further discussions.

## 1. Introduction

Internationalization in higher education requires architectural educators to figure out how to teach students with different backgrounds. It becomes an issue especially when we discuss vernacular architecture or traditional design: The questions include whether foreigners would understand the particular cultural contexts and whether it is necessary to teach such a subject to foreigners. In practice, however, traditional Japanese architecture and gardens remain popular in the international market, while both domestic clients are rapidly decreasing in Japan. Therefore, it has become common to receive clients and trainees from overseas.

Cross-cultural communication is significant in international practices but it is one of the weak points of Japanese practitioners [1]. And 'incorrect' Japanese architecture and gardens have been created all over the world. As the world becomes more universal, younger generations are becoming less familiar to their traditional culture. They may also be considered 'foreigners' when it comes to traditional design or lifestyle. Thus, 'cross-cultural education' in broader term is increasing its significance for both domestic and international students.

Architectural education system in each country is changing toward the global standard. UNESCO-UIA Charter of Architectural Education was adopted in 1996 [2], and hot debates have continued since then. Journal of Architecture and Building Science featured stories about the globalization of architecture education in 2005 [3] and in 2009 [4]. Articles in 2009 revealed that the Bologna Process pushed the globalization forward in Europe. It also exhibited that Japan was behind China and Korea in terms of internationalization of its Architectural education [4].

Discussions on internationalization of architectural education date back over 30 years ago when Japan started to accept international students as a national policy [5]. Kohyama (1981) [6], Ohta (1982) [7], Oumi (1982) [8] and other educators already pointed out the exactly same problems that we still have: what to do with our unique system to teach both design and engineering; whether we should focus more on practice than research; whether a four-year undergraduate program was enough or not; how to provide practical training opportunities; and how to improve our environment to accept international students and scholars.

In 2011, a working group from the Architectural Institute of Japan conducted a "Zero Survey" to figure out where the architectural industry in Japan stands in the global market [1]. This time they extended the target of discussion to everyone including working professionals. According to the respondents' opinions, many architects come to Japan to learn the advanced building technology, but there are also a certain number of people who chose to come to Japan for her traditional or cultural architecture. Some respondents pointed out the importance of living and working abroad to understand different cultures and 'their universal values among human beings'. They feel, however, a difficulty to access necessary information for research and practice because most documents are written only in Japanese. Most people, including both Japanese and foreigners, agreed on language and communication skills to be the Japanese architects' most critical weak point. Some pointed out that it often happened that excellent technologies from Japan were rejected simply because it was not understood properly in different cultures. Although there was no doubt from foreign respondents about the high quality of Japanese design and building, there was also criticism such as 'Japanese architects over-emphasize aesthetics and are five to ten years behind western ones in dealing with sustainable designs'. It is ironical because traditional Japanese architecture was known to be a good model of sustainable design [9].

In 2012, Architecture Institute of Japan held a special symposium at their national conference, at which ten educators and six practitioners discussed the progress of globalizing Japanese architectural education. Many innovative attempts at providing practical training were presented, but many practitioners still seemed to think the current graduates were not work-ready. Different target of 'design' between international practice and Japanese practice was pointed out, and the social system including laws and regulations seemed to be a shackle. Possibility of globalizing Japanese architectural education while keeping its holistic approach was also discussed [10].

Countless scholars and practitioners have emphasized the importance of practical training because the global accreditation in architectural education requires certain hours of internship [4]. However, when it comes to traditional Japanese architecture and gardens, we have to consider a different kind of 'practical training', which seems to be outside the scope of those discussions in modern architectural education. Traditional practices are based on design-build system, in which the understanding of natural materials, building methods to make the best of the materials, and construction management ability is imperative. Design-build system is necessary because natural materials vary piece-by-piece or time-to-time; therefore, it is difficult and inefficient to produce design drawings first and then to follow them. Many experienced traditional Japanese carpenters and gardeners disagree to publish theory textbooks or manuals, because it would be difficult or sometimes dangerous if people start to follow it blindly [11]. Therefore, trainees in such industries are supposed to learn the job and acquire skills by watching experienced practitioners. It would be a challenge for higher education institutions to teach such subjects because of the totally different teaching methods and the difficulty of finding faculty members who can teach traditional methods that require years of training on site.

In terms of traditional Japanese design, empirical education is more effective for future planners and designers, even though they may not aim to put their hands on the actual work as professional artisans do. However, many students from other countries, especially those who are from modernized western culture, wish to have theory-based lectures and reading materials first, and they did not understand why they had to work in fields [12]. Even though they understand the necessity of on-site training to understand the building methods, few designers should be willing to tolerate poor working conditions in traditional architecture and gardening industry.

