

Past, Present and Future of Ewha-JWU-Ochanomizu Joint Symposium

Kazue Kudo^{1,2}, Kyoko Kojima-Aikawa^{1,3} and Kei Yura^{*,1,2,3}

¹Graduate School of Humanities and Sciences, ²Center for Interdisciplinary AI and Data Science, ³Institute for Human Life Innovation, Ochanomizu University, 2-1-1 Otsuka, Bunkyo-ku, Tokyo 112-8610, Japan
*yura.kei@ocha.ac.jp

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Abstract: The activity of Ewha-JWU-Ochanomizu joint symposium was reviewed from the viewpoint of Ochanomizu University. The activity was analysed based on the abstract books in the past ten years. The analyses visualised the changing trend of the presentation in each symposium and in each university as well as the effort of Ewha Womans University to keep the symposia successful ones. The data analyses also showed that the combination of the three universities is one of the causes for the balance in the presentation fields. The data suggests a new way to prosper the symposium in the coming difficult years for global education.

1. STEM Globalisation at Ochanomizu University

Globalisation has been discussed in all the fields since the end of the last century. For Japan, most of the activities rely on the international communications and interactions so that globalisation is the must for continuous prosperity and peace of the country [1]. The activities related to STEM (Science, Technology, Engineering and Mathematics) are heavily involved in the globalisation, especially among Asian countries [2]. From the viewpoint of university education, universities are required to provide a chance of global experiences to the students and let them prepare for their coming global work place. Studying abroad, even for a short while, is one of the best practices for the globalisation. According to the statistics of OECD (Organisation for Economic Co-operation and

Development), the number of Japanese students studying abroad has increased from approximately 27 thousand in 1990 to 76 thousand in 2000 [3]. After 2004, however, the number has started to decrease, due to the reduction in the absolute number of university students in Japan and to inward characteristics developed among the generation after the bubble economy [4]. To mitigate this trend, the Japanese government has launched "Tobitate!" study abroad initiative and aimed to double the number of students studying abroad by 2020 [5].

Ochanomizu University has 140-year history of fostering female leaders with a global perspective and has produced many global leaders in many fields including STEM. In accordance with the governmental program, the university has put further stress on sending students abroad, increased the number of academic exchange agreement between universities all over the world, and increased the number of STEM students going abroad while they are the students of the university (Figure 1). When the number of STEM students going abroad is compared with that of all the STEM students in the university, however, the number of students studying abroad is still a small fraction. Ten years ago, we conjectured that the number can be increased, once we nurture confidence in the students by letting them experience a short stay and study abroad. This speculation was justified by the survey reported by Ministry of Education, Culture, Sports Science and Technology-Japan in 2017 [6].

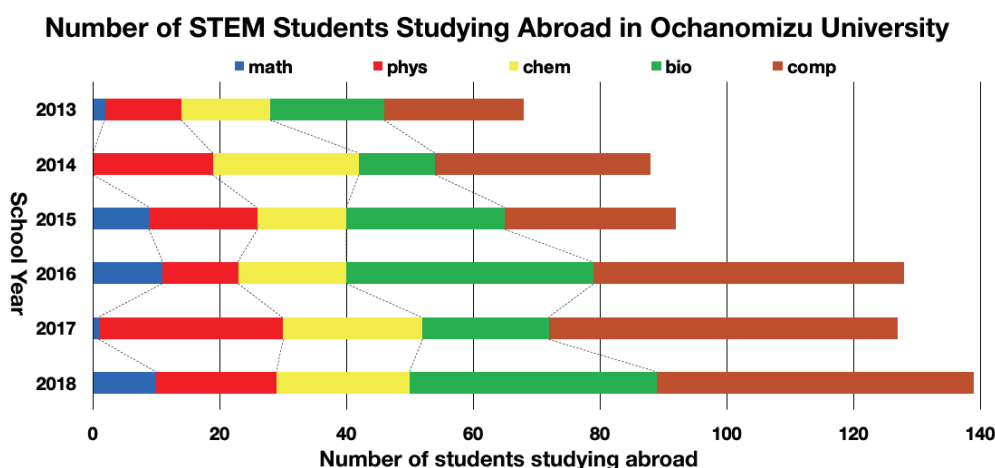


Figure 1. The number of STEM students studied abroad in each school year in Ochanomizu University. The number is the sum of graduate and undergraduate students.

