

## | TEACHING &amp; LEARNING

# Abandoned Space Renovated into the New Generation Sensory Training Classroom

NTU launched the "New Generation Sensory Training Classroom" project in December 2020, providing a new direction for academic research and enhancing the practical application of industry-academia collaboration through scientific sensory training methods. The well-designed classroom is equipped with high-tech equipment. Not only does it support such functions as teaching, analysis, and scientific training to complete the tea making scent map, but it also further integrates an electronic nose system to make the tea making process predictable and stable, eventually setting accurate and objective flavor standards for tea products.

The project leader, Assistant Professor Shu-Yen Lin of the Department of Horticulture and Landscape Architecture, said that most of the research conducted at the College of Bioresources and Agriculture is focused on agricultural products. The NTU team has had great success in tea quality research, and sensory evaluation is crucial for evaluating the quality of agricultural products. Traditional sensory training is

usually focused solely on the evaluation and training for different types and qualities of tea. However, after combining with the equipment of the New Generation Sensory Training Classroom, the sensation of the moment can be accurately mapped out in correspondence with the compounds in the tea, connecting scientific data with the sense of smell.

Professor Shih-Torng Ding, Vice President for Academic Affairs, and Dean Huu-Sheng Lur, College of Bioresources and Agriculture, had a very similar experience when visiting the University of Bordeaux in France. They recommended the model of collaboration between the local wine research center and university there. With the full support of President Chung-Ming Kuan, a similar sensory training space based on industry-academia collaboration was set up on the NTU campus, allowing the students to apply the theories they learn as well as gain a deeper understanding of the differences in the quality of agricultural products.



| Ribbon-cutting Ceremony for NTU's New Generation Sensory Training Classroom.

Located behind the College of Life Science, the New Generation Sensory Training Classroom was just an abandoned classroom. The new advanced classroom was completed in June 2021, but only opened its doors at the beginning of this year due to the COVID-19 pandemic. Excluding the cost of various precision scientific instruments, the classroom design and infrastructure cost about NT\$6 million.

The Sensory Training Classroom is divided into three parts: Professional Sensory Evaluation Classroom, Sensory Evaluation Training Room, and Scientific Evaluation and Analysis Room. The Professional Sensory Evaluation Classroom is a teaching space that adopts a non-color-shifting and adjustable light source, with adjustable temperature and humidity. It is also a demonstration

area for hands-on evaluation. The Sensory Evaluation Training Room is a space without outside disturbance, where the training staff can work independently. The Scientific Evaluation and Analysis Room is equipped with high-resolution gas chromatography coupled with a mass and olfactory (GC-MS/O) instrument to accurately create a map of scents based on science and research.

Professor Lin gave an example of the advanced classroom's practical application for industry-academia collaboration: experienced tea masters can explore the change of tea scent in the process of tea making. Coupled with the New Generation Sensory Training Classroom, the tea master's sensory experience can be linked to the scent particles, deconstructing the context of scent brought about by the interactions of various compounds. Last but not least, the tea leaves prepared by various processes are graded by professional tea tasters to further analyze the composition of the scent compounds of the tea leaves. The aforementioned process has become the foundation of the world's first "tea scent map for partially fermented tea making," adding an element of predictable scientific process to the art of tea making. This space connects the sensory experience of tea masters and the evaluation capacity of tea tasters with cutting-edge instruments to create an amazing sensory feast.

NTU has further collaborated with the Agricultural Technology Research Institute and the Department of Power Mechanical Engineering of National Tsing Hua University to transplant human experience and senses into an electronic nose system to convert the scent map into an automatic navigation system. "Shadow Tea Maker Technology" was developed on this basis, to provide more accurate information in the field of tea making and provide better tools for the future development of the tea industry.

In the future, the New Generation Sensory Training Classroom will prioritize supporting existing NTU courses, such as sensory evaluation of tea, red wine, coffee, cocoa, and chocolate, so as to provide an optimal setting for teachers and students, as well as international academic exchanges in this field. It is also hoped that the classroom can work with domestic industries to develop and conduct sensory evaluation education and training, thus contributing to the development of Taiwan's agriculture.



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Professor Lin's research team.

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