Whether it is possible for non-Japanese people to understand Japanese architecture and gardens is another question to ask. Suzuki M., et al. published several research papers regarding westerners' understanding of Japanese gardens and its historical transition to the Journal of the Japanese Institute of Landscape Architecture. Suzuki M. summarized previous literature-based researches by other scholars from 1933 to 1987 based on literatures written by westerners who appreciated Japanese gardens from the end of 19<sup>th</sup> century to the 1980's. According to Suzuki M., the writings by Edward S. Morse<sup>(1)</sup>, Josiah Conder<sup>(2)</sup> and Lafcadio Hearn<sup>(3)</sup> strongly influenced the succeeding enthusiasts on how they perceived Japanese gardens. Suzuki also conducted a Semantic Differential Survey on 295 westerners and 226 Japanese, comparing how they see some gardens, garden elements and concept. From this survey, Suzuki M. concluded that westerners could understand Japanese gardens by knowledge, but they have different feelings or images from Japanese respondents about the same Japanese garden [13]. Suzuki M. also listed Japanese gardens built overseas with detailed descriptions, in which certain differences from authentic Japanese ones were observed [14].

## 2. Methods

This research is based on quantitative surveys and qualitative observation. This report is not to prove anything yet, however we intend to share our observations and findings to open up further discussions. The author has been exploring this topic in five different circumstances from 2000 to 2012 (Table 1). Writing assignments, design projects, and students' feedback from the course evaluations from all these courses were reviewed for the discussion. The effectiveness of field-based teaching was observed from the course No.2; the open enrollment study abroad in Kyoto, Japan [15], and it will be presented in the format of students' works. In the course No.4; the lecture course for mixed students; a quantitative survey was conducted in 2011 following the pre-survey in 2010.

Table. 1 List of Observed Groups

No.	Course	target	Location/language	period	Student diversity
1	Land arch design studio	3 <sup>rd</sup> year undergrads, required elective	California, USA English	2000-2002	90%+ Americans, land arch/arch design majors
2	Land arch field study abroad	open enrollment undergrads, grads,	Kyoto, Japan English	2001-2005	90%+ Americans various background and majors
3	Urban environment field and studio work	3 <sup>rd</sup> year undergrads, required elective	Osaka, Japan Japanese	2002-2012	Japanese:Chinese=70:30 environmental study majors
4	Architecture and gardens, lecture	Mostly undergrads, elective	Kyoto, Japan English	2008-2011	Japanese:international=50:50 various nationality and majors
5	Land architecture and studio	3 <sup>rd</sup> year undergrads, elective	Hyogo, Japan Japanese	2011-2012	100% Japanese, female only, arch design majors

### 3. Results

In the recent campus internationalization in Japan, it is becoming common to teach a class of students with totally different educational or cultural background. The author conducted quantitative survey in the English taught lecture course (No.4 of table 1) in 2011 with 65 respondents with various backgrounds. About half of the class was Japanese and the rest was international (Fig.1-a). Forty-three percent of Japanese students were from Kansai area (Fig.1-b). Twenty percent of Japanese students had studied the history of Japan for entrance examinations, which means that they had studied seriously and they should know the contents well. Eighty percent of Japanese students had studied the subject only in compulsory education in their middle school or high school. That is, they knew the outline, but it did not necessarily mean that they were interested in the subject. More than 60% of International students had studied the subject in their home institution or somewhere else. In their cases, they had chosen to study the subject, which implied that they were seriously interested in the history of Japan. Eight international students had not studied history of Japan at all. These eight students' affiliation was either Faculty of Economics or School of Engineering (Fig.1-c). In this class the participants were allowed to choose design or research for the term project, and the preference was split almost half and half (Fig.1-d). About the half of the class had studied traditional Japanese culture such as tea ceremony, martial arts and so on. 'The calligraphy at school' is separated because any Japanese student has done it at elementary school, and it does not count in this survey (Fig.1-e). Only 42 % of the respondents had visited traditional Japanese space such as temples, shrines and gardens, even though they were all studying in Kyoto. Only ten students visited such places in Kyoto, seven students did that in Japan outside Kyoto, and thirteen students did that overseas. The total number of response exceeded the number of respondents in this question because some of them visited such places both in Japan and overseas (Fig.1-f).

