

Interaction – This is the third part in the chain. It is the interaction of the various forms of energy with the sensitive receptors in the perceptual system. We should note that we refer to interaction, not merely reception. If a receptor is stimulated, its condition may be so altered that any further stimulation will produce effects that are different from the effects produced by the first stimulus. For an example, a bright light will cause the iris of an eye to close so that less light can enter the eye.

The sensory nerves – The fourth link in the chain consists of the sensory nerves which lead from the receptor organs to the brain. The sensory neural paths may be short, as is the path from the ears to the brain, but others from the toes to the brain may be long.

The brain – The brain forms the fifth link in the perception chain. This is particularly so in the sensory areas where the sensory pathways first reach the cerebral cortex. However, other parts of the brain are concerned, because neurons arising from the first sensory areas travel to other regions of the brain for further processing.

A two-way loop – A full appreciation of the chain of perception requires that we think of the process as a two-way loop. There are many cases where a neural pathway going “up” the chain is matched by a neural pathway going “down”. The impulses on the “down” pathway can affect the signals in the “up” pathway. If this happens, the effect of the various environmental properties on the perceptual system may be changed or modified.

Muscular movement. – Some “down” pathways contribute to perception in other ways. These signals cause the muscles to move so that the body, or parts of the body move to gather new information. At first thought it might seem strange to think of moving one’s fingers as an aspect of perception, but how would one, for example, tell the smoothness of skin without such movements?

Difficulties arise when a link in the chain is disrupted or broken. This can be shown if we consider light waves being deflected in passing through water or if a sensory area of the brain is damaged.

The initial direction of expectations and desire has considerable influence on perception. Sometimes we see and hear what we want to hear. For instance, suppose you need to find a book in a bookcase, it will be found more easily – you know the book cover for which you are looking.

Proximity, similarity, continuity, completeness and symmetry facilitate perception. The following is an example of proximity. If we note the six vertical lines in Figure 1, A, B, C, D, E and F, one’s perception automatically links the lines into pairs A and B, C and D, and E and F, this is because of the proximity of the paired lines.

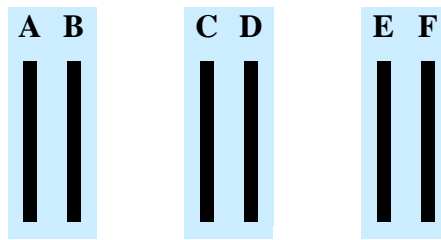


Figure 1

We can consider the case of similarity by noting Figure 2. The right-hand group of lines appears to consist of verticals, while the left-hand group appears to consist of horizontals. One automatically groups elements of a similar nature together.

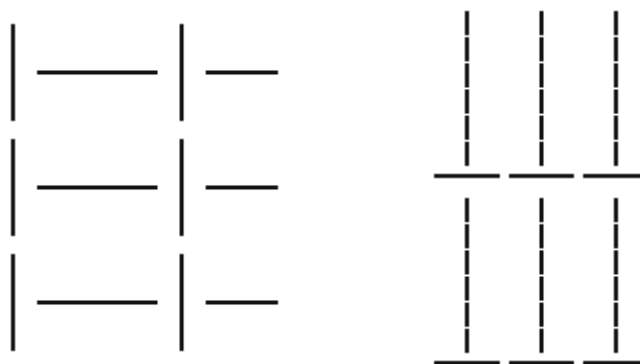


Figure 2

Considering the Gestalt Approach to perception is useful at this stage. There are many different approaches to perception, but most have developed from the early structuralist view. The Gestalt is one of these.

In the early 1900's a group of German psychologists began to express the radical view that we naturally and normally perceive complete forms or objects, such as chairs or people, in terms of the whole stimulus pattern present. This doctrine was completely different from those prevailing at the time, which claimed that experience was best described as discrete, unorganised individual sensory experiences, which are only later, compounded into perceptions.

The previous paragraph may seem to you to be rather complicated and you may wonder how deciding which view is right is possible. If you look at a chair in a room, you obviously usually perceive it as a chair. We can now ask the question – were the structuralists wrong in claiming that one unconsciously senses separate lines, colours and parts that compound into the perception of a chair?

The difference between the views becomes more distinct if one asks how particular subsets of the enormous number of possible elements in the environment eventually compound into separate perceptions. For example: Why does one see a person sitting in a chair? Why are not the person's leg and the adjacent chair leg seen as one integrated structure?

The Structuralists believed that experience is very important in determining what we see as a whole. Their argument was that the separate parts of a person had been seen together often and therefore these parts become associated with one another. This argument also applies to the chair. Thus, over time one comes to see "person" and "chair".

