Quintessence

Kenji Miyazawa's Literary World Helps Maintain the Potential of Studies

Foreign Language Education in Early Childhood does not Necessarily Lead to Internationalization

Jun-ichi Nishizawa President, Tokyo Metropolitan University

President Jun-ichi Nishizawa of Tokyo Metropolitan University, whose name appears on a list of Nobel prize nominees almost every year due to a succession of innovative ideas he has proposed, including semiconductor lasers, refractive index gradient optical fibers and THz wave communications, was interviewed to find out his unique views on the nurture of young research scientists and internationalization.

Interviewer: Takeo Kowata, Photo: Koji Yokoyama

—— Listening to Professor Nishizawa's view on the nurture of young research scientists, your relations with teachers seem to be the factor most influencing your view. You entered the Electrical Engineering Department of Tohoku University, which enjoyed a reputation as a bastion of electrical engineering for small-current apparatuses, under the tutelage of Professors Heiichi Nukiyama and Yasushi Watanabe, in 1945. How were your relations with those professors there?

Nishizawa: When my father (Kyosuke Nishizawa, the then professor of the Chemical Engineering Course, Engineering Department, Tohoku University) asked Professor Nukiyama for his recommendation for my course, he directed him to Professor Watanabe's office.

Later, I learned that Professors Nukiyama and Watanabe were at odds with each other. Nevertheless, when he heard about me from my father, he recommended Professor Watanabe, who aggressively studied new theories, including quantum dynamics, with an ambition to advance into the field of solid-state components (despite the fact vacuum tubes were by far the popular choice of the time).

—— It was advice based on fair judgment and unbiased by personal feeling, wasn't it ?

I understand that you also came across Professor Hideji Yagi (the inventor of the Yagi-Uda antenna).

Nishizawa: Yes, I did. While I was in the US to attend a symposium for the presentation of my paper, Professor Yagi recommended me as an Academy prize nominee. Professor Yagi was Professor Watanabe's teacher, but since he had already retired from Tohoku University when I entered, I hardly had a chance to talk to him personally. Even so, he still paid attention to my work.

Because of this experience, I always consider it my duty to look after young research scientists who are properly deserving of the attention.

—— A sum of 24 trillion yen has been appropriated for the second Science and Technology Basic Plan; covering a five-year period. The Ministry of Education, Culture, Sports, Science and Technology is requesting a still larger sum for a third five-year plan. We have yet to know whether its request will be met in full or not, but a huge sum is being spent on scientific and technological research and development. It may vary depending on the research themes, but generally speaking, young research scientists today are so blessed financially that they can obtain almost anything they want. Such indulgence, however, might end up spoiling them, mightn't it? In this regard, it seems evaluation will become important.

Screening of both researchers and evaluators through a post-factum review

Nishizawa: It is true. I have always said that we should perform post-factum reviews properly. Based on my own observations, I have noticed research scientists are willing to produce the required documents until they get the money, but once that is received, they don't produce reports very earnestly. There are so many of such reports, it is hard not to get fed up of them.

—— So I understand.

Nishizawa: These reports should be marked by asking retired professors, etc. Input from multiple people will clarify many things. On the basis of such evaluation, researchers' merits should be determined, while evaluators' performance must also be checked to judge whether their valuations are reasonable. In other words, both researchers and evaluators will have to undergo a re-screening process. That is what I have asserted for the decade or so.

—— You continued your work as a research scientist at Tohoku University for most of your career. Nevertheless, you have never failed to maintain the potential of your studies at a high level and continued to produce many outstanding research achievements. This lifestyle of yours appears to be suggestive of an antithesis as opposed to opinions advocating "fluidity" an "internationalization."

Nishizawa: In short, it seems, all's well that ends well. I think there are too many people who say," It should be so and so,"without proper deliberation.

We must review and analyze things post-factum with an open mind. There are those who say," It is better to experience many places,"but I feel that they should explain it by showing the actual number of successful examples and the actual number of unsuccessful examples attributable to the lack of experience in many places. Otherwise, I will be grouped in a bad lot, lacking the experience of many places straight away.