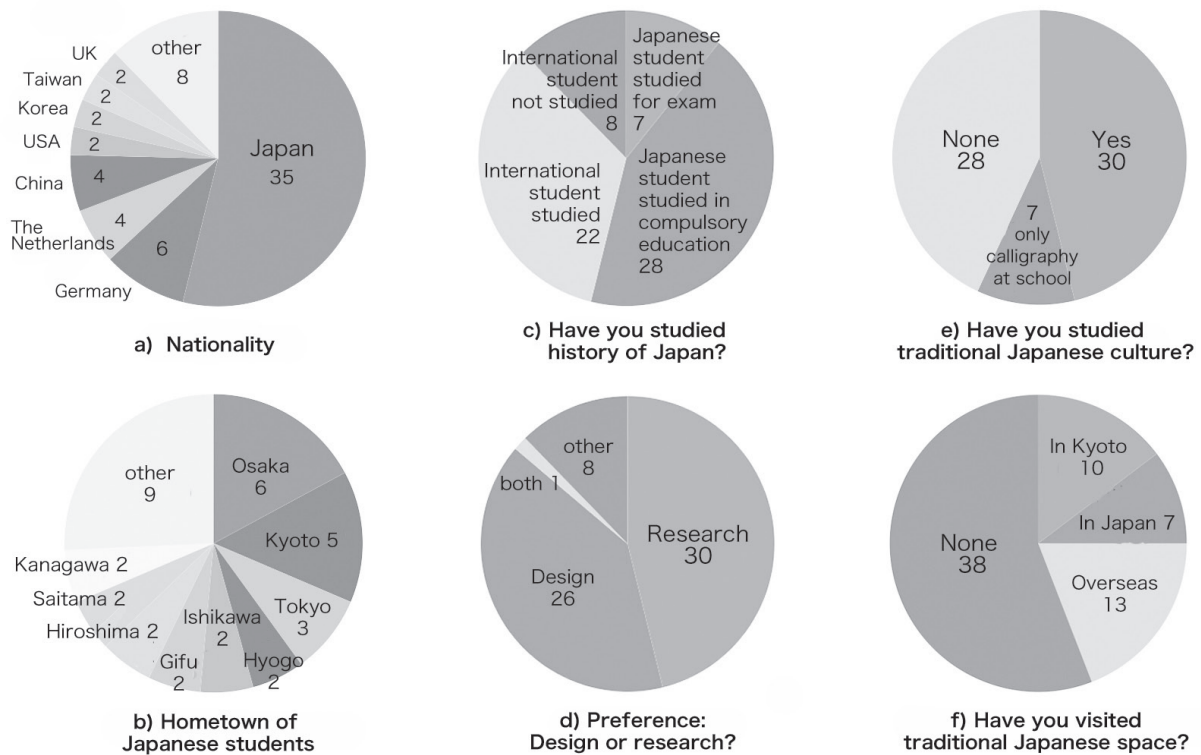


Fig. 1 Respondents' Profile and Backgrounds

The author also asked mixed class of group No.4 in 2010 and 2011 and Japanese female students in group No.5 in 2011 where they have visited. Most Japanese students listed Kinkaku-ji, Ginkaku-ji, Ryoan-ji and Kiyomizu-dera, but only a few students have been to other places, even though they all study in and around Kyoto and Nara, where there are so many historical buildings and gardens to visit. The listed four temples are typical destination of high school excursions, and they probably did not go there by choice. On the other hand, most international students could not name the places where they have visited, but they answered as 'temples', 'castles' or 'many places'. Statistical analysis would not make any sense in this case, but this result indicates that some international students are more enthusiastically visiting traditional Japanese architecture than Japanese students.

The author also asked the same groups of students, No.4 and No.5, in the very first class meeting to draw what they have in mind as 'Japanese garden'. Figure 2 shows some examples of their quick drawings. The images in the left half show relatively deeper understandings. They include scenes of inside and outside of the building connected, which is considered characteristic to Japanese architecture. Pruned trees are properly drawn as well. The images in the right half show relatively shallower understandings. They include the correct elements such as rock-bordered pond, stepping-stones and trees, but their geometrically simple layout does not look like Japanese garden. Zen gardens with rocks and small white pebbles seem to be popular, but rocks are independent, not arranged. The same thing happens to trees and plants: Some of them look like street trees.

Again in this case, the deeper understandings were not necessarily shown from Japanese students or design major students. The relationship of knowledge level and the respondents' profile appeared totally random. It is only assumed that the respondents who have drawn the images in the left should have seen to one of those places in person, or have read in literature about Japanese garden design schemes such as inside-outside connection, artificially natural pruning and asymmetry layout of garden elements.

