

Sensory-Consumer Science in Vietnam: The Role and Impact of the SPISE Conference

Uyen Thuy Xuan Phan¹, Dzung Hoang Nguyen²

¹Food Science Program, Schmid College of Science and Technology, Chapman University, Orange, CA 92866, USA

²Food Technology, Faculty of Chemical Engineering, Ho Chi Minh City University of Technology, Ho Chi Minh City, Vietnam

(e-mail uphan@chapman.edu)

Introduction

Sensory evaluation can be traced back thousands of years. From the moment people started exchanging goods, they have used their senses to evaluate the quality of goods. However, the science of sensory evaluation truly emerged and gained recognition in the late 1940s through the research and teachings of Professor Rose Marie Pangborn (1932-1990) of UC Davis in the United States. She is considered the pioneer who laid the foundation for this young science. Since its inception, sensory evaluation has continually developed, especially in the field of consumer goods production, primarily in the food sector.

Sensory evaluation is defined as an interdisciplinary study of how humans perceive and interpret sensory stimuli, encompassing the five primary senses: sight, taste, smell, touch, and hearing. Sensory-consumer science has proved to be pivotal in various industries, including food and beverage, cosmetics, and consumer goods. Meiselman et al. (2022) has summarized the development of the field across three time periods: Period 1) 1940s to 1970s; Period 2) the 1980s and 1990s, and Period 3) from the 2000s onwards. Period 1 witnessed the development of fundamental methods in sensory evaluation. Period 2 saw the growth of connection between sensory evaluation and consumer research in product development and quality control. The focus of this period was on the use of descriptive sensory panels, consumer segmentation methods, sensory drivers of liking, and rapid methods of sensory testing. Period 3 continued with further development of sensory science into sensory-consumer science. One key focus of period 3 has been the move from dependence on product's liking measurement to "beyond liking," which integrate hedonic responses with conceptualizations, attitudes, emotions, situational appropriateness, and wellness. The emergence of new technologies in sensory-consumer research has also been observed in this period moving forward.

In Vietnam, the progression of sensory science reflects both the nation's rich cultural heritage and its dynamic integration into modern scientific paradigms. This review focused on the historical development of sensory science in Vietnam, highlighting key milestones and achievements.

Historical Development of Sensory-Consumer Science in Vietnam

There are not many documented materials about the early adoption and development of sensory science in Vietnam. One of the earliest works acknowledged is the national standard TCVN 3215-79: Sensory evaluation using scoring method, which was issued by the Vietnam Bureau of Standards-Measurement-Quality in 1979 and is still effective now. This standard provides a standardized 20-point scoring system using a 6-level scale, with scores ranging from 0 (critical defects) to 5 (minor defects). The method can assess individual or collective attributes and is applicable for determining the impact of changes in raw materials, production processes, packaging, and storage on product quality (TCVN3215-79). Since then, the Bureau issued a number of standards for quality evaluation of specific products including alcohol, confectionery, bee products, tea, coffee,

spices, cooked rice, canned foods, aquatic products, fish and shellfish, liquor, beer, as well as general guidelines for sensory evaluation based on a number of ISO standards (<https://tieuchuan.vsqi.gov.vn/tim-kiem>).

In academia, Professors Luu Dzuan and Ha Duyen Tu are recognized as pioneers who laid the foundation for sensory science in universities, with specialized training programs for food engineering in the 1980s. Their early works included sensory studies of spices, tea, and coffee. However, very few programs offered sensory courses initially. Sensory evaluation began to attract more attention from academia in the 1990s but gained significant popularity in the 2000s, becoming an integral part of food technology academic programs. By the mid-2000s, universities started to offer sensory evaluation courses. Currently, there are nine universities in the North, six in the Central and Highland regions, and thirteen in the South of Vietnam that include sensory evaluation courses in their curricula. In terms of publications, Ngo Thi Hong Thu published the earliest lab handbook titled *Kiểm nghiệm thực phẩm bằng phương pháp cảm quan* (Food Testing using Sensory Evaluation Methods) in 1989 (Ngo, 1989), which became a staple for many generations of food technology students in the South of Vietnam. Another important textbook, *Kỹ thuật phân tích cảm quan thực phẩm* (Sensory Evaluation Techniques), was published in 1990 by Professor Ha Duyen Tu (Ha, 1990) and was particularly important for students in the North. Lastly, the Vietnamese translation version of the textbook *Sensory Evaluation of Foods: Principles and Practices* was published in 2007 (Nguyen et al., 2007) by a team led by Dr. Nguyen Hoang Dzung in the South of Vietnam.

