

# Perceptual Differences on the Concept of Sustainability Between Japanese and Foreign Students

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## Abstract

The concept of sustainability has complex and multidisciplinary definition, which includes environmental, social and ecological aspects. How well students perceive the concept of sustainability, and do they really understand the meaning of this concept was the main topic of our study. We have evaluated perceptual difference between 80 Japanese and 80 Non-Japanese students, by creating the special educational program which included topics on global and regional issues such as biodiversity loss, climate change, environmental pollution social issues like gender imbalance, health care, human rights and etc. Analysis have shown significant differences between Japanese and Non-Japanese students on the perception of economic development, sustainable communities and livelihoods. As well as Pre- and Post- analysis showed the changes on the perception of the regional issues after the completion of the course. Our study suggests, that the perception on the sustainability may strongly depend on the students' historical background, cultural differences and living environmental conditions.

*Keywords: Sustainability, environmental education, regional sustainable development*

## 1. Introduction

The concept of sustainability has complex and multidisciplinary definition, which includes environmental, social and ecological aspects. The research about sustainability is frequently hampered by the vagueness and lack of understanding about the idea of sustainability in different aspect of socio-economic and environmental development. Over the past decades there has been many discussions about the term “Sustainability” and “Sustainable development”, and educational communities were also divided on how to respond to the emergency of “Education for sustainability” (Wals, 2014).

The United Nations General Assembly enacted Resolution 57/254 in December 2002, designating the years 2005 to 2014 as the United Nations Decade of Education for Sustainable Development (DESD), highlighting the vital role of education in advancing towards a more sustainable society. Through various forms of education, public awareness, and training initiatives, the DESD aimed to promote a vision of a more sustainable and just global community. These aims, as well as UNESCO's role in supporting their achievement, were underlined at the mid-DESD conference in Bonn, Germany (UNESCO, 2009), which drew 900 participants from almost 150 nations. Since 2015, the concept of Sustainable Development Goals (SDGs) has been implemented by the United Nations as a part of post-2015 agenda, following the Millennium Development Goals (Assembly, 2015). Many international organizations, national institutions, businesses, and

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local communities have embraced the SDGs in a very fast speed. On the other side, there are many questions regarding how the SDGs, which call for bottom-up methods, can be accomplished in such a short amount of time. Furthermore, not all environmental, social, or economic challenges affecting BRs are directly relevant to the SDGs; rather, they are issues involving the human–nature interaction, cultural identities, and fundamental human values (Murray 2011). Until now, Japan has adopted SDGs in the public and corporate sectors, as well as in academic institutions (Book of Japan's SDG Practices, 2017). The degree to which SDGs are integrated at national level is determined by how educators, business sectors, governments and different stakeholders are familiar with the various concepts of sustainability. Academic institutions who have the expertise and capability to integrate sustainability studies with multidisciplinary and transdisciplinary research (Lang et al., 2012) are encouraged to participate in all aspects of sustainable development. Universities can serve to educate several generations with broad perspectives, improve independent and critical thinking skills, and help students reach their full potential as self-actualized members of society.

Some research studies in the area of sustainable education have already looked at the transdisciplinary research framework by fusing practical experience with theoretical concepts, which would deepen and extend the quality achievement of education towards sustainability and sustainable development (Salite et al, 2016) by developing a methodology that will permit the reintegration of knowledge and the creation of new science (Salte et al., 2016). Furthermore, the complexity of the sustainability education system is linked to the complexity of social systems and research paradigms (Pipere, 2016), and it represents highly conceived situations and subjects. Since, as result of the complexity of the idea of sustainability, teaching about it also requires an integrated and multidisciplinary approaches (Robertson, 2014), as it involves social, economic, cultural, ecological and ethical dimensions of our lives. The level to which it can be used is determined by how well instructors understand its various concepts. Furthermore, because sustainability is not a static process and it changes due to the ongoing environmental, economic and social changes, academic programs also should be constantly renewed and reassessed, and create adequate teaching curriculums for sustainability.