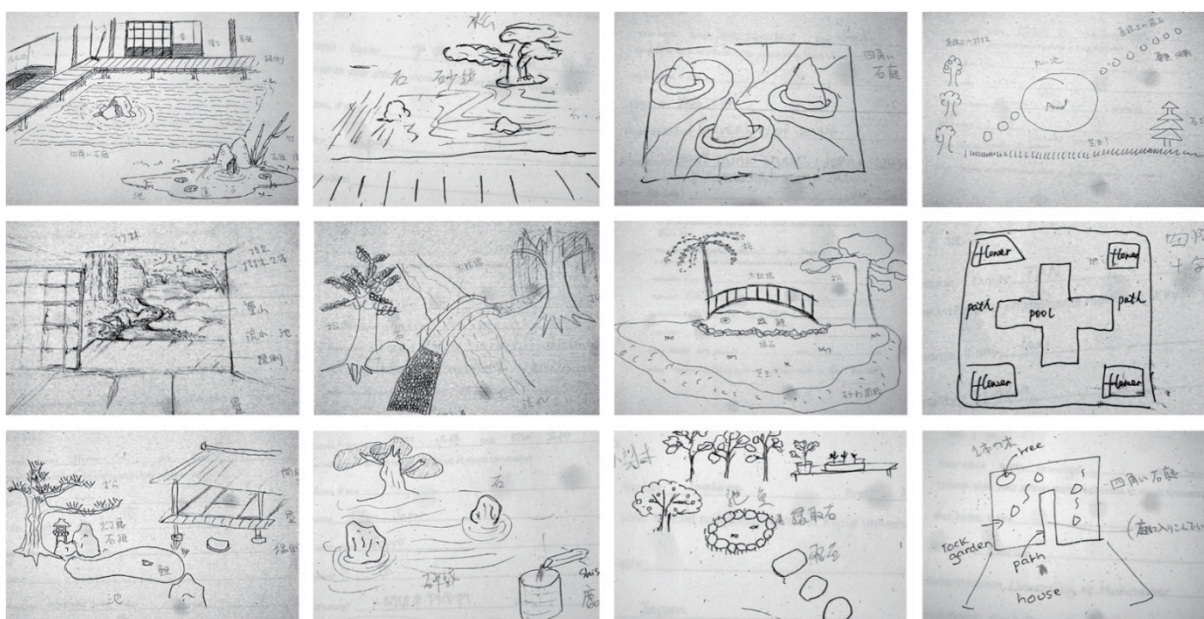


Fig. 2 Examples of students' first drawings of what they think is a 'Japanese garden' classified by level of understanding<sup>(4)</sup>

There was no significant difference found in the cross tabulation, either. Only one case observed, though it was not statistically significant enough, was the influence of actual site visit experience: Those who have visited traditional Japanese garden tended to pay more attention to conceptual elements such as 'connection between inside and outside', whereas those who have not visited one tended to pay more attention to tangible elements such as rocks and plants. In contrast, nationality made almost no difference in their perception of Japanese gardens. (Fig. 3)

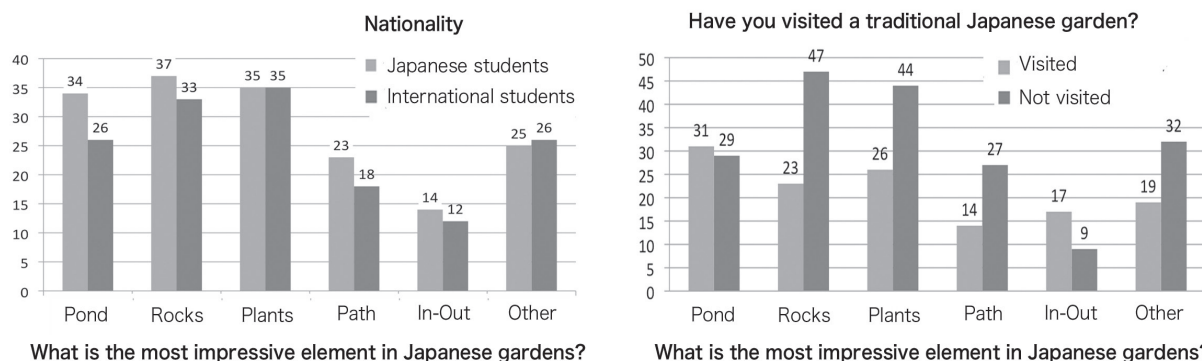


Fig.3 Comparison of cross analysis to a question; 'What do you think the most important element in Japanese garden?'

#### 4. Observation

As Suzuki M. (1998) concluded that it was impossible for foreigners to have the same feeling as Japanese people when they see Japanese Gardens. This being said, the author found that it was possible to teach international students the concepts of Japanese design if we elaborate teaching methods including field trips and hands-on practice on site. This does not conflict against Suzuki M.'s conclusion because the students whom we discuss here are motivated ones who have come all the way to Japan to study Japanese gardens intensively while the interviewees of Suzuki M.'s group were tourists.

