

Outline of a one-day TDS workshop

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Temporal Dominance of Sensations (TDS) is a technique for measuring the succession along time of perceived sensations while tasting a food or a beverage. It was designed in the lab of the first instructor about 6 years ago. It has now been evaluated by quite a lot of sensory labs and often validated to be part of their sensory toolbox. Scientific papers describing the technique and some of its properties appeared only recently (see references, end of page 2). Furthermore, at least two commercial softwares of sensory analysis now include TDS features.

This workshop introduces the Temporal Dominance of Sensations (TDS) method on both conceptual and practical perspectives. Although it is accessible to people who know nothing about TDS, current TDS users could also learn about TDS since this workshop will discuss open questions about TDS data acquisition and analysis; further, it will present current research on TDS. By the end of the day, sensory scientists will know how to gather TDS data and how to analyze them in the Fizz software, whereas sensometricians will know what kind of analysis is still looked for by the TDS users. Discussion between both types of participants in this workshop is expected to drive progress in TDS data acquisition and analysis. Besides, the participants of the workshop will taste good chocolates by the TDS method!

1. Presentation of TDS (1H15)

This is a general presentation of TDS based on courses already given several times to students or professionals. The presentation will be structured as below:

- a) TDS context (initial projects, recap of Time-Intensity (TI))
- b) Principles of TDS: the concept of Dominance
- c) TDS data and their classical presentation and analysis
- d) TDS validation: the case of wine (basic tastes, mouth sensations, flavors, aromas)
- e) Comparing TDS to TI (based on several real studies)
- f) Comparing TDS to classical descriptive analysis (based on several real studies)
- g) TDS applications (overview of published and some unpublished applications)

2. Monitoring a TDS panel and running TDS sessions (0H30)

We will teach in this part how to select a TDS panel, how to train it and how to organize TDS sessions in the Fizz software. This is based on the experience gained in our respective labs (academic and industry) where TDS has been extensively used over the last six years. We will try to summarize the “tricks of the trade”. The practical questions addressed in this part are:

- a) What are the types of products and attributes suitable for TDS?
- b) How should the list of attributes be established for TDS?
- c) Should panelist for TDS be the same than those familiar with descriptive analysis?
- d) Is there a specific training for TDS or regular descriptive training can be used?
- e) How could we check performances along the training?
- f) What are the specific Fizz commands for setting up a TDS session?

Break (0H15)

3. TDS practical (1H30)

For this part, we will try to organize the room in such a way that participants will have access to computers linked in a Fizz network as if they were in sensory booths. Thus, the attendees will practice TDS from the panel leader and from the panelist perspectives.

We will demonstrate TDS based on real samples brought by us and using the attendees as panelists. The products are likely to be 4-6 samples of chocolates. These samples should differ to some extent in texture and flavor so most of the panelists could pick the nature of these differences with at least 2 attributes of texture and 2 attributes of flavor. We will try to select chocolates with differences in the temporal aspects of flavor release. The samples should be as visually similar as possible. The practical will successively be:

- a) Prior tasting of 2-3 samples (either selected from the 4-6 of the study or different if effective visual differences occurs among the sample of the study) in order to establish a list of 5-8 attributes (we will “drive” the group to end up with a “sensible” list of attributes) (0H15)
- b) Preparation of the Fizz session (0H15)
- c) Running the sessions: tasting of each sample once by each panelist (rep1), then 10 minutes break, and testing of each sample a second time (rep2) (0H50)
- d) Description of the data file obtained (0H10)

Lunch (1H30)

4. Analysis of the data from the practical (1H30)

- a) Production and analysis of the TDS curves
- b) TDS curves of differences between 2 products
- c) TDS curves of differences between a product and the mean of every products
- d) Analysis of T, D and S parameters (ANOVA of each parameter, PCA and/or CVA of D and S parameters, analysis of the T parameter)
- e) Analysis of the total duration of consumption

Break (0H15)

5. Open questions related to TDS (0H45)

- a) How many panelists and replicates should we use in TDS?
- b) Should we individually time-scale the data?
- c) Should we continue to ask for intensity?
- d) How to check individual and panel performances in TDS?
- e) How could we define a distance between two TDS profiles?
- f) Would consumer be able to do TDS?
- g) How could liking assessment be incorporated to TDS?

6. Discussion (0H30)

References

Pineau, N., Schlich, P., Cordelle, S., Mathonniere, C., Issanchou, S., Imbert, A., Rogeaux, M., Etiévant, P., Köster, E. (2009). Temporal Dominance of Sensations: Construction of the TDS curves and comparison with time-intensity. *Food Quality and Preference*, 20(6), 450-455.

Meillon, S., Urbano, C., & Schlich, P. (2009). Contribution of the Temporal Dominance of Sensations (TDS) method to the sensory description of subtle differences in partially dealcoholized red wines. *Food Quality and Preference*, 20(7), 490-499.

Labbe, D., Schlich, P., Pineau, N., Gilbert, F., & Martin, N. (2009). Temporal dominance of sensations and sensory profiling: A comparative study. *Food Quality and Preference*, 20(3), 216-221.