
The senses

We are usually taught that we have five senses: sight, sound, touch, taste and smell. This may strike you as common sense, but, depending on the criteria used, the number can vary. Some people claim that we have as few as three types of senses: mechanical (touch and hearing), chemical (tastes and smells) and light (vision). Others say that we have more than five senses and they include such things as the following:

Proprioception: awareness of the position of your limbs in space

Equilibrioception: sense of balance

Interoception: awareness of stimuli originating inside the body

Thermoception: awareness of temperature

Hierarchy of senses

The traditional five human senses are not necessarily of equal value; some are believed to be more important than others. Most people would agree that vision is our most dominant sense and a large part of the human brain is devoted to visual processing. Indeed, we naturally tend to connect vision with knowledge. For example, we say that seeing is believing rather than smelling is believing; when we understand someone we say 'I see what you mean', not 'I smell what you mean'; and we speak of someone having *insight* not *insmell*. However, there are also some metaphors for knowledge deriving from other senses. For example, you might say that someone has lost *touch* with reality, or that an argument *smells* fishy; and there is a well-known Sufi saying, 'He who *tastes*, knows.'

Selectivity of perception

Apart from visual illusions, another reason for being cautious about what our senses tell us is that perception is *selective*. A vast amount of data is constantly flooding in to our senses, and our minds would overload if we were consciously aware of everything. So we only notice some things in our perceptual field and overlook others. The selectivity of perception can be seen as a generalisation of the figure-ground phenomenon mentioned above. Certain aspects of a situation engage our attention and 'stand out', and the rest fade away into a more or less indeterminate background. For example, if we are having a conversation at school, I may notice your facial expression, yet have no conscious awareness of the picture on the wall behind you; or I may hear what you are saying, yet be oblivious to the quiet hum of the computer. While the light reflected from the picture affects my eyes, and the air vibrations caused by the computer hit my ears, my conscious mind treats these things as the background against which what I am interested in stands out.

Perception and selection

What we perceive out of all the "sense noise" of the environment depends on a host of factors about the object of perception, the person who is perceiving, and the context in which the perception is taking place. Many factors influence what we perceive and remember: out of all possible sense observations that we might make, we catch only a few, and out of all that we might remember, we recall even fewer. Perception is a selective process.

To give some attention to your own process of perception, try one or two class exercises, followed by discussion.

Group exercises

Perception in the present

Choose in advance someone to prepare an object for observation. It could be an object with considerable detail found anywhere in the school or at home, or it could be an object made by the appointed person. All members of the group should sit in a circle, eyes closed, while the person places the object in the centre. When told to do so, everyone should open their eyes, observe the object, and then make a record of their perceptions on a sheet of paper either in words or in drawing. When everyone is ready, place your papers around the object in the centre so that all of you can see all the different records.

- How can you check your own record to determine whether it is accurate?
- In what ways do your different records of perception vary, and why? Pin down as many reasons as you can.
- Is it possible to separate sense perception entirely from interpretation in the records that you have made?
- What are the recording methods used by different students? Is any method particularly effective, in the judgment of your group?
- If all the different records by all members of your group are combined, do you then have a better record of the object? Why or why not? If all are combined, is the record complete?

Perception in the past

Choose together something within your school that all students in the class could have had access to within the past day or two, even if they did not give it close attention. Choose something with abundant detail that could have been observed. It could be, for example, a school notice board or web page that regularly updates notices, or a school play, dance, or sports event.

- Impose a time limit of roughly 5 minutes, in which everyone is to write down, as swiftly as possible, as many observations as possible made with the senses. What were all the notices on the board? Or what were the key observations of the sports event?
- Compare your lists and descriptions. What influenced what each of you noticed and remembered?
- In spite of personal variability, are some observations simply wrong? How do you know?
- If your records are combined, do you have a better record? If your answer to this question is yes, explain what you mean by "a better record".

Integrated senses: synaesthesia

Synaesthesia is an unusual condition in which two or more of the senses we normally experience separately are experienced together. For example, a synaesthete might see sounds, or smell sights. The most common form of synaesthesia is

The senses

perceiving letters and numbers as inherently coloured. This condition is thought to be the result of cross-wiring of the brain and it is often associated with 'creative types', such as artists, novelists, poets and composers. Well-known artistic synaesthetes include the painter Vassily Kandinsky (1866–1944), the novelist Vladimir Nabokov (1899–1977) and the jazz musician Miles Davis (1926–91).

Some people claim that we are all partially synaesthetes. For example, we naturally associate phenomena from one sense with those from another, as can be seen in common cross-sensory metaphors such as 'smooth voice', 'loud shirt', 'cold light', 'sharp taste', 'bitter wind', 'light music', 'heavy silence'. As further support for this claim, consider the bouba-kiki test. Imagine that the two shapes above are letters from the Martian alphabet, one is called bouba and the other is called kiki. Your task is to guess which is which.