The sensory community in Vietnam also has grown rapidly over the past 45 years, from a few scientists in the North, it has expanded to become a much larger across the country, with strong sensory groups in major cities such as Hanoi, Danang, and Ho Chi Minh City. This community includes both human resources from academia and industry. Companies such as Vinamilk, Masan Consumer, Habeco, Sabeco, Betrimex have invested in sensory training programs to strengthen their personnel knowledge and skills in sensory evaluation.

In the 2000s, a significant milestone in the development of sensory science in Vietnam was the inception of the Summer Program in Sensory Evaluation (SPISE). Its mission was to promote sensory and consumer science in Asia. The following section details SPISE's transformation over the past 17 years and its achievements in advancing sensory-consumer science in the region.

The SPISE Conference: Genesis, Evolution, and Its Impact on Sensory Science in Vietnam

The Summer Program in Sensory Evaluation (SPISE) was first organized as a short course at Ho Chi Minh City University of Technology in Ho Chi Minh City, Vietnam, in August 2005. SPISE2005 was a six-day intensive course about how to conduct, analyze and use sensory evaluation in the food product industries. The course was designed to target individuals from food industry in Vietnam. The instructor of SPISE2005 short course included Dr. Dominique Valentin (France), Dr. Sébastien Lê (France), Dr. Christelle Chr ea (France), Dr. Tuan Van Nguyen (Australia), and Dr. Nguyen Hoang Dzung (Vietnam). Following the success of SPISE2005, the program evolved into a biyearly international conference starting in the summer of 2007. The objective of transforming SPISE into an international conference was to promote and advance sensory and consumer science in Asia. Since then, SPISE has been successfully organized eight times: SPISE2007, SPISE2009, SPISE2012, SPISE2014, SPISE2016, SPISE2018, SPISE2020+2 (2022), and SPISE2024.

Table 1 presents the main themes of the eight SPISE conferences over the past 17 years. The first four SPISE conferences focused on the key topics of period 2 (as identified by Meiselman) since sensory and consumer science was relatively underdeveloped in Vietnam at that time. The last four SPISE conferences aligned with the key issues of period 3, emphasizing advances in interdisciplinary research between sensory and consumer science, incorporating new methodologies in sensory data analysis and emerging technologies such as AI and machine learning for collecting and analyzing sensory data. Notably, "Beyond Liking" has been a central theme

of SPISE2024.

Table 1: Summary of main themes of SPISE from 2007 to 2024

Theme	Host City	Year
SPISE2007: New trends in sensory evaluation of food and non-food products	Ho Chi Minh-city	2007
SPISE2009: Food consumer insights in Asia: Current issues and future	Ho Chi Minh-city	2009
SPISE2012: Taste and think, Integrating sensory evaluation into product development: An Asian perspective	Ho Chi Minh-city	2012 ¹
SPISE2014: From senses to quality: What can sensory evaluation bring to quality control?	Ho Chi Minh-city	2014
SPISE2016: Taste and try before you fry: From product formulation to consumer experience	Ho Chi Minh-city	2016
SPISE2018: Sharing your potential: Inter-individual differences in sensory evaluation	Da Nang	2018
SPISE2020+2: From concept to market: Sensory evaluation in Asia	Ha Noi	2022 ²
SPISE2024: The new diverse world of sensory evaluation: Exploring its intersection with modern technologies	Ho Chi Minh-city	2024