Among the many universities with academic exchange agreements with Ochanomizu University, Ewha Womans University is one of the biggest universities abroad, with which the agreement was signed on 28th, February 2000, and we have deepened the connection ever since. At the same year of agreement, Ewha Womans University held a joint forum with Japan Women's University in the field of natural science and launched a program to promote the education and research in both universities. Ochanomizu University started attending the joint forum in March 2001, held at Ewha Womans University based on the academic exchange agreement. This should be quite an appropriate opportunity for STEM students to experience non-Japanese environment and to present their studies to the students in the same generation with different background. This is the foundation of Ewha-JWU-Ochanomizu Joint Symposium and the 10th symposium was held in December 2019 at Ochanomizu University.

2. Presentation Trends in Ewha-JWU-Ochanomizu Joint Symposium

Ochanomizu University attended the joint forum in March 2001 held at Ewha Womans University. History tells that the third joint forum was held at Ochanomizu University in November 2001 [7] and that

it continued up to 2005. From 2006 to 2009, there was a gap with unknown reason and the meeting rebooted in 2010 with the current name, Ewha-JWU-Ochanomizu (EJO) joint symposium.

Table 1 shows the brief information of the past EJO joint symposium. The symposia have been held in late autumn or early winter except for the 3rd symposium. Each university has a different school calendar and has difference in the busy season. Early winter is a relatively optimum season for the students of Japan Women's University and Ochanomizu University, but it is just before the final examination days for students of Ewha Womans University. Hence, we are still in the process of searching for the better days for the symposium.

The number of presentations from each university is summarised in Figure 2. The overall number of participants has been oscillating, except for the number in 2019. A steep decrease in the number of participants in 2019 symposium was due to an inevitable sudden change in the schedule of the symposium, from September to December. The decrease is most apparent in Ochanomizu University where the symposium was held. The students seemed to have conflict in their academic schedule unfortunately. Despite the fact that fund raising for covering the travel fare was not a negligible burden for each university, we have tried to

make many students participate in the symposium for the last ten years as seen in Figure 2.

The overall trend of the number of participants in each university is different. Ochanomizu University is

in the relatively decreasing trend, except for 2012, when we had additional funding support for undergraduate students. The number of students from Japan Women's University is in the trend of increase,

Table 1. Brief information of EJO joint symposium in the past

Year	Date	Venue	Report in Ochanomizu University
1st	2010	Dec. 21-23	Ewha http://www.sci.ocha.ac.jp/archive/topics/h221228kjsymposium.html
2nd	2011	Dec. 20-22	Ewha http://www.sci.ocha.ac.jp/archive/topics/h231227kjsymposium.html
3rd	2012	Sep. 16-18	Ewha http://www.sci.ocha.ac.jp/archive/topics/h240720kjsymposium.html
4th	2013	Dec. 10-12	Ewha http://www.sci.ocha.ac.jp/archive/topics/h251216kjsymposium.html
5th	2014	Dec. 2-4	Ewha http://www.sci.ocha.ac.jp/archive/topics/h261216kjsymposium.html
6th	2015	Dec. 8-10	Ewha http://www.sci.ocha.ac.jp/archive/topics/h271214kjsymposium.html
7th	2016	Dec. 6-8	Ewha http://www.sci.ocha.ac.jp/news/2016/d002968.html
8th	2017	Dec. 12-14	Ewha http://www.sci.ocha.ac.jp/news/2017/d005214.html
9th	2018	Nov. 20-22	Ewha http://www.sci.ocha.ac.jp/news/2018/d006582.html
10th	2019	Dec. 19-21	Ochanomizu http://www.sci.ocha.ac.jp/news/2020/d008145.html

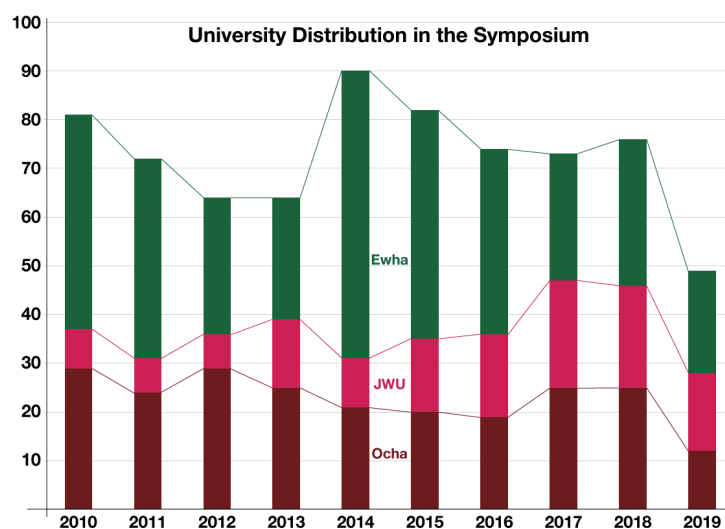


Figure 2. The number of oral and poster presentations in the symposium each year. Horizontal axis is the year and the vertical axis is the count of presentations. Students making both oral and poster presentations are counted as one. The number of students from Ochanomizu University is in deep brown, Japan Women's University in deep pink, and Ewha Womans University in deep green following the colour of each university.

