How to Conduct a Sensory Test

When it comes to developing a new product or even just changing one ingredient a company can't just take the risk that the consumers will love the way it taste. This is when a sensory scientist comes in to play. Their job is to set up test to see if consumers can notice a difference in a product or test to see if they think they are the same as a control.

The purpose of this document is to give Food Science students step by step instructions on how to set up and conduct a Sensory Lab for research. Sensory Analysis is a scientific discipline that applies principles of experimental design and statistical analysis to the use of human senses (sight, smell, taste, touch and hearing) for the purposes of evaluating consumer products. In food science we used human subjects to test new products to see whether if the new product is the same or different from another product by humans. For this step by step example I will just be using the discrimination method looking at the difference of object using a triangle test.

Glossary of Terms

Affective testing: Also known as *consumer testing*, this type of testing is concerned with obtaining *subjective* data, or how well products are likely to be accepted. The range of testing can vary from simple comparative testing (which do you prefer, A or B?) to structure questioning regarding the magnitude of acceptance of individual characteristics (please rate the "fruity aroma": dislike|neither|like).

Discrimination testing: a technique employed in sensory analysis to determine whether there is a detectable difference among two or more products. The test uses a trained panel to discriminate from one product to another.

Sensory: Scientific discipline used to evoke, measure analyze and interpret reaction to those characteristics of foods and taste, touch, and hearing.

Triangle Test: The assessors are presented with three products, two of which are identical and the other one different. The assessors are asked to state which product they believe is the odd one out. The probability for each assessor arriving at a correct response by guessing is 1/3
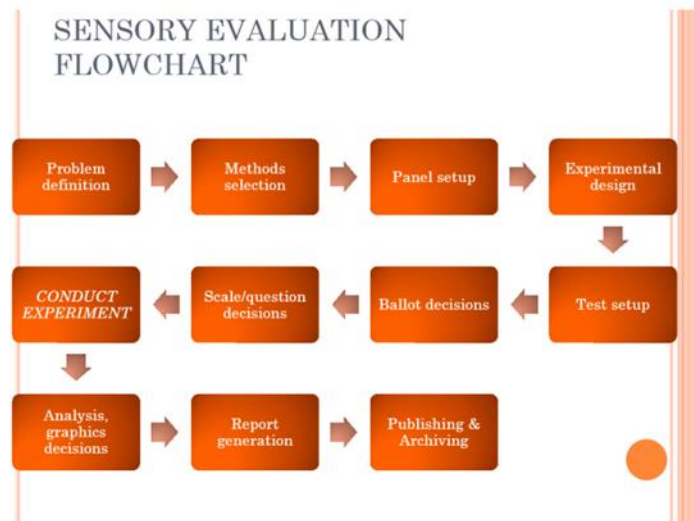
IRB: Institutional Review Board is a Virginia Tech based service that looks over the conduction of all research that takes place through Virginia Tech. Before you conduct any Studies you must have turned in your report and complete IRB certification

Step- by- Step instructions

The following steps lay out the process to conduct a sensory test for a food product. With the appropriate preparation and tools, any student can set up and get results from there sensory test.

1. **Problem definition-**
   This first step is all about knowing what exactly you wish to test. This can ether come from you research where you are trying to see if the public notices a difference in the

SENSORY EVALUATION FLOWCHART

Problem definition → Methods selection → Panel setup → Experimental design

CONDUCT EXPERIMENT ← Scale/question decisions ← Ballot decisions ← Test setup

Analysis, graphics decisions → Report generation → Publishing & Archiving

product that you have treated. For the rest of the steps I will be using the example of a test that is looking to see if consumers can notice a difference in treated versus untreated peppercorn.

2. **Method selection-** at this stage you select if you need to do descriptive or analytical method of test based of what you are looking for. Descriptive is for if the test requires the use of numbers while affective methods tend to look at consumer acceptability questions. Since