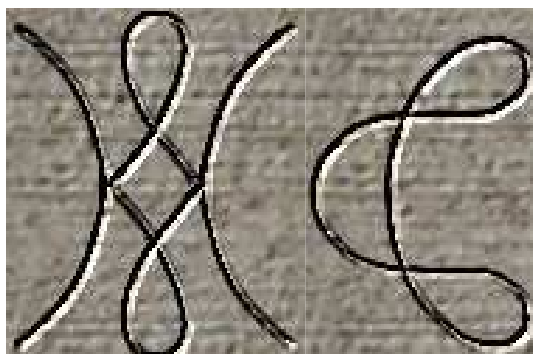


Figure 3

The Gestalts used demonstrations and experiments to illustrate their theory. One such demonstration is shown in Figure 3.

You may never have seen these particular patterns before. If the Structuralists were correct, you might be expected to perceive the number "4" on the right, with some added swirls. This is because you have seen a "4" something like that many times before. The same argument applies to the left-hand figure, where you may see an "M" and a "W". However, at first glance you probably saw them as meaningless figures.

What the Gestalts looked for, in place of experience, and to some extent found, was "Laws of Form or Organisation" which would show what we would perceive because of a particular stimulation. They further claimed that experience plays only a minor role in perception. They appealed to "the Law of Good Continuation" that is the tendency for the elements of the stimulus to go together in a way that permits the continuity of a straight line or curve. Further, the Gestalts believed in innate laws of brain organisation in which, when a certain stimulus pattern is presented it activates the brain processes and the equivalent perceptual experience.

From this we can see that if we can find laws that tell what will be perceived with each pattern of stimulation, and the whole stimulus pattern must be considered to reach the right prediction, then there is no point in clinging to the theory of the Structuralists that there are elementary sensations lurking somewhere which underlie all perception.

THINKING PROCESSES

The activity of thinking is a mental condition that arises when one is faced with a difficulty or a problem. Another activity that is a close ally to this type of thinking occurs in a mind that does not necessarily carry a problem. In this type of thinking the consciousness is allowed to wander to its own unconscious desires. We call this “day dreaming” and it is usually the natural form of escape from some condition that is not welcomed by the consciousness or an escape to a stimulus desired by the physical. This phenomenon does not require any real conscious thinking and day dreams are of little practical value except those cases where their recurrence can incite the dreamer to use extra effort to make the day dreams come to fruition.

This is, however, divorced from the real activity of thinking, which we will now consider. Take the case of an engineer who has to design an electrical installation. He will need to ponder over such questions as the type of materials available, space, the required light output and the cost. He will consciously think of the job involved, bringing all his experience to bear on it.

Similarly a student who is faced with a problem that is preventing or delaying the completion of the answer to the question with which he is involved, must use his brains to seek a way round the difficulty that is hindering his progress.

A DESCRIPTION OF IMAGERY AND ITS USES

We will begin our discussion of this section of work by comparing two types of mental elements which make up a person’s experience.

1. Percepts

The first of these mental elements are percepts of physical objects that exist in the physical world and they may also be perceived by anyone else who should be present. These are definite objects: house, fields, trees, road, crying children, etc.

2. Images

The second group of mental elements are images of objects not immediately present in the physical world. These are images of past events, absent objects and things that, as yet, have no existence. A memory image produces or resembles something that we have experienced in the past, for example. As we attempt to describe the house we lived in as a child we may in some sense “see it” although they have long ago demolished the house. Another form of image is the created or constructed image – the novelist pondering over his next book may “see” his heroine, a person who has never existed in the real world. This is a created image.

One associates images with each sense, the strongest being the visual image, which is the most intrusive of all images, so the saying: “One picture is better than a thousand words”. Imagining the taste of something without first visualising the object is difficult.

Recalling a friend by the tone of voice is possible, and on hearing a similar voice the friend will be visualised.

If you blindfold someone and then ask him to taste food or drink, he will associate the sense of taste with the article that he conjures up in his mind in the same way the senses of touch and smell play a part in imagery, which we have seen stimulates thinking.

ACTIONS

There are three actions – reflex, instinctive and habitual which are in contrast to thinking proper. In each of these cases the required move is made without any pause for thought.

If, while walking, we should hear our own name called, a simple reflex action would cause us to look around. If you should see a child in the middle of a road and a car approaching swiftly, a reflex action would cause you to call the child away from danger, but an instinctive action would cause you to freeze and remain motionless.

Habitual actions are those to which we have become accustomed because of repetition, for example, eating, dressing. A very good example of a habitual action is that of a person rising at the same time day after day, even on those days when no one requires him to work, he still awakes at the same time.

We should note that the three actions – reflex, instinctive and habitual do not require the effort of thought.