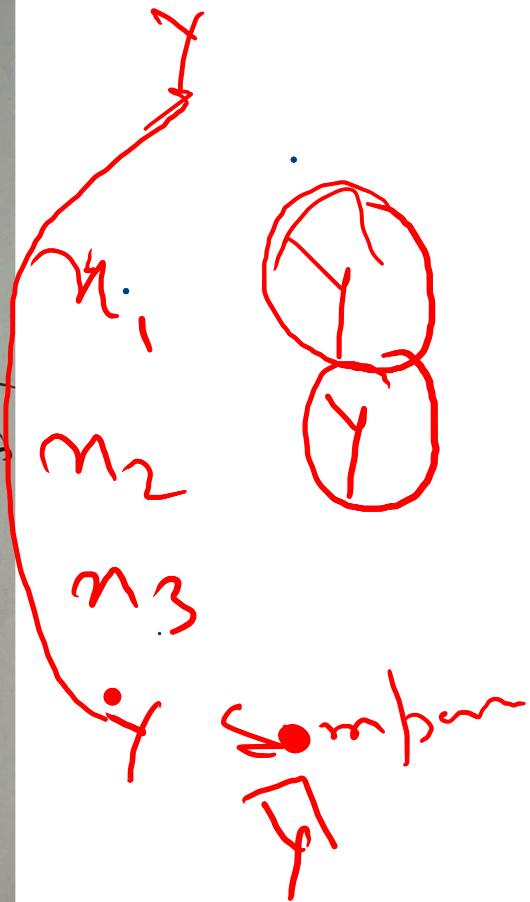
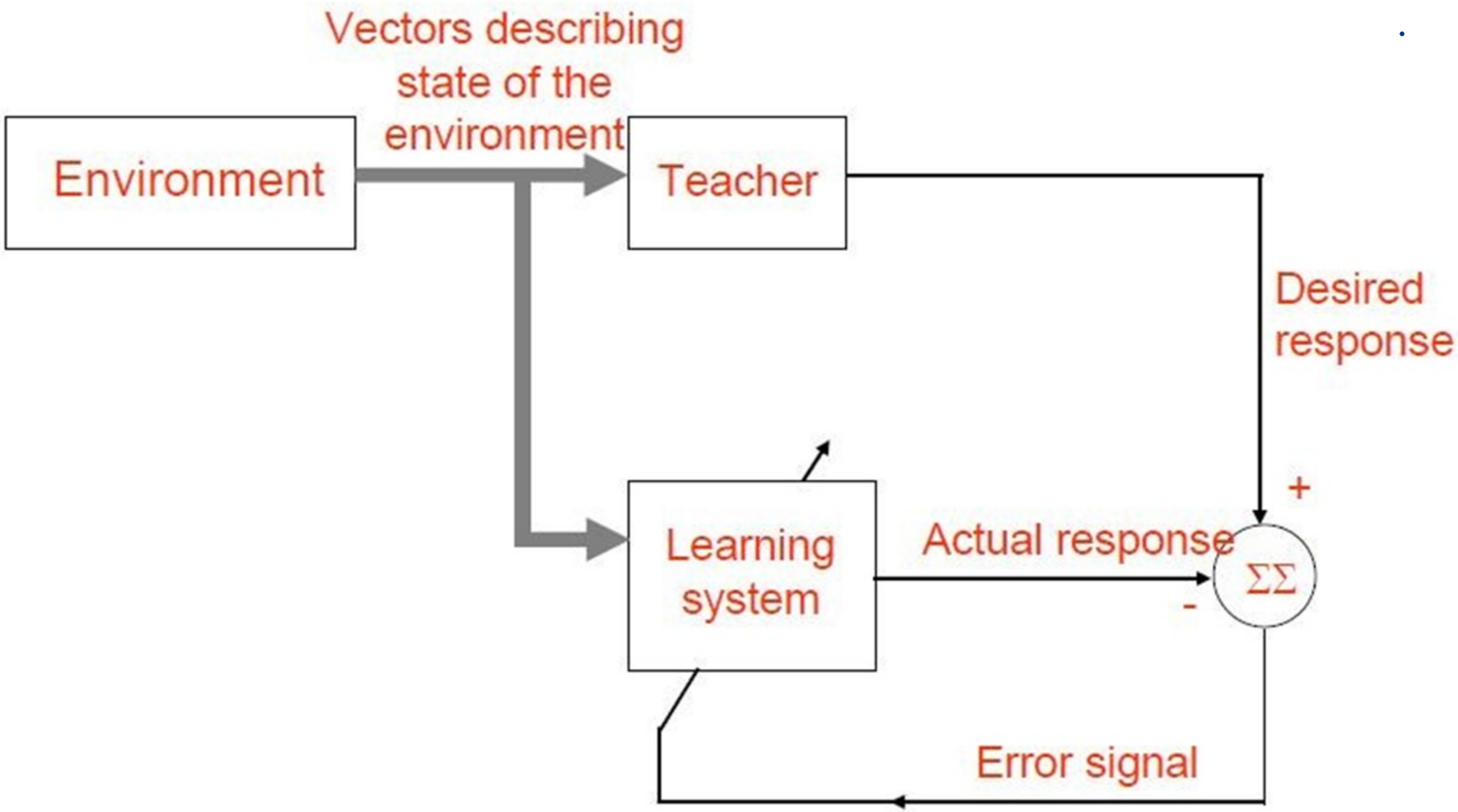
Types of learning

1. Supervised learning
2. Unsupervised learning
3. Reinforcement learning.

Supervised learning :-

- Supervised learning is the process of providing the network with a series of sample inputs and ~~for~~ comparing the output the expected responses.
- This happens when a model learns from data that has samples of data with both the input and expected output.
- The model is learnt using the input and output attributes.