in this example of peppercorn we are looking to see if the consumer can noticed a difference in the sample and not whether or not the like the product we will be using the Descriptive method.
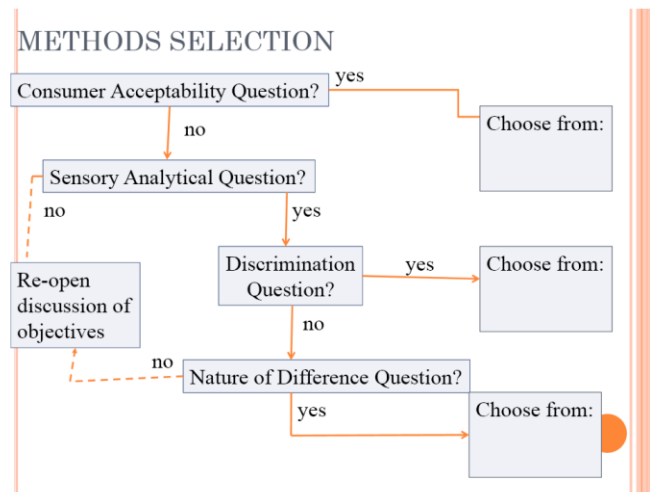
3. **Panel set up-** When it comes to setting up panels for the discrimination testing you only need somewhere between 80-40 participants depending on what fine test you choose from. With the example of pepper corn we just want to see if they would be able to detect a difference, if they can they are sensitive to the product being tested and can help out on later test that you may want trained panelist.

4. **Experimental design-** Since this stage you already know what method you are using it become easier to decide on what test to use. In our example of

peppercorn the best test would be the triangle test. At this point you go to a statistician and tell them what type of test you are conducting, how many people you are testing, and then that you want to know if there is enough evidence to conclude that the samples are different. With this information the statistician will set up the parameters of the test such as your α andβ values.

5. **Submit report to IRB**-   At Virginia Tech in order to make sure that you are not making any unethical calls with your research and your subjects you have to submit a proposal to the IRB with a detail explanation of you experiment. You can submit you proposal on their website http://www.irb.vt.edu/ then click the new project application link. If anything goes wrong in your experiment you have to report it to the IRB. You must NOT conduct any experiments until you get approval.
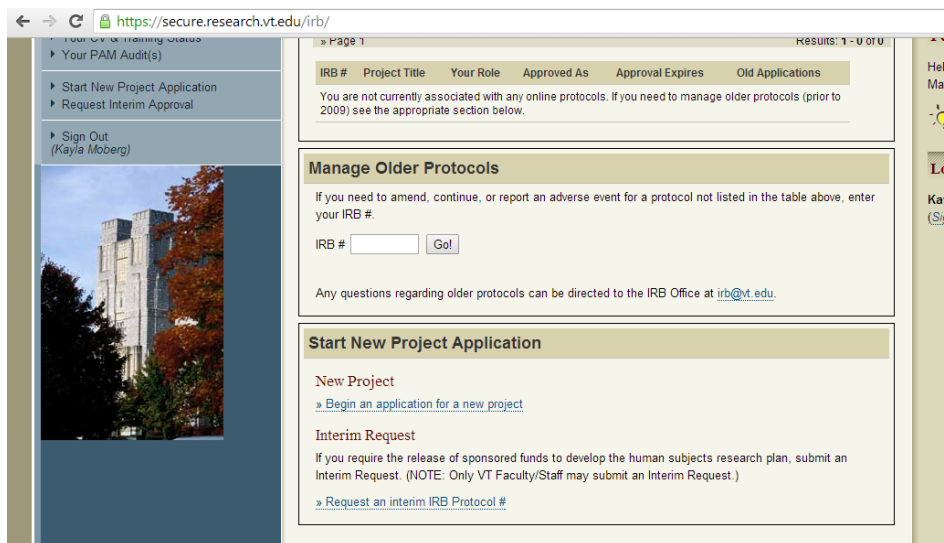
6. **Test set**- It is the day of the test and it is time to get things set up. First thing to do is to prepare the samples by pouring them in to clear glass jars. Then you have to select 3 digit codes that are only known by you what they mean. This way it does not cause any bias in the experiment. Make sure that the same

amount of each product is in each jar .You have to select and print out the ballet that the panelist are going to fill out this is an example of what a typical triangle test score card looks like.

Triangle Test		
Name: Date:		
Type of sample:		
Instructions: Taste samples from left to right. Two are identical; determine which is the odd sample. If no difference is apparent, you must guess.		
Samples	Which is the odd sample?	Comments
587 245 894	_____	_____
177 573 661	_____	_____
326 456 842	_____	_____

7. **Conduct experiment-** at this point people have started arriving. Have an administrative person read a statement about what the test is for and how to do the test. This administrative person then directs them

to both. Once seated in the both a lab assistant will pass through first the consent form, then they will pass the score card with the 3 samples siting on the tray. Repeat till all participants are done.

8. **Analyze data-** After the experiment is over recorded all data in excel. Give this information to the statistician where they

will run there statistics and tell you the result of the test that can then be used in your report to draw conclusions.