In the 4-week intensive summer workshop in Kyoto for international students mostly from the US, we emphasized the meaning of design rather than discussing historical facts or any technical knowledge [15]. In the program, students visited historical gardens representing each style period in chronological order, discussing social and natural context of the time when the garden had been created. This approach was proven effective by comparison to other methods in the past years. We also included a number of field trips to see the natural landscapes, to visit local practices and to interact with local people (Fig.4, 5, 6, 7). We always used public transportation and walked to the sites to experience the real life of the local people. It helped students to understand why certain architectural forms were necessary in this particular climate and society. By hiking the countryside, students could see the source of natural materials that compose Japanese architecture and the design motives of Japanese garden elements. For the cultural experience, we participated in Zen meditation and tea ceremony lessons, discussing the purpose and reasons of every architectural forms and actions taking place there. The complex tea ceremony procedure was a headache to anyone who was not familiar to the practice, but it suddenly became convincing to all participants after they had learned that the appreciation for the tools and the consideration for the host and other guests were behind it. And our participation in a real formal tea ceremony, at Daitokuji temple was really successful.

After these field studies, students seemed to understand the concept of Japanese design much better, the result of which was clearly observed in their term papers, projects and course evaluation, in contrast to those from lecture-only courses. Some even stated in their reports that they were inspired to reconsider their lifestyle 'to live more with nature', 'to reduce waste and being friendlier to the environment' and 'to become more considerate to other people'.



Fig. 4 Gardening workshop



Fig.5 nOn-site lecture



Fig.6 Farmhouse visit



Fig.7 Tea ceremony lesson

In regular classrooms in Japan, the majority of international students are Chinese (63%) and Korean (12%) [16]. These East-Asian countries and Japan have sensitive issues derived from the past, and we need to be careful when we deal with historical topics. However, the close relationship among those countries, which dates back over 1400 years, could also be an effective tool to inspire students to study further into the cultural context of each design and gain mutual understandings for other culture. Here, field or studio work in mixed teams helped them to work closely and have good discussions. Nine out of ten cases, such international team works worked out well.

When we discuss history of architecture in a class with international students from East Asian countries, it may be a good idea to remind everyone that Japan was not an 'advanced country' in the beginning. Traditional Japanese city planning and architectural design received direct influence from China by way of Korea. These East Asian architectures show formal similarities, which often confuse audiences from other cultures. In such similarities, however, the subtle differences in details clarify different natural and social contexts of each country, and they teach us the essence of vernacular design. Studying our ancient historical relationship often dismantled the barrier between domestic and international students. In a broader vision, we sometimes find similar details in traditional Asian and European designs, even though there is no evidence of trades or communication at the time of production. Coincidences may happen in different areas with similar materials or climates.

Universality does not mean that everyone should do the same thing, or build the similar looking structures in different areas of the world. For example, there are many Japanese garden enthusiasts in California, USA, and many clients are eager to have something like the 'moss garden' <sup>(5)</sup>, but it is never possible in such an arid climate. Some affluent clients may try to solve this problem by new technologies such as mechanically controlled irrigation system, or by replacing plants as they die, but it is usually costly, time consuming and unethical to the nature. They should rather apply the concept of old wisdom while respecting the local climate and available materials.

Here are some examples of international students' works succeeded in applying traditional Japanese garden design concepts to the modern society overseas. The left image shows the examples of original or authentic Japanese design, and the right image shows the new ideas by American students.

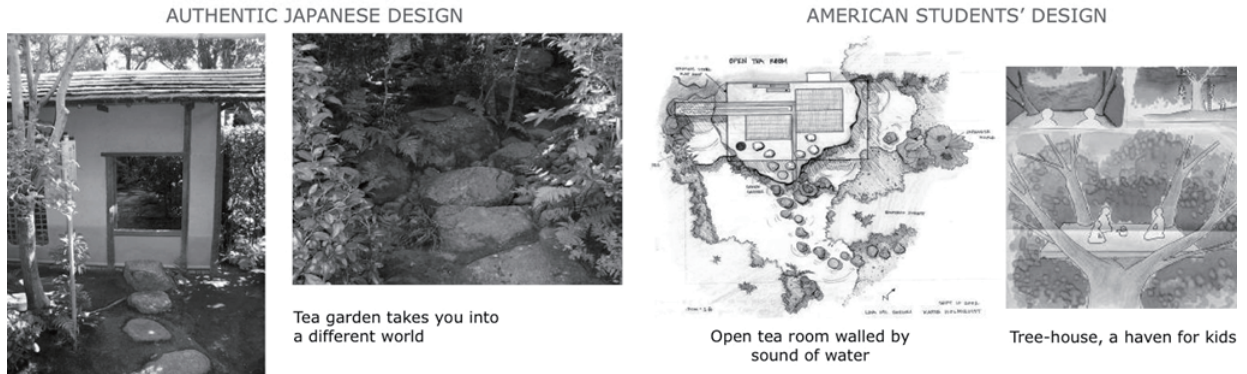


Fig.8 Garden designs to create an urban retreat, or a quiet place to forget the real world for a moment



