The Science and Education Center of the National Kaohsiung Normal University: Science Education to Lead Students to Think, Solve Problems, and Stimulate Creativity

(Courtesy of Chien-Yen Liu at the Division of Academic Senior High Education)

To improve the quality of science education in elementary and junior high schools, the K-12 Education Administration, Ministry of Education, has worked to strengthen the research, promotion, study, and guidance in science education in primary and secondary schools through subsidies for science education centers at senior high schools and under and normal universities. The Science and Education Center, National Kaohsiung Normal University, has served to enhance science education in primary and secondary schools in the southern Taiwan over the years, including hands-on science and scientific reading, as well as teacher competency-oriented curriculum design and evaluation. In recent years, it has promoted the inquiry and practice approach at schools in response to the new curriculum guidelines, from which teachers and students have further benefited.

The Science and Education Center pointed out that it has promoted the “inquiry and practice” approach to guide teachers in curriculum design and evaluation methods under the new curriculum guidelines at the Pingtung Jianguo Elementary School, National Kangshan Agricultural & Industrial Vocational Senior High School, Tainan Municipal Shalun Junior High School, and other schools for more than two years since the launch of the new curriculum guidelines. This has prompted teachers to think about why they should promote the inquiry and practice approach, and the influence of this teaching method on students’ learning process by means of examples in different subjects. Through the process of "motivation→conflict→exploration→interpretation→refining→evaluation", teachers can come up with brand-new ideas and further understand and internalize the connotations of inquiry and practice, and apply them in class in the future so as to guide students to think, solve problems, and stimulate creativity.

The K-12 Education Administration pointed out that the Inquiry and Practice course at the senior high school under the new curriculum guidelines covers hands-on activities that explore the essence and cross-subject learning materials. The Science and Education Center's efforts in leading students to engage in hands-on science at primary schools and guiding students to design scientific reading, inquiry and hands-on activities at junior high schools are well-aligned with the spirit of the new curriculum guidelines as it has allowed students to discover a problem in daily life, think about a solution, try to solve it, and manage to explain the entire process.

The K-12 Education Administration said that the implementation of the Science and Education Center's program has led to the collision of thinking between students and teachers, which will then create new possibilities. It is hoped that students will realize that learning is not about studying textbooks alone but also about hands-on experience in the process, multifaceted thinking, friction, and collaboration through more activities in the future so as to stimulate more creativity in resolving problems.