especially after 2015. This increasing trend can be ascribed to a specific field of study as we discuss down below. The number of students from Ewha Womans University is fluctuating. Generally, this seems to be a

typical trend of a symposium held at their home university. A symposium at the home university is easy to attend, and hence students may interpret the situation either as a chance to participate in the meeting

or mundane less attractive event depending on the air of each year. As we saw sudden drop in the number of presentations in 2019 symposium, which was the first symposium held outside of Ewha campus in the last 10 years, we appreciate the symposium committee of Ewha Womans University in their consecutive dedication for the success of the past symposia.

The EJO joint symposium aims to foster interdisciplinary understanding, presentation skill, and friendship among three universities, though the point of emphasis may have differed every year. In the last 10 years, the fields of presentation have been relatively stable, except a sharp peak of chemistry in 2014 (Figure 3). Relatively speaking, there is an uphill trend

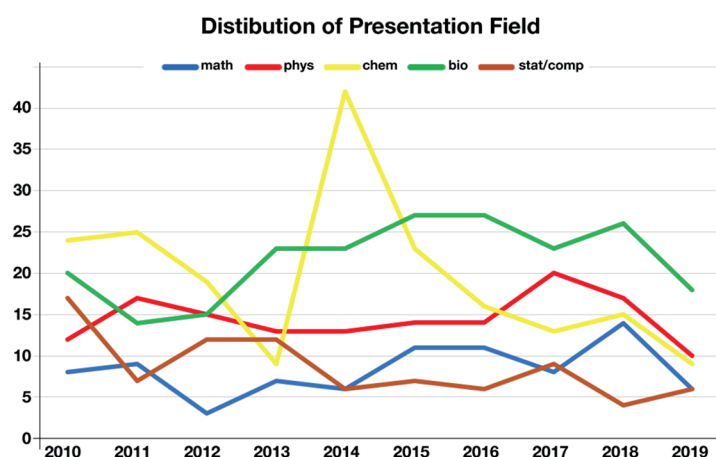


Figure 3. The number of oral and poster presentations in each study field. Horizontal axis is the year and the vertical axis is the count of presentations. For categorisation, we followed the presentation sections made by the symposium organizers of each year. The categorization was then assessed by the authors to make the category consistent in the whole 10 symposia. Blue line represents mathematics, red physics, yellow chemistry, green biology, and brown statistics plus computer science.

in mathematics and biology, but a downhill trend in chemistry and statistics and computer science. Physics keeps a constant number of presentations throughout the symposia. The chemistry spike in 2014 seems to explain an increase in the number of participants in 2014 (Figure 2). The trend of the field as well as the spike can be probed by the breakdown of the presentation field number by each university (Figure 4). The uphill trend in mathematics derives from the increase in the presentation from Japan Women's University. The number of presentations from the other two universities has been stable. The uphill trend in biology derives from the presentations from all three universities. This uphill trend in biology correlates well

with the international trend of STEM. The number of women in graduate study for biology has 1.5 times increased from 2000 to 2011 in the United States despite the fact that the number of whole women in graduate study has increased 1.1 times [8]. The similar trend is observed in the study of Japanese cases [9]. The overall trend of physics is stable, yet in Japan Women's University, an uphill trend in physics presentation is observed. The downhill in other universities was compensated for by the increase in Japan Women's University. The number of presentations from chemistry is relatively stable in