Vectors describing state of the environment
Environment
Teacher
Desired response
+
Learning system
Actual response
ΣΣ
-
Error signal

↳ In a neural network, for a sequence of training input vectors there may exist target output vectors. The weight may then adjusted according to a learning algorithm. This process is called supervised learning.

ex: if target is +1 then output should be +1.

↳ Supervised learning is adopted in pattern association as well.

ex: given various sales of years, predict the sale of next year.

(2) Unsupervised learning:-

↳ In a neural net, if the training input vectors, the target output is known, the training method adopted is called as unsupervised training. The net may modify the weight so that the most similar input vector is assigned to the same output unit.

↳ It is more complex and difficult to implement.

↳ It involves looping connection back into feedback layers and iterative through the process until some sort of stable recall can be are achieved.

↳ It is also called self-learning network because of their ability to carry out self-learning.

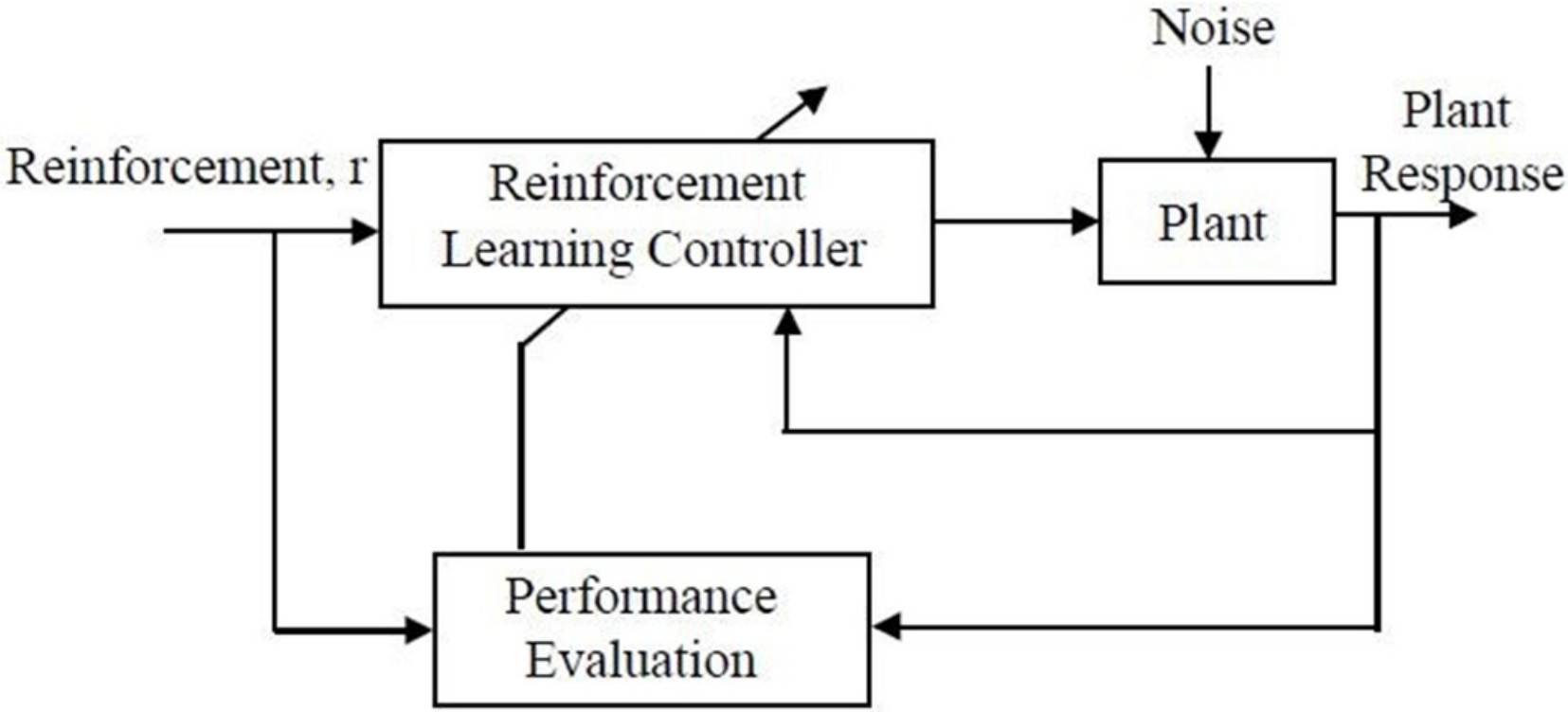
↳ This happens when the model is expected to discover the pattern on its own. There is no guidence as to what it is exected to learn.

For example :-

Consider a data set with different types of cars, then an unsupervised algorithm can group the cars based on either the color, size or cost.

(3) Reinforcement learning :-

↳ This is like unsupervised learning as there is no available class label. But based on the solution provided by the model, positive or negative feedback is given. This feedback is used by model to make a better decision.


Noise
Plant
Response
Reinforcement, r
Reinforcement
Learning Controller
Plant
Performance
Evaluation