Possibility of Visually Impaired/Blind People as Descriptive Trained Panel: The Initial Stage

Aussama Soontrunnarudrungsri[1], Thanaporn Kanthajan[1], Burinphat Ketwaropaskul[1], Thitima Wongcheewee[2], Sarinya Wangmanao[2], and Edgar Chambers IV[3]
1. Sensory Analysis and Consumer Insight Center, School of Biotechnology, Assumption University, Bangkok, Thailand
2. King Mongkul University of Technology Thonburi, Bangkok, Thailand
3. Sensory Analysis Center, Kansas State University, Manhattan, Kansas

Introduction: Nowadays, there are many blind people in Thailand. In the statistical data of blind people who have registered for is 187,727. Most of blind people do not have a job. Even, the government started campaign to provide the privilege of hiring handicap people by reducing tax to support company to hire handicap people. Most companies still don't hire blind people because the companies think they cannot work well as normal people which have all five senses but there are many researches show that blind people can compensate for their lack of sight with enhanced hearing or other abilities. (Mary Bates, 2012) The study was divided into two parts. First, interviewing was applied to obtain opinion, demand, and comments from the industry that used sensory analysis in their routine works. The second part was comparing the capability between visually impaired people and the normal eye sight people. The aim of this study is to compare the difference of senses between the normal people and blind people. This project is related to the government campaign which is created to improve the quality of blind people's lives.

Methodology

Industry survey

The interview was done with food company and research agency that regularly conduct sensory study. The content of the interview included types of sensory test used in the organization, sensory attributes that company were interested, validation method, infrastructure of the company, and possibility of the company would use visually impaired descriptive panel.

Selection of panelists for descriptive analysis

1. Recruiting descriptive panelist

The visually impaired (VI) people who interested to join this program were recruited from Thailand Association of the Blind and Low Vision. The control group (normal eye sight) were recruited at Assumption University.

2. Selection of panelist for descriptive analysis

The screening test can be divided into three sessions which are recognition test, different test and ranking test. All of sample was randomly presented by using William square design to balance and randomize the serving order.

All three tests were repeated to the group of VI after they were trained on basic tastes (single taste solution and mixed taste solution) for 80 hours.

• **Recognition test** – Basic taste solution were prepare at the recognition threshold concentration expect for saltiness. Consumer tasted the samples from left to right and identified which taste they perceived from each cup. For blind people, they were ordered to arrange the cup following sweet, sour, salty and bitter from left hand to right hand. This test was performed for three replications.

• **Different test** – The triangle test was used in this step. The concentration for each taste which were the concentration from ISO standard and the another one that contained concentration 80% of ISO standard threshold so the tester have to identify the difference one for each taste correctly to pass the test. This test was performed for two replications.

•**Ranking Test** – The ranking test had been performed to test that people can order the intensity of solution or not. Three samples were served on the tray to tester for each taste. There were four different concentration for each taste which were concentration from ISO standard threshold, 80% of ISO standard threshold, 120% of ISO standard threshold and 140% of ISO standard threshold so the tester must order the intensity of each taste correctly to pass the screening This test was performed for two replications.

Table 1: The amount of solute used to prepare the taste solution for the screening process

Taste	Solute	Concentration (g./ 1 litter of water)			
		80% of recognition threshold	100% of recognition threshold	120% of recognition threshold	140% of recognition threshold
Sweet	Sucrose	1.37	1.72	2.06	2.40
Sour	Citric acid	0.10	0.13	0.16	0.18
Salty	Sodium chloride	0.96	1.20	1.44	1.68
Bitter	Caffeine	0.08	0.10	0.12	0.14

Result and Discussion

1. The Findings from the interview

There were total of 8 organizations interviewed (7 companies and 1 government agency). All of representatives from the company were mainly belonged to Research and Development or Quality Assurance/Control department. The conclusions from the interview were as followed.

- Department of Science Service used wide range of methods such as discrimination test, descriptive test and affective test since they are government agency who are providing the services to the community. They do not have an interesting or focusing in any specific product attributes. However, there were several projects that they worked on related with aroma and flavor of food especially Thai food. Apart from sensory work they also offered physical and chemical measurement and used as validation method for sensory data. Department of Science Service showed interest in using trained visually impaired panel first in project based work.
- According to the interview with several Consumer Packaged Goods (CPG) Company and ingredient company, it was found that some of them were concerned with appearance of the product since they were the first impression of the product and affected consumer buying decision. There were some differences of the sensory techniques in the quality assurance and research and development department of the company.