Fig.9 Garden designs to use local materials, making a good statement as well as saving the cost and the environment

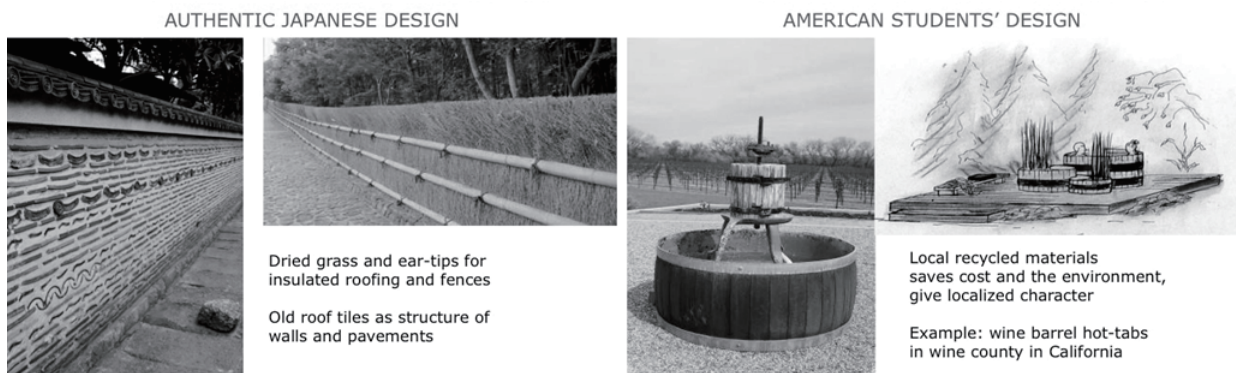


Fig.10 Garden designs to recycle materials that would be wasted otherwise, showing the care for the environment

Materials and building methods should better be localized because they are closely related to the area's natural climate, society and regulations. Design theories should be localized as well: It would not make any sense to imitated shapes and forms without having a reason or understanding them well. Formal design rules such as 'a key tree should be placed in this particular location' or 'rock arrangement should be in the shape of crane and turtle' do not always apply to everyone, as crane and turtle do not mean anything to people nowadays.

Here are some examples of international students' works having learned how to get design motives from Japanese garden design and successfully applied it in their own ways. They may have broken rules of traditional design; e.g. the American students' designs in Fig.12 use symmetry design that we never see in authentic Japanese gardens. However, they expressed the owner's thoughts very well as some Japanese garden design did.

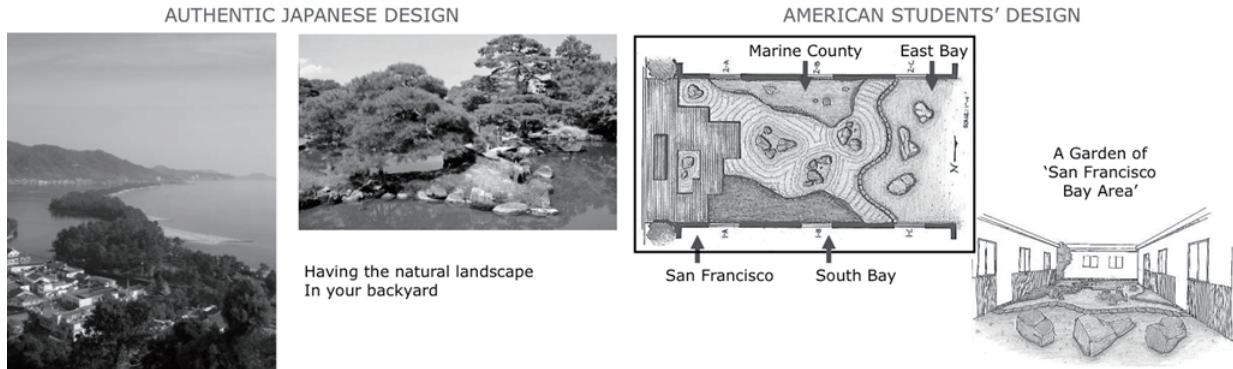


Fig.11 Garden designs to reproduce the important natural landscape in reduced size