To create more adequate programs for the sustainability, it is important to analysis how the learners are familiar with the different concept of sustainability. In our previous studies we have already conducted SDGs training courses and evaluate the sustainability levels of the city's environmental and economic sectors and evaluated students' perceptions on urban sustainable development (Mammadova, 2018) as well as used SDGs as the educational tools to raise students' awareness of the rural development of biosphere reserves. In this study we decided to investigated how well students perceive the concept of sustainability, and do they really understand the meaning of this concept, and evaluate the differences between Japanese and Foreign students' perception on SDGs.

## **2. Methodology**

We have evaluated perceptual difference between 80 Japanese and 80 Non-Japanese students, by creating the special educational program which included topics on global and regional issues such as biodiversity loss, climate change, environmental

pollution social issues like gender imbalance, health care, human rights and etc.

All participants were undergraduate students with average age 23 years old, with different backgrounds and majors. We designed two intense online training courses for students from Central Asia, Russia, and Japan that will be offered in the summer and fall of 2020–2021. All courses employed UNESCO Biosphere Reserves in Japan and abroad (in Russia and Central Asia) as a teaching tool to introduce students to sustainability and the SDGs. Online courses were offered by four Japanese Biosphere Reserves (Mount Hakusan BR, Aya BR, Minakami BR, Odaigahara, Omine and Osugidani BR), three Russian Biosphere Reserves (Baykalskiy, Altayskiy and Katunskiy), and three Central Asian Biosphere Reserves (Altyn Emel BR, Ugam-Chatkal State BR, and Issyk-Kul BR in Kyrgyzstan. Due to the COVID-19 pandemic, all courses were conducted online. Online courses were divided on two parts: on-demand study materials and real time meetings with lecturers and students. All on-demand study materials were recorded lectures or short video movies (15–20 minutes long), created by the lecturers from partner Universities in Japan and overseas. The lecture materials about the social, economic, and environmental circumstances of each region were introduced by the local representatives of each of the BRs indicated above. For students who weren't native English speakers, all lectures and study materials were translated into the Japanese or Russian languages.

The duration of each course was 3 three weeks. During the first week students made self-studies with on-demand materials, and to evaluate if the students learned the context after each on-demand material they were examined through Q&A testing system. We only held real-time meetings in the second week for those students who had successfully completed the first week of on-demand learning. Students and instructors convened in real-time online sessions using the ZOOM platform during the second session. Students had the opportunity to interact directly with BR representatives, other students, and each region's representatives during real-time sessions, where themes related to the SDGs were covered. The completed report on the SDGs-related topic of their choice was submitted during the third week of class.

### **3. Data Collection and Analysis**

A comprehensive Pre- and Post- questionnaire was designed in order to evaluate the general perception on the concept of sustainability and on particular SDGs. The questionnaire was divided into three main parts. First part was the questions about the expectations from the course and evaluation of the general knowledge on Sustainability. Second part contained the questions on general understanding and concerns about Biodiversity conservation, Sustainable communities and livelihoods, Circular economy, Technology, digitalization and AI, Food security, Climate change, Health care, Human rights, Energy efficiency, Environmental pollution. The third part of the questionnaire targeted on the concern of the particular SDGs. The replies of the students to some of the typical perspectives of sustainability were collected in the second and third parts of the questionnaire, which were built on a five-point Likert scale. All data collection and analysis was conducted at Kanazawa University. We used the non-probability sampling technique to collect the data from 160 students and made qualitative research.

### 4. Results

On the question what was the expectation to learn from the course Japanese students (JPN) and foreign (FRN) students replied that they have highest interest to make friends (JPN 42%, FRN 45%) and learn about culture (JPN 33%, FRN 60%), and the least interest was shown to learn about in the sustainability, SDGs (JPN 17%, FRN 24%) and learn about rural communities of UNESCO BRs (JPN 11%, FRN 35%). Table 1.