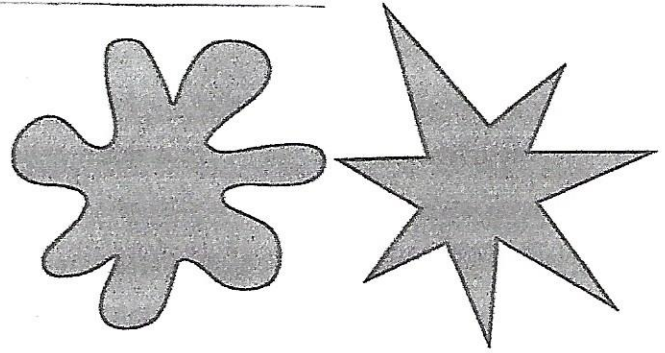


Figure 5.2 Bouba-kiki

Interestingly, almost everyone guesses that the figure on the right is kiki and the one on the left bouba – irrespective of their native language. The psychologist V. S. Ramachandran suggests that this is because the sharpness of the sound 'kiki' reflects the jaggedness of the shape on the right; while the roundness of the word 'bouba' – our lips adopt a rounded shape in enunciating it – mimics the figure on the left.

The enigma of sense perception

Though scientists know more about our senses now than at any time in the past, human perception continues to be something of an enigma. It is fascinating that as humans we convert physical stimuli in the form of electromagnetic or other kinds of energy into meaningful objects and events. You hear not just noise, but the song you danced to the night you first fell in love; you see not just the sensation of light, colour, and shade, but your father who is waving to you as you step onto the station platform and into his familiar embrace.

The world is not as we sense it, but we do not know how it "really is". As we learn more about our own brains and as we see deep into the subatomic world with senses extended by technology, we gain further understanding that tells us, in some ways, how little we still know. Indeed, some philosophers have argued that we cannot know that the world even exists outside ourselves at all, as all we know is our sense impressions of it, and not the world itself. How we deal with this questioning of sense perception depends upon our goals in knowing.

- The sciences use perception in gaining knowledge, gathering observations with great care in order to converge in a common understanding of what the world (assuming that it exists outside our sense information of it) is really like. How does science seek to overcome individual or group variability in pursuit of truth?
- The arts use perception as a source for their more divergent work. How do the arts (literature, for instance, or music) use individual or group variability of perception as a strength?

Follow-up summary

You might want to compare the factors you and your classmates identified as affecting perception with the following list.

- *Characteristics of the object or incident under observation:* size, colour, shape, loudness, composition, distance away, familiarity or unusualness, length of time it can be seen or heard.
- *Characteristics of the observing conditions or context:* angle of observation, frequency of observation, quality of light, amount of background noise or other distractions, reactions of others drawing attention to or shying away from the object or incident.
- *Characteristics of the observer:* normality of the person's senses at the time, person's emotions, degree of interest in what is being observed, expectations, background knowledge.

If we consider what kind of stimuli we usually notice, intensity and contrast are two important factors. The ticking clock may sometimes go unheard, but you would hear if a bomb exploded in the building next door. Drop a small object on a patterned carpet and it can sometimes be hard to find again; but a tiny drop of blood on a white carpet will be immediately apparent. For good evolutionary reasons, we are also sensitive to moving objects. If you work at a desk by a window, your attention may suddenly be caught by something which makes you look up without quite knowing why – only to realise a second later that there is a distant bird passing over the trees. Since it may be moving towards you, such an object represents a potential threat and you therefore notice it.

What you tend to notice in a particular environment is partly a matter of biological nature, but it is also influenced by your interests, emotions and culture.

Interests

The particular interests that you have can be thought of as filters that determine what shows up as you scan the world around you. If three friends go for a walk in the countryside, one may focus mainly on nature and the variety of the wildlife; a second may attend to what his friends are wearing and talking about; and a third may notice very little because her mind is on something completely different. The following question, which I owe to an anonymous colleague, shows how our perspective on something affects the way we see it.

ACTIVITY 5.5

Take one of the following phenomena and describe how it might be seen through the eyes of the following people:

- A child dying in poverty as seen by a doctor, an economist, a social worker, the child's father.
 - A sunset as seen by a religious figure, a physicist, a painter, a farmer.
 - A tree as seen by a biologist, a logger, an environmentalist, a native American.
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As the pattern of our interests changes, so does what we tend to notice. It is striking that if your family buys a new car you will begin to see cars of the same model and colour everywhere. Similarly, if a woman becomes pregnant, she begins noticing pregnant women wherever she goes.

Emotions

Our feelings and emotions also shape and colour our perceptions. When you are in a good mood you see the world in quite a different way to when you are in a bad mood. While an optimist sees a glass as half-full, a pessimist sees the same glass as half-empty. An emotion such as love can have a particularly strong effect on our perception. When you fall in love with someone you may unconsciously project your dreams and fantasies onto them so that they seem to possess every imaginable perfection. If you later fall out of love, you may look at your 'ex' and wonder what you ever saw in them.

LQ – Emotion: How does your mood affect your perception of things?