PRIOR KNOWLEDGE

Prior knowledge is defined as **all the knowledge one has before learning about a particular topic**. As Dochy et al. (1999) point out, it facilitates learning new information. They estimate between 30 and 60% of the variance in learning outcomes is explained by prior knowledge.

Machine Learning and Data Science

Machine Learning is an application of artificial intelligence where a computer/machine learns from the past experiences (input data) and makes future predictions. The performance of such a system should be at least human level. In order to perform the task T, the system learns from the data-set provided.

Building a Machine Learning Model

Building a machine learning model involves the following steps:

1. Contextualise machine learning in your organization.
2. Explore the data and choose the type of algorithm.
3. Prepare and clean the dataset.
4. Split the prepared dataset and perform cross validation.
5. Perform machine learning optimization.
6. Deploy the model.

Supervised and Unsupervised Learning:

Supervised learning, as the name indicates, has the presence of a supervisor as a teacher. Basically supervised learning is when we teach or train the machine using data that is well labelled. Which means some data is already tagged with the correct answer. After that, the machine is provided with a new set of examples(data) so that the supervised learning algorithm analyses the training data(set of training examples) and produces a correct outcome from labelled data.

Unsupervised learning is the training of a machine using information that is neither classified nor labeled and allowing the algorithm to act on that information without guidance. Here the task of the machine is to group unsorted information according to similarities, patterns, and differences without any prior training of data.

Unlike supervised learning, no teacher is provided that means no training will be given to the machine. Therefore the machine is restricted to find the hidden structure in unlabeled data by itself.

For instance, suppose it is given an image having both dogs and cats which it has never seen.

Regression:

A regression is a statistical technique that relates a dependent variable to one or more independent (explanatory) variables.

A regression model is able to show whether changes observed in the dependent variable are associated with changes in one or more of the explanatory variables.

It does this by essentially fitting a best-fit line and seeing how the data is dispersed around this line.

Regression helps economists and financial analysts in things ranging from asset valuation to making predictions.

Sources of prior knowledge:

http://www.cs.cmu.edu/~tom/mlbook.html Tom Mitchell Machine Learning

www.analyticsvidya.com