



case study

Building a Communication Infrastructure Based on "BYOD First" with the First University-wide Introduction of Zoom in Japan

A case study of Tokyo Denki University, which provides cutting-edge engineering education through hybrid online and face-to-face classes

Tokyo Denki University("TDU"), whose predecessor was the Denki School (School for engineers), was founded in 1907. As a comprehensive university of science and engineering, TDU conducts a wide range of research and education in cutting-edge technology, and with "respect for practical study" as its founding spirit. Its mission is to "Development of human resources who contribute to society by technology." Currently, approximately 10,000 students, including graduate students, are enrolled at the Senju Campus in Tokyo and the Hatoyama Campus in Saitama.

In 2018, when TDU was considering how to update PC classrooms' presentation devices, they saw Zoom connecting remote locations at a conference with other universities. They realized how easy it was to set up and use. "I realized that Zoom was not only a teleconferencing system, but could also be used as a substitute for the presentation of teaching materials in classrooms, and so on.," recalls Yoko Takahashi, Administrative Director of the Media Center at Tokyo Denki University. Most standard classrooms at TDU are long and narrow, with a capacity of 180 students. To make the screen easy to see, a ceiling-suspended sub-monitor is installed in the middle of the classroom. However, due to the limited size of the sub-monitors, it was difficult for the students in the back of the classroom to see the blackboard and the screen in front of the classroom. Based on the realization that these issues could be solved by using Zoom, they consider implementing Zoom as a communication infrastructure based on BYOD. In December 2019, Zoom Meetings for all faculty, staff, and students and Zoom Webinars for events were fully implemented.

Challenge

Before introducing Zoom, TDU used other teleconferencing systems, but they had high latency and audio interruptions. "We heard from a faculty member who uses Zoom that he was able to attend a meeting from the Shinkansen (Bullet Train) without



Tokyo Denki University

Founded
1907

Location
Tokyo and Saitama

Industry
Education

Challenges
Improving connectivity, building a communication infrastructure based on BYOD and integration with cloud services, and bringing classes and campus events online due to the Covid-19 pandemic

Solutions
Zoom Meetings, Zoom Video Webinars

Benefits
The ease of integration with cloud services, the low administrative burden at the time of user registration, and intuitive operability allow for smooth remote class development. In face-to-face classes, students' smartphones and PCs can be used to present course materials, and Zoom video webinars can be used to conduct online campus events.

"Even before the epidemic of Covid-19, TDU has been promoting BYOD First. The epidemic has accelerated our initial plan by several years. Still, we want to achieve a situation where the use of Zoom on campus is a matter of course, and we also want to promote the use of other cloud services in a comprehensive manner."

Yoko Takahashi

Administrative Director of the Media Center

any interruptions," said Osamu Yonemura, Director of the Media Center. When using the existing conference system, users needed support from the Media Center when the connection was unstable.

Also, to build a communication infrastructure based on BYOD and cloud computing, two issues need to be overcome. First, the conventional conferencing system could only be used in the rooms and classrooms where it was already installed, which limited the locations.

The second issue was to link the accounts of students, faculty, staff, and the cloud service for two-step authentication that we were already using.

Besides, due to the pandemic of the Covid-19, which we did not anticipate before the introduction of Zoom, we were urgently required to make campus events and classes online.

Solution

While TDU was moving in earnest toward Zoom's introduction in the second half of the 2019 academic year, they received information about a comprehensive license for education at an affordable price. They began implementing it at a rapid pace in December of the same year. After that, they built an environment for authentication linkage, and began using Zoom in earnest at the end of March 2020.

Regarding the introduction of the system, Yonemura said, "Since accounts are automatically created at the time of initial authentication, the burden on the administrators is minimal when it comes to user registration. It is easy to link with the cloud service used for two-step authentication so that we could deploy the service smoothly. The user interface is also very easy to understand, and there were almost no questions from the students on how to use the system. With the cooperation of Nippon Telegraph and Telephone East Corporation ("NTT East"), who was in charge of the implementation, we could link Zoom account information with the university's authentication infrastructure, making it easy to check class attendance."

In response to the outbreak of the Covid-19 and the declaration of a state of emergency in Japan, TDU has decided to cancel the graduation and entrance ceremonies scheduled for March and April. Then, the President's message was broadcast live online to graduates and new students. Since they were planning to hold remote classes from May 7, we hurriedly had separate Zoom training sessions in April for students,

faculty, and part-time faculty. The seminar for students was divided into two days, and a total of 7,000 students participated in it. With it, we were able to start remote classes successfully. Takahashi said, "The introduction of Zoom was truly successful. It was very easy to use, so we didn't have any major problems, and both faculty and students very well received it. It seems that Zoom is being used not only for classes but also for communication among students."

Since July, we have started face-to-face classes with dispersed attendance, as it is difficult to conduct experimental practical subjects only online. Besides, from mid-November, to increase opportunities for face-to-face classes while maintaining social distance, we have been teaching hybrid classes, with 1/3 of the students attending face-to-face classes and 2/3 attending online classes. (Hybrid classes were temporarily suspended due to the rapid worsening of the infection situation and will be resumed when the number of newly infected people settles down and the situation changes.) In face-to-face classes, students can use their own smartphones or PCs to connect to Zoom and view the projected materials without any problems, even if they are seated in the back.

In addition to classes, interviews for entrance exams are also conducted using Zoom meetings, and overall, about 6,000 to 7,000 Zoom meetings are held in a week. We also use Zoom video webinars to guide students on job hunting activities regularly. The recording function of Zoom is widely used. Yonemura said, "Zoom allows us to easily record our classes, which is a great help to us as it allows us to archive them without much effort. We are also holding a school festival online this year, and Zoom is helping us record content for distribution."

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Results

Regarding the future, "we are considering installing Zoom Rooms terminals as well when the maintenance contract for the TV conference system we are currently using ends. We are currently exploring what kind of terminal to use since we need to input the images of the materials that the teacher projects on the projector in the classroom and the images from the camera that shows the teacher him/herself at the same time. We also think that we can widely use this not only for classes but also for various meetings and seminars," said Takahito Kato, Director of the General Media Center.

Furthermore, Mr. Tatsunori Murakami, Business Innovation Division of Nippon Telegraph and Telephone East Corporation (NTT East), the partner for this installation, said, "As an ICT partner, NTT East will continue to contribute to the development of an advanced ICT-based learning environment for TDU."

The management of attendance information is also an important issue for universities. In the case of face-to-face classes, for example, at the Senju campus in Tokyo, students can check their attendance information by holding their student ID card over the card reader installed on the classroom wall. And the data is linked to the portal site where students and parents can check attendance information. "Currently, it is possible to output attendance information in report format. However, it would be ideal if the log output could be linked to another system and connected to the portal site. In the U.S., a service called "Class for Zoom" provides functions specific to education, and we hope to see this service expanded in Japan. ", said Yonemura.

Zoom helps businesses and organizations bring their teams together in a frictionless cloud environment to get more done. Our easy, reliable, video- first unified communications platform for video, voice, content sharing, and chat runs across mobile devices, desktops, telephones, and room systems. Founded in 2011, Zoom is a publicly traded company on Nasdaq (ticker: ZM) and headquartered in San Jose, California.

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