

Quadrant II – Notes

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Paper Title : Animal Behaviour

Unit : Patterns of Behaviour

Module Name : Instinct Behaviour

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NOTES

INSTINCT BEHAVIOR

Instinct behaviour or innate behaviour is a type of behaviour where in an organism's behaviour is entirely genetically based. Merriam-Webster dictionary defines instinct behavior as "A largely inheritable and unalterable tendency of an organism to make a complex and specific response to environmental stimuli without involving reason". It is a natural response and can be observed in all the animals of the particular species and these are not altered by learning. These behavioral responses are necessary for the survival of the species and are governed by genes. Environmental triggers stimulate the responses of the innate behavior in animals.

Examples of instinctive behavior are:

1. Web building in spiders

Web building in spiders is an example of instinct behaviour wherein spiders build their web whose pattern and structure are species specific.

2. Turtle hatchlings

Hatchlings of the sea turtle moves towards the ocean by following the light reflected from the water.

3. Dance of honey bees

Honeybees once returned to the hive perform a 'dance' to point towards the direction of food source.

Types of instinctive behaviors

- a. *Kinesis and Taxis*: Kinesis is a behavioural response to the stimulus which is not directionally oriented towards the source of stimulus. It is a random movement caused by the stimulus. Example is orthokinesis (change in speed of movement of an organism in response to the stimulus) and Klinokinesis (turning behaviour).

Taxis is movement of organism towards or away from the stimulus. It can be positive (toward the stimulus) or negative (away from the stimulus). The movement can be in response to temperature (thermotaxis), light (phototaxis), chemicals (chemotaxis), etc.

- b. *Fixed action patterns*: series of response to the stimulus such that even if the stimulus is removed the pattern of behaviour continues. Example of such a behaviour is breeding behaviour of male three-spined stickleback, a small freshwater fish. Males develop a red belly during breeding season, they are aggressive towards the other males during this time. In laboratory experiments, when researchers presented such fishes to objects that in no way resemble a fish in their shape, but which were painted red on their lower halves. The male sticklebacks responded aggressively to the objects just as if they were real male sticklebacks.

- c. Migration: adaptive response to the change in environment where organisms move to and fro during seasonal variation. Entire population of the species migrate together to favorable place at a time. Commonly seen in many organisms where they do seasonal migration (birds, butterflies) or migration to carry out breeding (fish). Even though migration is an innate behavior it has been observed that sometimes only a portion of population migrate to other place example owls that live in tundra.

- d. Reflex action: reflex action is an involuntary response to a particular stimulus. Example knee jerk reaction.