

Mind, Brain and Behaviour
Semester 1, 2017

Sensation and Perception

“...I shall straightaway set down the three tasks for the sake of which one requires educators. One has to learn to see, one has to learn to think, one has to speak and write; the end in all three is a noble culture.”

Friedrich Nietzsche, *Twilight of the Idols*

Reading (available on LMS in the S&P Reading section, please read the first two(*) by Tuesday 28/3)

*Conversation Piece (<https://theconversation.com/nature-makes-abstract-visual-art-more-captivating-24723>) - SJC

*The Doors of Perception – Aldous Huxley

An Argument on Beauty - Susan Sontag

Paul Cezanne; The Process of Sight - Jonah Lehrer

What is Red? - SJC

PLOS One paper - SJC

Overview

The readings by Huxley, Lehrer and Sontag, along with what I have said and written, should have started you thinking about how your world appears to you and perhaps encouraged you to look at it in a different way. Use these essays to shape and stimulate your engagement with this course, along with your own thoughts and experiences. We all have an internal world and we are all capable of examining and deconstructing it. Your own views of sensation and perception are as valid as mine and I am interested in them.

The most important aspect of an introductory course such as this is how much it stimulates you and makes you want to know more. I would rather you left feeling inspired, not ‘full’. Sensation and perception as an area of research and enquiry has some quite unique aspects. One is that it is disproportionately extensive in both scope and depth, and it brings in aspects of neuroscience, maths, fine art, psychology, sociology and philosophy. The other aspect is that while we know a huge amount about the visual system from many perspectives, we know very little about how we actually do the most simple of perceptual tasks, like see a colour, or something move, in a detailed and mechanistic way. So this will not be a course about how we do things, but about ways of asking questions, or thinking about things in order to find out more.

My aim in this course is to get you to ask questions about your sensory world, ones perhaps you have not asked before. Jason has, thus far, given you a great deal of detail about the building blocks, the components, of the brain. What I am going to try to do in this next section is give you ways of thinking about how these base components may be used to enable you to sense the world around you. Without that connection and interaction with the world, the rest of Psychology would be rather lost. If you have some insight into the possibility that

the person sat in front of you genuinely sees the world differently from you, then you half way toward being able to help them come to terms with your view, and you with theirs.

The skills you are to focus on in this part of the course are those of listening and observing, recording your observations through note-taking, considering those observations, talking to one another, and writing. I will try and minimise 'facts' for you to learn but rather try and encourage you to develop different ways of thinking and questioning. It is my hope that this approach will be applicable to all areas of psychology that you come across. I have found it to be so in my own work.

You will also note that I do not put up my slides prior the lecture. I do this deliberately, or rather don't do it deliberately, because I would prefer that you listen and engage with me and what I am saying rather than a series of disconnected pictures in front of you. I will put the slides up after the lecture along with a written commentary giving a perspective on what I have talked about during the week (or for each section of the course as i see fit). I will read the discussion board each night and then, where possible, devote some time the following day to answering any questions you may have or clarifying anything i have said. I am also quite happy to talk at most other times.

The principal aims of the 'assignment/exercise' aspects of the course are to **encourage you to think and examine your sensory world, and to report on your thoughts in a coherent and structured manner**. This involves careful observation and considered thought, rather than learning specific facts and answering directed questions, although there will be two written exercises which will form your assessment. I recommend that you conduct the two assignment exercises (i.e. watch the sunset and consider the idea of an illusion and what it means) as soon as possible so that you can discuss your notes and observations in the tutorials the following weeks. The sunset exercise is also best conducted at the end of a sunny day - I hope we have a few of those in the next week or so. These should be considered more as one assignment in two parts than two separate essays and it is due in on **Friday 28th April by 8am** via Turnitin¹ through LMS.

Exercise 1: How does 'the world' change as the light changes? 25/40 marks
Approx 1250 words (not including your notes, which are to be handed in with the essay).

The perception of the world depends on the light source, the properties of the illuminated surface and, at the outset, the sensitivity of the photoreceptor mosaic on the retina. This mosaic is made up of three cone-types (L, M and S- wavelength sensitive) and one type of rod. Not only do these four photoreceptors have different spectral (wavelength) sensitivity but they also have different brightness sensitivity such that in under moderate to bright light-conditions, rod output is completely saturated and only cones contribute to your visual world. As the light level drops, then the effective contribution of the cones becomes less and the rod

¹ Where do these names come from? How much time was wasted thinking of it?

contribution to your vision increases until, at very low light levels such as moonlight, only rods mediate your vision. Observation of these two extremes and the transition between the two provides an important insight into the constraints placed upon the whole visual system by the 'front end'.

What I would like you to do is to take notes on the apparent change in your percept of the world as you move from cone- to rod-mediated vision and describe this change. You are to sit outside, as far away from artificial light sources as possible, at sunset (or if you are really enthusiastic – at sunrise) and record the changes in the visual image as the light level falls to darkness. If you can choose a clear moonlit night then the experience will be much richer. Then use your notes to reflect upon the change and the insight you have gained from it. Consider the change in appearance of the colour, the form, the depth and the motion in the environment and relate this to what you know about the early processes of vision. Take the time to look very carefully at *everything* and note how its appearance changes. You can consider taking a familiar object with you and map the changes in its appearance. Overall, it is most important, however, for you to reflect upon your observations and thoughts rather than give me some specific answer. The process of observation and note taking is as important as the process of writing the essay.

You can present your work in any way you wish as long as it communicates what you have seen and your reflections upon this. This is not a formal lab report but an exercise in observing, thinking and communicating. We would like you to hand in your notes with your essay. We are not going to mark your notes, they do not even have to be in English, but we feel that the act of handing them in encourages you to see the process of watching the sunset as important as the final product.

Exercise 2: Sensory oddities and reality. 15/40 marks

Approx 750 words (not including your notes, which are to be handed in with the essay)

Sensory anomalies and illusions have always been of interest to scientists and artists alike. As you will gather from my comments in the lectures, I think they are often 'mis-used' but they remain of great interest. I want you to look around you in the 'real world', and in art, film and other media and find an 'illusion' or oddity of vision or audition that interests you. If possible, take a photo or make a drawing and attach it to the work. Describe the illusion in detail, using the skills of observation and note taking you employed for Exercise 1, and consider how or why the illusion may come about. Think about the specific context and possible reasons for the illusion, both from the point of view of vision or audition but also why you think it is there. Again, I am far less interested in the 'right answer' than in your inspiration and observation. The more unusual the illusion or observation is, the better your work will be. Please do NOT just take something from the web.

Exercise 3: Misconception and understanding. No marks - for your learning and interest. Please answer the survey before Tuesday 28/3.

Brief online questionnaire completed at the beginning and end of the course

https://melbpsych.co1.qualtrics.com/jfe3/form/SV_8q5vanpzoqUrtlj

One of the most consistent comments I get about this course is that I ask you to think about things that you have previously taken for granted in a different way. I want you to reflect upon this process as I ask you to do it. This will help you manage the learning process and, I hope, feel less intimidated by being taken out of your intellectual comfort zone. To this end, we would like you to answer a brief questionnaire before the course starts and after it finishes. The process of you answering the questions will help you to reflect upon your own learning, and help me to guide you through the learning process more effectively. The quiz will not take more than 5 minutes each time, if that. We will let you know what to do when it is available and I will talk about it in the lecture and it relates directly to what you will be doing in the tutorials.

I hope you are enjoying this course, there is no point in doing it if you don't.

SJC