Distribution of Presentation Field in Each University

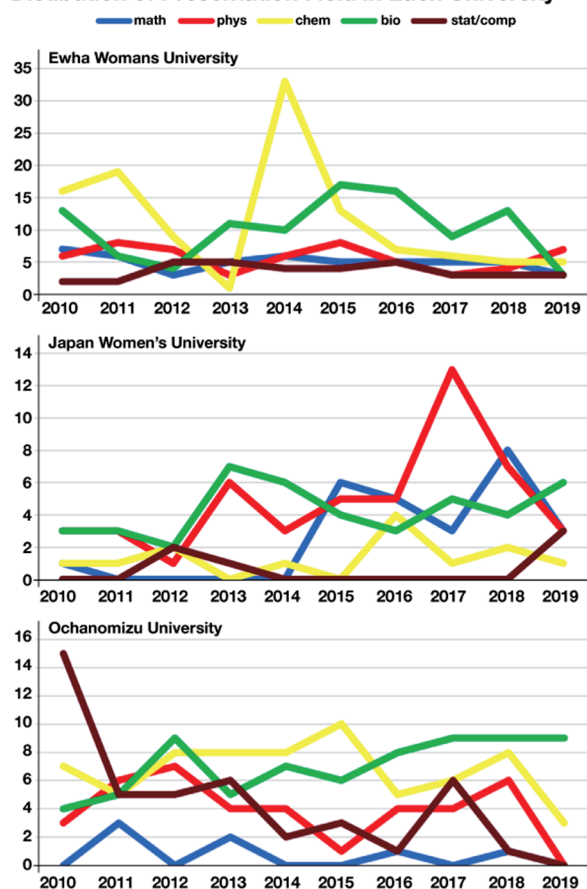


Figure 4. The number of oral and poster presentations in each study field in each university. It should be noted that the scale of the vertical axis is different in each graph. See figure caption of Figure 3 for detail.

Ochanomizu University, but downhill in Ewha Womans University except for the spike in 2014. The number of presentations from statistics and computer science keeps constant in Ewha Womans University and Japan Women's University, but in a trend of decline in Ochanomizu University. The decline in the presentation of computer science (in case of Ochanomizu University, almost all the presentation categorized in stat/com is computer science) seems to be explained in twofold. In the last 10 years, the number of cases for international study in the field of engineering has increased eight folds, and this figure is 4.3 times more than the field of natural science in 2018 [10]. Computer science has both science and

engineering aspects and students in the field can have greater opportunities to study abroad in the last 10 years. The students in Ochanomizu University seem to choose experience different from this symposium. The other possible cause of the decline can be an internal issue of the symposium. Relative stability of the number of presentation fields seen in Figure 3 has been maintained by compensating for the lack of one specific field in one university by the other two universities. For example, a lack of mathematics presentation from Ochanomizu University has been compensated for by the presentations from Ewha Womans University and Japan Women's University. However, this compensation rule cannot be applied to the field of computer science unfortunately. EJO joint symposium aims for fostering interdisciplinary knowledge, but it is quite understandable that the participants search for counterparts in the venue for deep discussion in the field. This result is quite suggestive to the stable management and further improvement of the symposium in the future.

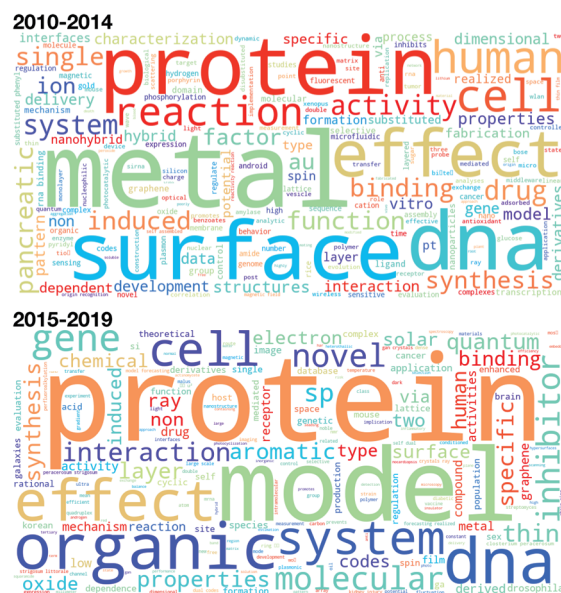


Figure 5. Word cloud of the titles of all the presentations from 2010 to 2014 (top) and from 2015 to 2019 (bottom). The size of each word represents the frequency of appearance in the titles. The colouring of the words is just for cosmetic.

presentation should be nurtured to let student have full experience of research from the planning to the completion. The symposium seems to have a pretty well balance in the past.

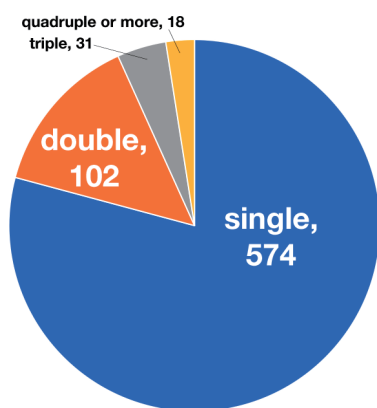


Figure 7. The distribution of the collaborative presentations. About 80% of the presentations were derived from a single affiliation.