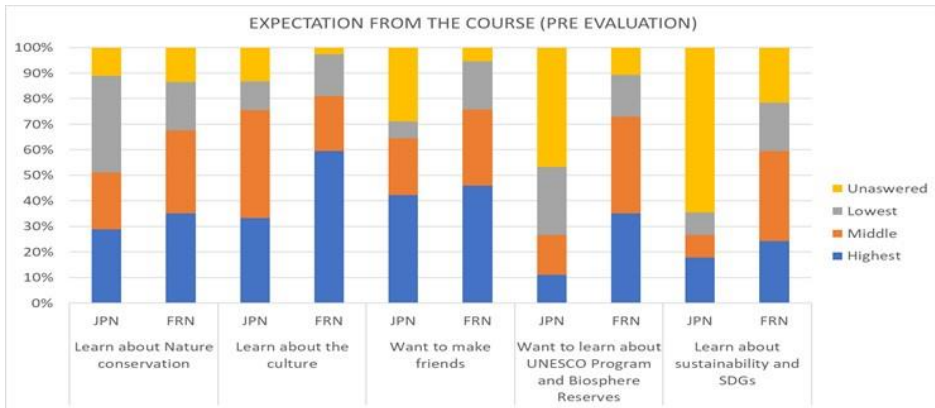


Table 1. Pre evaluation on the course expectation between Japanese (JPN) and Foreign (FRN) students

The concept of Sustainability was much more familiar for Japanese students (100%) and less familiar for FRN students (65%). Table 2.

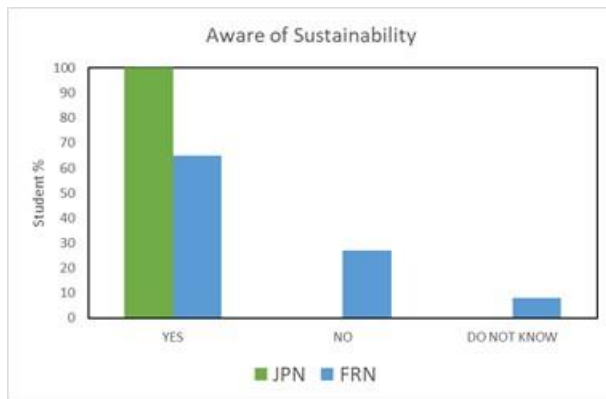


Table 2. Awareness level between Japanese and Foreign students

During Pre- course, for the question how well students know the concept of SDGs, Japanese students replied as Good 57% and Bad 35%, and Foreign students replied as Good 48% and Bad as 29%. After the course the awareness on SDGs increased and 23% replied as Very good, 74% as Good, and foreign students replied as 44% Good and 53% as Very Good. Table 3 shows the differences between Japanese and Foreign students before and after course.

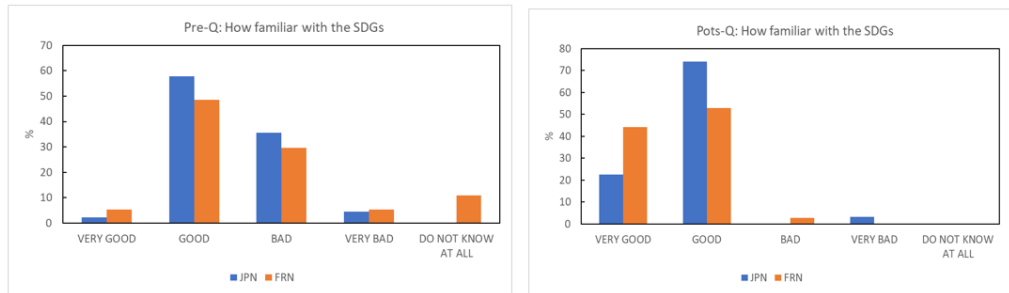


Table 3. Pre (left) and Post (right) evaluation of the students on how well they were familiar with SDGs

Students indicated that after the course the most concerned sustainability topic for the Japanese students was Biodiversity conservation (JPN 43%, FRN 33%), and the next was following sustainable communities and livelihoods (JPN 33%, FRN 30%). In comparison before the course Japanese students showed only 11% and Foreign students showed only 9% of the concern on biodiversity conservation, and 21% (JPN) and 8%(FRN) for sustainable communities and livelihoods.