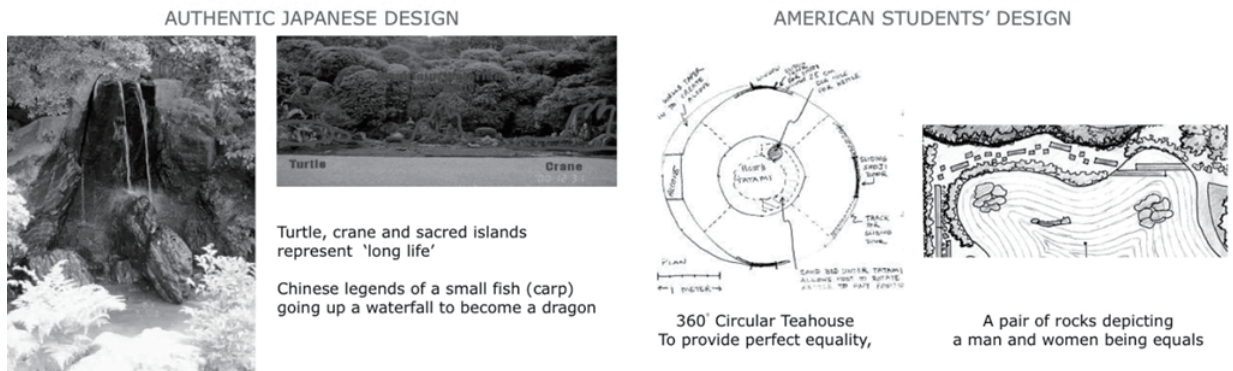


Fig.12 Garden design to express your thoughts, or symbolize something

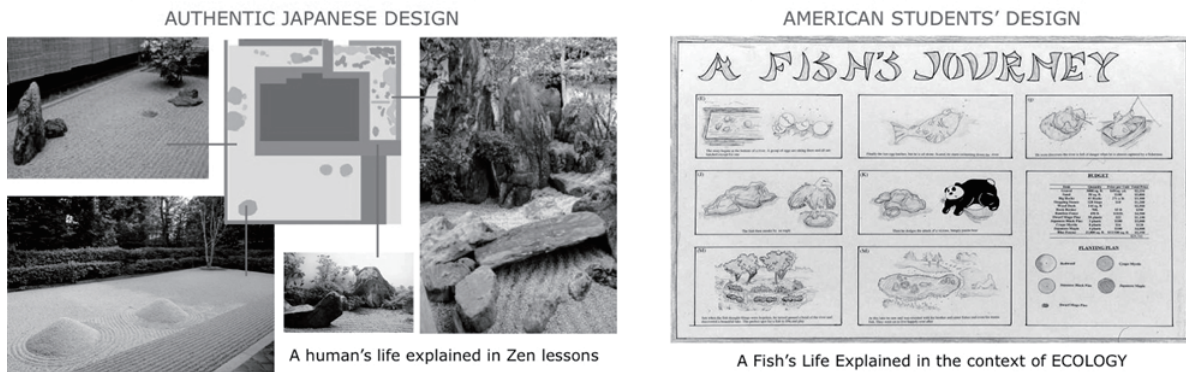


Fig.13 Garden design to tell stories like a picture book

## 5. Discussion

How far can these traditional methods be sustained in the face of growing dominance by high-tech building industries, even in small-scale buildings? Unfortunately, there are so many obstacles that we cannot give a positive answer. What destroyed the industry of traditional Japanese gardening was the inheritance tax, which started in Japan in 1905. Because the rate is relatively high and inheritors have to pay tax in cash, many property owners choose to sell their land, which might have been a valuable historical garden. They would rather build something more profitable on it, such as rental apartments or parking lots. Thus, gardeners have fewer and fewer new projects domestically, and there are less and less clients even for maintenance only. To survive, long-established traditional gardeners have started to expand their business into modern or public projects or to go abroad to look for new clients who can afford to make a new Japanese garden. In this situation, there is a very small job market for gardeners, and even if there is any offer, compensation and work condition have to stay sub-standard. Thus, the Japanese garden industry is maintained by a limited number of enthusiasts. The culture, which everybody else in the world admires, would disappear soon if we do not take action now.

The biggest obstacle that discouraged traditional Japanese architecture was the new building code that became effective in 2007. The law almost prohibited traditional construction methods in the cities. Modern society requires the guarantee of safety by calculations and signed paperwork, and metal-fasteners and laminated timbers are easier to calculate than no-nail solid wood construction. Although experienced artisans can make the best of irregularities of natural materials and build most effectively with them, they cannot show any numerical proof. We should remember, however, that fundamentals of high-tech building methods such as seismic isolation and vibration damping were already used since centuries ago in traditional construction at lay people's houses.