Result and Discussion

1. The Findings from the interview

- Quality assurance department mainly used Discriminative test such as Degree of Difference (DOD) and descriptive analysis since it will be crucial for the product launching decision. While research and development department mainly used Descriptive Analysis and Affective Test. All attributes were taken into the consideration when it came to industry especially chicken-based product like chicken nugget and chicken karaage. The company normally used in-house trained panel due to the budget and availability. The recommendation from the companies were visually impaired panel might work better with product that consumer do not care much about the appearance such as juices since juice was packed in the carton box and consumer cannot see the product inside or flavor and fragrance house.

2. Selection of panelists for descriptive analysis

2.1 Recruiting descriptive panelist

There were total of 28 visually impaired people participated in the screening process. All of them were member of Thailand Association of the blind and visually impaired people.

2.2 Selection of panelist for descriptive analysis

1. Taste Recognition

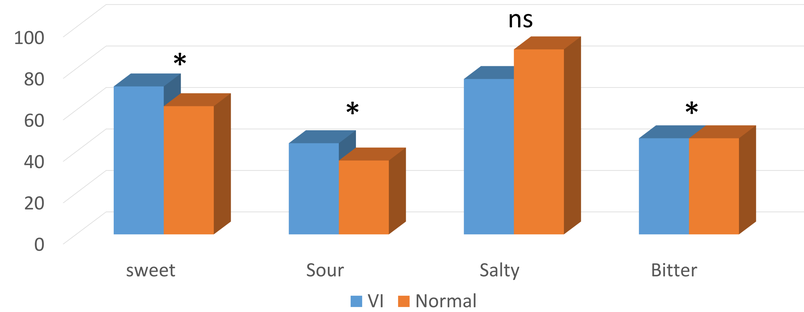

Figure 1: Percentage of the number of right answers from taste recognition test

2. Triangle Test

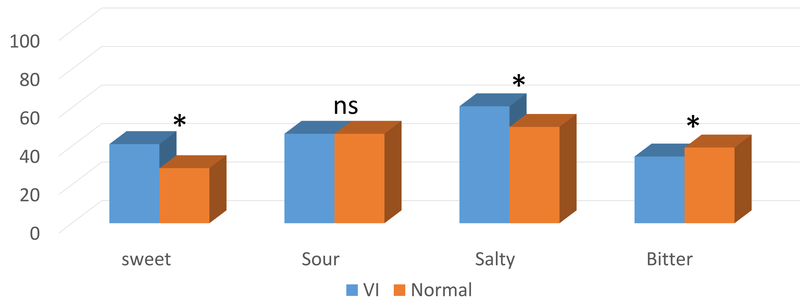

Figure 2: Percentage of the number of right answers from triangle test

3. Ranking test

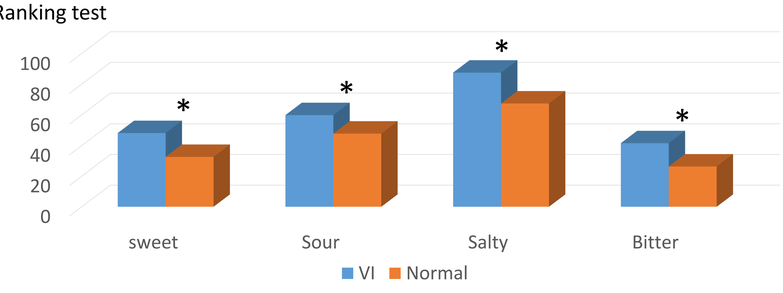

Figure 3: Percentage of the number of right answers from ranking test

Conclusion

1. According to the taste recognition test, triangle test, and ranking test; VI group performed better than the control group.
2. There were no significantly different in performance between VI and control group in salty taste in taste recognition test and sour taste in triangle test.
3. According to the main finding showed that there might be a possibility for VI group to be a descriptive trained panel since perception of basic taste showed superior over control group.