Systems: Lesson 9

Quantified Self

# Introduction

Each of us deals daily with one of the most complicated systems on the planet: our own mind and body. And yet most of us hardly give this complexity a thought, except perhaps when the system has some trouble such as when we are sick, injured or experiencing a difficult mood. This project is about paying attention to this remarkable system, at least for a little while, to see if by measuring how it behaves we can develop some ideas about how it works.

# Objective

Your objective in this lesson is to develop an hypothesis about how the system that is you works and then try to collect some data that will either support or refute your belief. You can do this either by first thinking about how some aspect of you works and then imagining what data you could collect to support that belief or you could begin by thinking about what data you can collect about yourself and then imagining how it might be related. Here are details for this lesson.

1. Design an experiment that involves measuring yourself in order to evaluate an hypothesis about how the system that is you works.
2. Your experiment must involve collecting at least one input, one output and one covariate.
3. You must collect data for at least 21 days consecutively
4. You may use any means of data collection that you prefer. Paper and pen, a spreadsheet, app or online service are all acceptable alternatives.
5. Present your findings as an infographic that includes charts of the data you have collected as well as a brief discussion of your hypothesis and your conclusion

# Discussion

This assignment asks you to track an input, and output and a covariate. What are these things?

An *input* represents some quantity that, for the purpose of your experiment, is something that the system that is you requires in order to function. Examples of an input could be sleep, or food, or hugs from a loved one.

An *output* represents some quantity that, for the purpose of your experiment, is produced by the system that is you. Examples of this could be miles run, number of words written in a journal, or volume of urine.

A *covariate* is another measurable quantity that exists in the same environment as the system that is you that, for the purpose of your experiment, is neither an input or an output.

The definition of these things depends on the perspective implied by the hypothesis of your experiment. In other words, if your hypothesis is that you sleep better when you exercise regularly then exercise is the input and sleep is the output. However, if your hypothesis is that your mood is better the more you sleep then sleep becomes the input and mood is the output. Meanwhile, the weather each day could be a covariate for either experiment.

# Submission

This assignment requires two submissions.

The first, due 4/7/14 is a written statement describing your experiment. Your statement must include:

1. Your hypothesis
2. How you plan to test this hypothesis
3. The data you will collect
4. How you will collect that data

The second submission, due 5/5/14 will be a poster communicating the results of your experiment. This poster must restate all the pieces of information in the first submission and also include:

1. One or more graphical representations of your data
2. An analysis of that data including whether or not you believe your hypothesis was proven

# References

Here is a short but detailed overview of concepts and tools for managing quantified self experiments: <http://technori.com/2013/04/4281-the-beginners-guide-to-quantified-self-plus-a-list-of-the-best-personal-data-tools-out-there/>

# Learning Goals

* practice collecting and graphing data
* develop some ideas about the distinction between empirical knowledge and theoretical knowledge
* develop some ideas about causality, assumptions and uncertainty

# Grading Rubric

| **Quality** | **Pass (1)** | **Fail (0)** |
| --- | --- | --- |
| Completeness | Contains all the required elements | Does not contain all the required elements |
| Presentation | Layout, organization and graphic design of the information is appropriate and contributes to an ease of consumption of the information | Information is poorly organized, the graphic design is unattractive or inappropriate and the information contained is difficult to parse. |
| Content | The analysis presented is easy to understand, makes sense, tells a plausible story and is supported by the data collected | The analysis presented is not supported by the data collected or the data graphs are inappropriate for the data they contain |

# 