Regarding the particular SDGs, before the course Japanese students were mostly concerned on Goal 5, Gender equality (40%) and Foreign students on Goal 6, Clean Water and Sanitation 62%. After the course, Japanese students showed extreme concern on Goal 11, Sustainable Cities and Communities (23%) and Foreign students have shown biggest interest in Goal 12, Responsible Consumption and Production (41%).

## 5. Discussion and Conclusion

Analysis have shown significant differences between Japanese and Foreign students on the perception of economic development, sustainable communities and livelihoods. Pre- and Post- analysis showed the changes on the perception of the regional issues after the completion of the course. Before the course both Japanese and Foreign students have indicated that they are interest to take the course not because they want to learn about the concept of sustainability, but rather they wanted to make more friends and learn about each other's countries and culture. This kind of attitude can be referred that the students were mainly undergraduate students, with less concern on the specific subject, and had more willingness to make intercultural friendship (Kudo and Simkin, 2003). Students are not so much concerned about the concept of sustainability, because most of the time, they pursue the University degree to get the stable job opportunity and employment after the graduation. Japanese rural areas are facing the issues of depopulation, aging and no young followers (Muramatsu and Akiyama, 2011), and less young people are interested to contribute for the regional sustainable development. Only 11% of students replied that they are concerned in rural communities. Young people are less concerned in the rural areas, and are willing to work in big cities instead. However, some studies have shown that students motivations can be increased towards (Mammadova, 2017) rural areas and towards the concept of sustainability, if academic institutions design attractive and effective educational models for sustainable development (Mulder, 2015).

In Table 2, we have found that the concept of Sustainability was much more familiar to Japanese students rather than the Foreign students. We can suggest that this kind of high awareness is strongly related by the efforts of Japanese Government to promote the concept of sustainability at all levels of society, and SDGs strategies were implemented through the engagement of different stakeholders. After the adoption of SDGs in 2015, Japanese government established the “SDGs Promotion Headquarter” and implemented SDGs Action Platform to effectively achieve the SDGs (Ministry of Foreign Affairs of Japan, 2022), and the concept of sustainability became very popular in Japan. However, we have found less awareness about SDGs from some students from Central Asian countries (26%) (Table 3 left).

After the course we have found that the Foreign students’ awareness on SDGs increase from Bad (35%) into Very Good (53%). This was significant change in the awareness raising on SDGs, which again shows that the effective educational activities can increase the perception and awareness on SDGs.

In particular, at the begging Japanese students were more concerned about Goal 5 Gender Equality and after the course they were more interested on Goal 11, Sustainable Cities and Communities. Japan has many gender issues, and according to the Global Gender Gap index 2021, Japan ranked 120 among 158 countries (Global Gender Gap Report 2021). Japan has promoted the presence and role of women in all social structures, and this move was strongly related with the concept of SDGs, to achieve gender equality until 2030. We may consider, that students selected this Goal, due to the present social issues which Japan is facing now. However, after the course Japanese students showed more interest in Goal 11, for Sustainable cities and communities, in particularly students indicated big concern in the development of rural areas, who struggle with the loss of biological diversity, traditional knowledge and culture. On the other hand, we have observed completed different interest of Foreign students, who were more concerned about the Goal 6, on Clean Water and Sanitation (62%) before the course, and after the course the interest shifted into the Goal 12, of Responsible Consumption and Production (41%). Most of the Foreign students were from the Central Asian countries (Kazakhstan, Kirgizstan, Uzbekistan and Russia), and in all those regions water is becoming real issue due to the lack of appropriate strategies on the management, climate change and political issues (Khasanova, 2017), Most of the Foreign students were concerned about the access of safe drinking water. After the course, most of the them indicated that if we use water resources and other nature resources, including energy, land, food production in more sustainable manner with right policy implementations and management plans, then we can achieve more sustainable societies. Students changed their concern to Goal 12, Responsible Consumption and Production as the most concerned one, after the education training. This kind of shift of the interest on SDGs, before and after the course, can indicate that properly designed educational activities can increase the awareness on the real issues and motivate students to face the challenges of the real world. Moreover, our study may also suggest, that the perception on the sustainability may strongly depend on the students’ historical background, cultural differences and living environmental conditions.

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