¹SPISE was rescheduled from 2011 to 2012 to avoid overlapping with Pangborn 2011

²SPISE 2020 was postponed to 2022 due to the COVID-19 pandemic and was subsequently renamed SPISE 2020+2

SPISE was organized with a format that includes four days of workshops on specific topics in sensory evaluation and applied statistics, followed by a 1.5-day conference. During the conference, keynote speakers, invited speakers, and delegates from Asia and around the world shared their latest research, exchange ideas, and build partnerships. On average, each SPISE conference attracted about 90-100 attendees from various countries. The workshops at SPISE were always in high demand by delegates from both academia and industry because they were taught by renowned experts such as Dr. Sébastien Lê, Dr. Hervé Abdi, and Dr. Dominique Valentin. SPISE has successfully brought in well-known keynote speakers who have made significant contributions to the field of sensory and consumer science, including Dr. Harry Lawless, Dr. John Prescott, Dr. Kwang-Ok Kim, Dr. Jae-Hee Hong, Dr. Danielle Reed, Dr. Paula Valera, among others. SPISE has also succeeded in keeping the registration fee affordable, thanks to the dedication of the core organization team who donated their time and worked for free, as well as the workshop instructors and sponsors. Without their commitment, SPISE would not have lasted for 17 years. What began as a short course has grown into a regional conference recognized by the global sensory community. The information about the two latest SPISE meetings was posted on the website of the European Sensory Science Society (SPISE2020+2: <https://e3sensory.eu/spise-20202-summer-program-in-sensory-evaluation-2020-2021/>; SPISE2024: <https://e3sensory.eu/spise-2024-the-new-diverse-world-of-sensory-evaluation-exploring-its-intersection-with-modern-technologies/>). SPISE2024 can be considered the most successful iteration, with over 100 participants, more than 60% of whom were from companies both within Vietnam and overseas. For the first time, there were six oral presentations by Vietnamese students and two presentations from Vietnamese companies (<http://sensorylab.hcmut.edu.vn/spise2024/>). This achievement highlights SPISE's success in developing sensory and consumer science in Vietnam and gaining recognition from the global sensory community. There is nothing more rewarding than seeing Vietnamese students confidently presenting their research to international peers. Historically, food companies in Vietnam took sensory evaluation lightly, with little understanding of proper sensory evaluation programs. They did not invest in sensory panels or standard sensory programs for product development and quality control. Sensory

personnel were often trained in food technology rather than sensory science. Over the years, SPISE and its dedicated team have worked tirelessly to provide short courses, seminars, and training programs to industry personnel, raising awareness about the need for standardized sensory programs in R&D centers and investing in sensory personnel in Vietnam. The two company presentations at SPISE2024 underscored the value of investing in a sensory program, marking a significant milestone in SPISE's 17-year journey.

Looking back, it is clear that SPISE has become an integral part of the sensory community in Vietnam and Southeast Asia. Moving forward, continued support from the sensory community is essential for SPISE to sustain its success.

Conclusion

Over the past century, we have witnessed the rapid development of sensory and consumer science globally, with significant advancements in both sensory methodologies and data analysis, spanning from fundamental to advanced levels. In Asia, the field is still considered developing, but concerted efforts over the past 25 years have been made to promote its growth. The SPISE conference in Vietnam is one such effort, successfully bringing together delegates from across Asia and around the world every two years to shape the future of sensory and consumer science. The conference has been recognized for its tireless dedication to providing a platform where sensory enthusiasts can learn and acquire up-to-date knowledge in sensory and consumer science. As we move forward, with the robust growth of sensory societies in countries such as Japan, Korea, Thailand, Vietnam, and others in Asia, we anticipate more fruitful collaborations between sensory scientists in cross-cultural projects. These collaborations aim to elevate sensory-consumer science to new heights by integrating more advanced methods and technologies.

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