—— Therefore, it is necessary to discuss with a flexible mind, while observing actual real life scenarios.

Looking back over your career, what do you think was the secret that allowed you to maintain high potential, while you remained in the same organization?

Outcomes matching research efforts

Nishizawa: There should be proper outcomes matching research efforts. I constantly felt that I had to be able to show how my work contributed to society.

In this regard, when I gave a lecture at a science high school in Matsue City, Shimane, a high-school student asked me whether being awarded a Nobel prize was the proof of the best scientist. This is one perspective, but I felt the duty of a research scientist in the real world was to create something useful to other people or something appreciated by them. This is a cornerstone of Kenji Miyazawa's(*) literary world.

—— Listening to your opinions, I feel you have opinions that do not deny internationalization and fluidization.

As a matter of fact, I understand that when you were in your mid 20s and castigated by various critics in a Japanese academic society for your interpretation of transistor, you were advised to go abroad and went to see Europe and the US for around three months. Your experience during this trip is said to have affected your subsequent attitude toward work. Seeing the world has such an effect, doesn't it?

You mentioned "vying with the world" based on your experiences facing adversity, and while deliberately omitting the context in which you mentioned this phrase, there could be grounds to say that you had internationalized yourself before people began to advocate "internationalization."

Nishizawa: Japan cannot earn subsistence unless it sells its products to the world. Therefore, we must have opportunities to be valued properly with international standards, or Japan's industries will be unable to survive globally. This is a stark truth obvious to all.

—— When it comes to internationalization, we often hear opinions asserting the need to start English education in early childhood.

I don't agree with foreign language education at too early a stage of childhood

Nishizawa: A friend of mine is married to a Chinese and lives in Tokyo. They had a baby boy and hoped to bring him up to be bilingual, so his wife alone spoke Chinese to him and other family members spoke Japanese. When the child became three years old or so, he began to suffer alopecia areata. A counselor told them that the child's ailment was "attributable to bilingual training."

When the cerebral neural circuits are developed, language plays the role of a mediator. Neural circuits are formed, while listening to words, and provide the child with the ability to think and imagine. When Chinese words penetrated this process occasionally, the process was disturbed and neural circuits failed to form.

When his wife stopped talking to the child in Chinese, the ailment disappeared all at once.

—— Meaning that a language providing the backbone of mental faculties is necessary for humans.

Nishizawa: That is it. It is not recommended to educate children in foreign languages in early childhood. As there are scientists who name Japanese in the absolute first place in priority order with nothing to follow it closely behind, it is important to develop solid circuits for thinking in Japanese earlier in one's life so as to avoid incurring problems later.

Mathematician Masahiko Fujiwara wrote in his book," Opinions alleging Japanese to be a defective language or lacking internationality are, of course, all wrong" (Father's dignity, Mathematician's self-respect), and I totally agree with him.

—— So, it is a lie that one cannot think or write logically in Japanese.

Nishizawa: Yes, it is a downright lie. Take students—those who can correctly speak good Japanese can also write good English. There are half-baked people who clamored for "foreign language education in early childhood" without considering its downsides. That is definitely out of the question.

—— Thank you very much for many suggestive opinions. You have recently moved from Iwate, site of your previous appointment, to Tokyo. I wish all the best for you in the new environment.

(*)Kenji Miyazawa : One of the most prominent Japanese poets in early Showa era and a writer of large number of stories for children. He and his works are highly evaluated in Japan even today, because of his noble-mindedness and high clarity of his spiritual world.

Dr. Nishizawa standing on a farm road near the Research Institute of Mineral Dressing and Metallurgy (RIMDM) of Tohoku University (later reorganized into present Institute of Multidisciplinary Research for Advanced Materials) during his time of assistant professor of the university. RIMDM where Nishizawa visited several times to obtain highly purified silicon crystals was then situated in Nagamachi, a southern town adjacent to the central part of Sendai.