Research Method: An Engineering Approach

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1 What does Knowledge Look Like?

1.1 Categories of knowledge

An observation: I did some stuff and saw some stuff.

Sometimes it could be that you use a different technique to carry out a complex calculation and you note that the time it takes to run the calculation is less. This is observational knowledge.

Models are a way of making sense of the world around us. They help us to be able to understand things. The model is probably the most common category of knowledge.

Models can take on many different forms such as:

- Maps

- Graphs

- Pictures

- Equations

- Descriptions

- Organograms

Recipe is a way of arranging and doing things that brings about a desired effect.

Recipes can take on many different forms such as:

- Processes

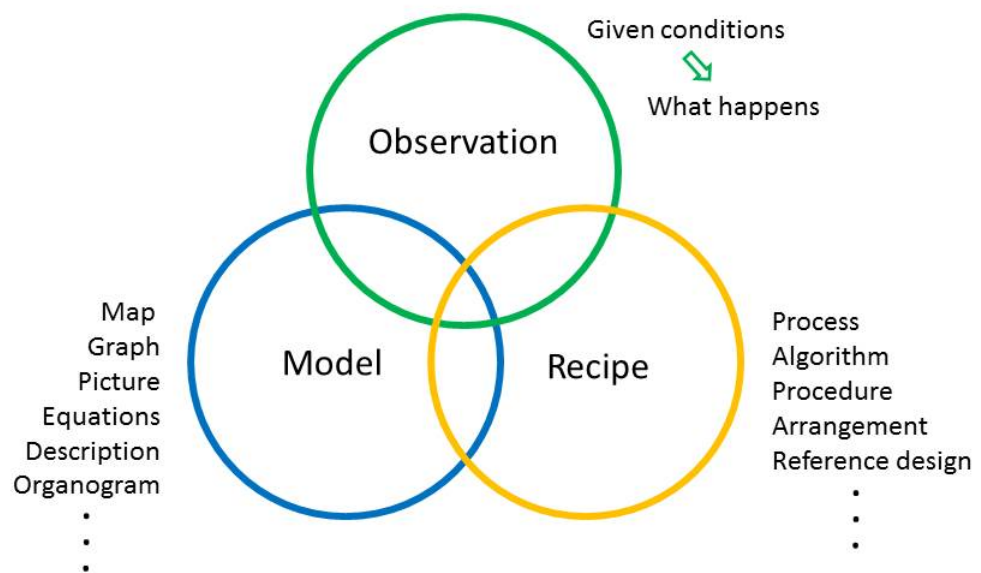- Algorithms

Categories of Knowledge

Figure 1: Categories of Knowledge.

- Procedures

- Arrangements

- Reference designs

1.2 Research Objective

Research Objective is splitting into 3 parts:

- Where the problem comes from

- —Background and Context

- What the problem is

- —The problem and why it is important

- What knowledge would we need

- —The knowledge that is needed to deal with the problem

1.3 Abstract forms

It is possible to reduce research objectives down to such simple expression such as "How does A affect B?"

Questions

- What method can be used to predict x?

- Can x predict y?

- Can process x improve process y?