

Training Methods for the gLMS (generalized Labelled Magnitude Scale)

Margaret Thibodeau¹, Rebecca Ford¹, & Qian Yang¹

¹Sensory Science Centre, Division of Food Nutrition and Dietetics, University of Nottingham, Sutton Bonington, UK

The following document provides a description of three training methods for the gLMS (generalized Labelled Magnitude Scale). The *full video* training was developed first, is 4 minutes in length and provides the most guidance. The *short video* training is a 2 minute version of the *full video*. Finally, the *short written* training is an adapted version of the *short video* where text and screenshots were used. Table S1 summarizes the methods by providing the text/transcript used and references to prior literature

Table S1: Text (*short written*) or narration transcript (*short video* and *full video*) used for gLMS training. The instructions were presented in the order from the top of the table (Welcome) to the bottom of the table (Thank you). Shading is used to indicate which sections were included in each training method.

Section with citation if adapted from literature	Text (short written) or Transcript (video)	Included in training		
		Short written	Short video	Full video
Welcome	Before you start today's activity, I would like to explain the scale you will be using.	Yes	Yes	Yes
Elephant and mouse analogy (Stevens, 1958)	To do this, please think about how you would measure the size of an elephant. Here's a picture of two elephants. Most people would agree that the elephant on the left is big and that the elephant on the right is small. Now, here's a picture of two mice. Most people would also agree that the mouse on the left is big and that the mouse on the right is small. However, what if I show you both the mice and the elephants at the same time? Is the big mouse still big? Is the small elephant still small? These questions are hard to answer because adjectives like big and small are relative to the size of the objects you are measuring. When we add the word elephant or mouse to the description, it's easier to understand the actual size of each animal. Another way to solve this problem is to use a ruler. Because all the animals are being measured against the same scale or ruler, the measurements can be easily compared.	No	No	Yes

Section with citation if adapted from literature	Text (short written) or Transcript (video)	Included in training		
		Short written	Short video	Full video
Reminder to rate all sensations (Green et al., 1996; Green et al., 1993; Hayes et al., 2013)	As part of today's activity, you will be asked rate the intensity of different sensations. As sensations can't be measured with a ruler, scientists developed this scale to capture your responses. The scale was designed so that you can rate any kind of sensation. This includes sensations related to touch, sound, sight, smell, taste, or even painful sensations. By using the same scale for different types of sensations, we can more easily compare the results.	Yes, with the image shown in Figure S1.	Yes	Yes
Orientation to the bottom of the scale	The bottom of the scale represents no sensation of any kind. This represents the absence of a sensation. For example, think of the brightness of a room with no windows or lights.	Yes, with the image shown in Figure S2.	Yes	Yes
Orientation to the top of the scale (Hayes et al., 2013)	The top of the scale represents the strongest imaginable sensation of any kind. For example, think of the brightest light, the loudest sound, the hottest temperature, or the most painful sensation. Whatever kind of sensation would be the strongest for you should go at the top of the scale. Your strongest sensation can be something you have experienced in real life or something you imagine experiencing.	Yes, with the image shown in Figure S3.	Yes	Yes
Anchor terms tip	Other terms have been added to the scale as a guide. Please use these as you would in your daily life. It can be helpful to add sensation of any kind after each of the terms to remember their meaning. For example, if you are rating the sweetness of a strawberry, weak represents a weak sensation of any kind, not weak sweetness, or weak taste.	No	No	Yes
Practical instructions	To make your rating, please click on the scale. A horizontal bar will appear to mark your rating. Only the final place you click on the scale will be recorded.	Yes, with the image shown in Figure S4.	Yes	Yes
Continuous scale reminder (Hayes et al., 2013)	It is important to remember that the scale is continuous. This means that you can click anywhere along the line. This includes on or between the terms. When we record your response, we will measure the exact location on the scale where you have made your mark.	No	No	Yes
Strategy for fine tuning ratings (Green et al., 1996; Green et al., 1993; Hayes et al., 2013)	A good strategy for rating a sensation is to first decide which term most closely describes its intensity. Next, you can fine tune your rating by moving the cursor towards the next most appropriate term. This could be up, if the sensation is more intense, or could be down if the sensation is less intense.	Yes, with the image shown in Figure S4.	Yes	Yes

Section with citation if adapted from literature	Text (short written) or Transcript (video)	Included in training		
		Short written	Short video	Full video
Intensity is not liking reminder (Hayes et al., 2013)	Finally, please remember that you are rating the strength or intensity of the sensation. This is different from how much you like or dislike the sensation.	No	No	Yes
Thank you – video	Thank you for watching this scale training video. You can now proceed with the next task.	No	Yes	Yes
Thank you - written	Thank you for reading the scale training instructions. You can now proceed with the next task.	Yes	No	No

Figure S1: Image included in the *short written* training intervention that accompanied the reminder to rate all sensations.