Another problem may be the change of population distribution and lifestyle. An example is the traditional thatched roof. In rural communities, people used to help each other to re-thatch roofs for no compensation. Such roofing was made of the fast growing grass in the neighborhood, so the material was readily available at no cost. And such roofs were providing good insulation to save energy, emitting no waste and revitalizing the ecological system. Nowadays, however, there is no labor force in those villages. They have to import grass for roofing from overseas, even though the grass is growing everywhere. They also have to hire expensive professionals to do the thatching work for them. Thus, having a thatched roof became a luxury, and they disappeared quickly. The mutual-helping system including re-thatching roofs is called 'yui' and it only remains in Shirakawa Village in Gifu Prefecture. The existence of this system is so rare nowadays that the village was designated as a UNESCO cultural heritage.

Modernized education and a change in mind together may be the fundamental cause of the reduction of traditional architecture. Since westernization came along after the Meiji restoration, Japanese people have tended to forget the rationality and sustainability of the traditional building system. Architecture schools have been teaching traditional architecture as 'history' only. Few people talk about that old wisdom, and the lack of knowledge in traditional construction is spreading misunderstandings, such as that it being weak against earthquakes. Recently, however, folklore houses like 'minka' and 'machi-ya' are receiving increased attention because of their energy-saving and zero-emission system. Especially after the Tohoku Earthquake, the Fukushima nuclear power plant accident and following energy crisis, we should remember the traditional energy-saving lifestyle and learn from it. Only until about 40 years ago, most Japanese people were living without air-conditioners or automobiles.

In the practice, it is very difficult for traditional building industries to make business domestically in Japan. There are, however, many potential clients overseas, and they are mostly enthusiastic and affluent. To maintain the valuable skills and methods, the practitioners may want to consider going overseas to find better job opportunities. Language and cultural barriers can be tackled by appropriate education for both practitioners and clients.

The higher education institutions should change as well to gain better understanding of traditional construction, and eventually educate the general public as well. College educators and students, who are the potential scholarly leaders, should have more contact with the traditional industry and study the subject more correctly and practically. Artisans should be invited to give lectures at colleges so that students can learn the real things. Practitioners should increase their vocabulary by studying structural and environmental engineering if time allows so that they can communicate the value of their jobs better. They may want to expand their territory by learning foreign languages. And international students, if they are serious about studying the subject, should study the Japanese language so that they can fully learn the culture behind the traditional designs.

During this research, the author often observed that international students and tourists showed better respect to historical residences, whereas Japanese tourists tended to respect the temples, shrines and castles only [17]. Europeans and Americans have a custom to value old houses even though they may not be famous or historically significant. They often choose to maintain old houses instead of resorting to scrap and build. The governments in Europe have better systems for saving historical buildings, and Americans have tendency to make individual contributions for good things. While social environments may be different, both the Japanese government and citizens should learn such attitude of fostering traditions. The same suggestion may apply to some growing Asian countries. We already substantially depend on western apprentices for the preservation of our local craft. We should start revisiting our own culture before we completely lose it.



## 6. Conclusion

As a result of the pre-study survey, we found that domestic students did not necessarily have better prior knowledge about traditional culture than foreigners. It was more dependent on a student's interest, educational background and personal experience. The result of post-study survey did not show that students from different culture had disadvantage to study the subject, either. In the beginning of the course there was some lead by those who had interests in Japanese history and culture, those who had studied the subject before, and those who had visited Japanese architecture or gardens on their own. There was a relationship among these three factors, but the ability to understand the concept of Japanese design had nothing to do with their nationality or major. Field-based lectures and practical training could close the gap more easily. Most students showed very good conceptual understanding of Japanese design by the time they tackled the final research or design project. In conclusion, there is little disadvantage in being non-native upon learning cultural design, and cross-cultural education is possible only if the students have a certain amount of interest in the subject and an open mind to accept 'different' ways of thinking. They may need a certain level of Japanese language proficiency to conduct researches on this subject or work in this field professionally, and this will have to be investigated further in the near future.

## Notes

1. Edward S. Morse (1938-1925), American zoologist and orientalist
2. Josiah Conder (1852-1920), British architect
3. Lafcadio Hearn (1850-1904), writer, originally Greek and then immigrated to Japan and became called Koizumi Yakumo
4. The comments in the drawings were added by the author, not originally written by the respondents
5. Saiho-ji Temple in Kyoto, Japan, is known worldwide for its beautiful moss-covered pond garden

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