Fostering friendship among students from three universities is one of the aims of EJO joint symposium. The friendship of the students can be nurtured by a collaborative work among the laboratories in the three universities or friendship among the students leads to the collaborative study among the universities. The collected collaboration count data tells many intra-university collaborations, but we could not find three-university collaboration in the data unfortunately. For the bilateral collaboration in the three universities, the data tells four cases of collaborations between Japan Women's University and Ochanomizu University. As Figure 4 tells, each university has research fields with a strong background that compensate for one another. The collaborative research among the three universities is, therefore, likely to achieve a new level of science that has good effect to the promotion of research activity among students and the future of the symposium. The collaboration between Japan Women's University and Ochanomizu University can, hopefully, be one of the seeds for the collaboration among the three universities.

4. Conclusion

The analyses of the presentations in the last 10 years show that the field of presentations changes along the years, but three universities well compensated for the lack of a certain scientific field in one of the universities, and as a result, the symposia covered quite a large range of natural sciences. We had an unfortunate situation in the field of computer science of Ochanomizu University, but we learnt that three universities as a group can keep the current fields of study and presentations. We have already seen a seed of collaborative research between the universities and we expect there should be more behind the scene. Hopefully, these collaborative activities will appear in the symposium in near future.

In the last 10 years, we encountered many domestic and international issues that severely affect the management of the symposium; the tension in Korean Peninsula, extension construction of the venue building, Great East Japan earthquake, and Japan-Korea disputes. Every time an issue appeared, the symposium committee of both countries had a full and frank discussion and decided to have the symposium in a possible manner under the situation, sometimes changing the dates or places of the symposium, and hence enabled the continuous management of the EJO joint symposium.

In 2020, we are facing with COVID-19, a completely different type of challenge that heavily affect the strategy of globalisation of the universities all over the world for years to come [11]. EJO joint symposium is not an exception and should discover a new way to continue the activity. Again, a full and frank discussion among the three universities will pave a new way to the future. Collaborative research activity in the three universities may be one of the ways to prosper EJO joint symposium.

References

1. Erich Weede (2004) The diffusion of prosperity and peace by globalization. *The Independent Review*,

- 9(2), 1086-1653.
2. Tadahiro Yoshida (2004) East Asian regionalism and Japan. Working Paper Series 03/04 - No.9, IDE APEC Study Center.
 3. Ministry of Education, Culture, Sports Science and Technology (2010) Chapter 7, Enhanced International Exchange and Corporation, in White Paper on Education, Culture, Sports, Science, and Technology, 2010.
 4. National Institution for Youth Education (2019) Report of the survey for consciousness of study abroad among high school pupils - Comparison among Japan, United States, China and South Korea.
 5. Ministry of Education, Culture, Sports Science and Technology. (accessed in 4th May, 2020) About Tobitate! (Leap for Tomorrow), study abroad initiative.
<https://tobitate.mext.go.jp/about/english.html>.
 6. Ministry of Education, Culture, Sports Science and Technology. (accessed in 31st May, 2020) About the survey for measuring the effect of Japanese studying abroad in 2017.
https://www.mext.go.jp/a_menu/koutou/ryugaku/1411310.htm
 7. Yoshifumi Masanaga and Hisako Watanabe (2002) Messages from the Co-Editors. *Natural Science Report of the Ochanomizu University*, 53(1), 26.
 8. The National Academies of Sciences Engineering Medicine. (accessed in 31st May, 2020) Women in science and engineering statistics.
<https://www.nationalacademies.org/cwsem/wo>
[men-in-science-and-engineering-statistics](https://www.nationalacademies.org/cwsem/wo)
 9. Mariko Ogawa (2017) History of women's participation in STEM fields in Japan. *Asian Women*, 33(3), 65-85.
 10. Japan Student Services Organization (accessed in 31st May, 2020) Survey of Japanese students studying abroad.
https://www.jasso.go.jp/about/statistics/intl_students/
 11. United Nations (accessed in 31st May, 2020) Academic Impact: COVID-19 and Higher Education: Learning to unlearn to create education for the future.
<https://academicimpact.un.org/content/covid-19-and-higher-education-learning-unlearn-create-education-future>

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