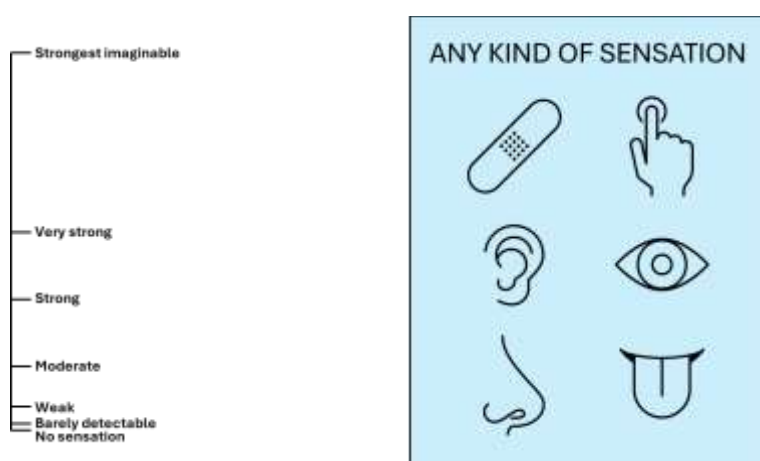


Figure S2: Image included in the *short written* training intervention that accompanied the orientation to the bottom of the scale.

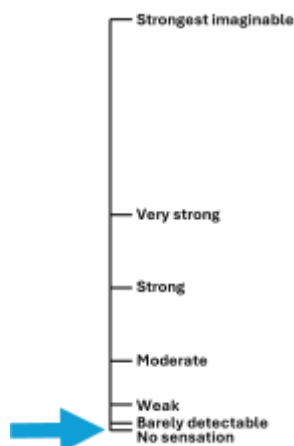


Figure S3: Image included in the *short written* training intervention that accompanied the orientation to the top of the scale.

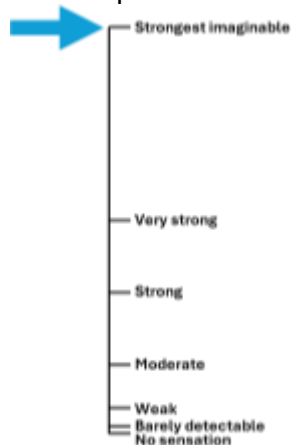
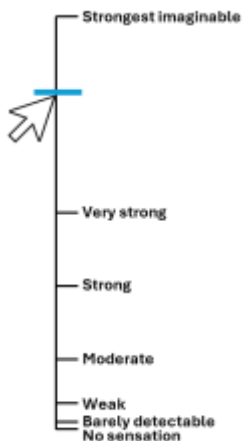


Figure S4: Image included in the *short written* training intervention that accompanied the practical instructions and the strategy for fine tuning ratings.



References

- Green, B. G., Dalton, P., Cowart, B., Shaffer, G., Rankin, K., & Higgings, J. (1996). Evaluating the 'labeled magnitude scale' for measuring sensations of taste and smell. *Chem Senses*, 21(3), 323-334.
- Green, B. G., Shaffer, G. S., & Gilmore, M. M. (1993). Derivation and evaluation of a semantic scale of oral sensation magnitude with apparent ratio properties. *Chemical Senses*, 18(6), 683-702. <https://doi.org/10.1093/chemse/18.6.683>
- Hayes, J. E., Allen, A. L., & Bennett, S. M. (2013). Direct comparison of the generalized visual analog scale (gVAS) and general labeled magnitude scale (gLMS). *Food Quality and Preference*, 28(1), 36-44. <https://doi.org/10.1016/j.foodqual.2012.07.012>
- Stevens, S. S. (1958). Adaptation-Level vs. the Relativity of Judgment. *The American Journal of Psychology*, 71(4), 633-646. <https://doi.org/10.2307/1420322>