Main Text (The essay must be 1 page in English or Japanese)

Essay Title: The Pandemic-Triggered Paradigm Shift in Education: Experience of an Engineering Faculty Member

Topic Num.:

*"Change is the only constant is life."* This oft-quoted aphorism by Greek philosopher Heraclitus (535 BC – 475 BC) has remained true for centuries. Living in today's VUCA world, we ubiquitously experience changes, but the impact and magnitude of some changes affect not only individuals but the society at large. Ramifications of the coronavirus pandemic mark one such change in the entire human history. Within the span of a few weeks, it has changed the whole world-order affecting every single domain of life including business, politics, economics, education, and even social manners. As a young computer engineer and an educator at a university with one of the largest student bodies in Japan, in this essay, I would focus on two changes and challenges thereof I am experiencing in my profession.

Most of the higher education institutes around the world were forced to switch to online education because of the novel coronavirus pandemic. In Japan, as of May 2020, according to the Ministry of Education, 737 universities were considering or already implementing some form of online classes, and at least two-thirds of the colleges were expected to do so eventually amid the pandemic. Most of the Japanese universities had little or no experience in online teaching prior to the pandemic, so the transition was significantly tough, and the quality of education remains the primary concern. According to a Mainichi Shimbun survey, instructors from 66 universities reported that they could not maintain the quality of their online courses, with one of them commenting, "University teachers can't just become YouTubers." This is a genuine concern as the call for change was unexpected and disruptive. With a background in IT, I personally probably had less difficulty than many others in switching the teaching mode, but it was still a new experience to go completely online. Of course, there are many problems on the infrastructure side including quality of network access across the student community, however, we should still do our part as educators with the given limitations. In the past few months, I have greatly exercised the concept of "growth mindset" by teaching myself new things related to online teaching and learning. Taking classes online does not simply mean lecturing in front of a camera and a microphone. It necessitates a different pedagogy. The most difficult part in my online classes is to retain students' attention over the duration of the class. As a student, it is easy to get distracted sitting in front of a computer connected to the Internet. I tried different things in order to ensure that students are paying attention most of the time. The most successful intervention so far has been a simple reward-based approach. I flash quizzes at random times during the lecture which students have to answer within 15 seconds. Students with correct answers are publicly lauded in the next class and given extra points to be considered in the final evaluation. I was happy to see the number of students answering kept growing at a steady rate until the end of spring semester. As I also looked for more systematic approaches on increasing student engagement, I came across the concept of "cybergogy" (term coined by Wang and Kang in 2006) which advocates the confluence of three intersecting factors in maintaining students' engagement in virtual classes: cognitive, emotive and social. While our traditional curriculum-based pedagogy focuses mainly on the cognitive factors, the other two factors are critical for peaking and maintaining students' engagement. With the quiz-reward approach mentioned above, I was actually taking care of one emotive factor although I was not aware of the framework to start with. Needless to say, universities must undertake robust faculty development programs to train faculty members, but until that happens, the onus lies on the faculty members to educate themselves. Fortunately, there are many open and free programs by reputed organizations, for example, Microsoft Innovative Educator Programs, Applied Digital Skills by Google for Education and Everyone Can Create project by Apple Inc. To summarize, faculty members should be open to new pedagogical approaches, and have a growth mindset to adapt to changes as John Dewey aptly pointed out, "If we teach today's students as we taught yesterday's, we rob them of tomorrow."

The second problem I am encountering is that my workload has significantly increased during the pandemic. Preparing for online classes is indeed exhausting, simply because the versatility of face-to-face interactions drastically outweighs its virtual counterpart. This is by no means a personal problem as a survey by the nonprofit group, Kyoiku no Mori, shows that about 57% of teachers in Japan worked past the *karoshi* threshold in July during the pandemic. For me, the consequence of overwork was evident. As I spend more hours than usual developing contents and taking preparation for online classes sitting at my computer, my left arm developed symptoms of RSI (repetitive strain injury) with excruciating pain. My doctor advised me to do light exercises and adjust the height of my chair. I think this is very important for all educators and people who have a sedentary workstyle in general: create an ergonomic working environment at home or office. To navigate the challenging times of pandemic, physical and mental health is most important.

Human beings are inherently resistant to changes, but to change is to survive. COVID-19 has brought about unprecedented changes in our life; it is imperative that young engineers and educators do their parts to adapt to these changes and flourish in their respective careers.