**Short Piece for Feature Engineering Studio**

**What is Creative Problem Solving?**

When we think of creative problem solving, we often think of innovation. Specifically, we think of innovation or creative works of art. For example, architecture aficionados may cite Falling-Water by Frank Lloyd Wright as an example of creative problem solving. In the business world, we may look to Netflix’s business model as a rather creative approach to delivering movies in the time it occurred- as till that point, movies were rented out by videostories such as Blockbuster. In general, people think of a creative act as the production of something novel and useful.

The question for people who study the psychology of problem solving is such: “How do people come up with such novel solutions?”

**Ideation and Divergent Thinking (thinking outside the box)**

A common way of thinking about creativity is to consider it an innate trait: “Some people are just more creative than others.” This trait is associated with a person’s ability to generate ideas and think “outside the box.” You may be familiar with this approach, as “Brainstorming” is a form of this practice. The reasoning goes that a person who is able to produce a large number of different ideas will be more likely to discover a creative solution to a problem. Assessments have been designed to measure this trait, and uses tasks such as the “Alternate Uses task”:

*(Activity 1) Brick Task- “provide as many uses for a brick as you can.” (give a time limit ~1minute)*

The assessment measures fluency (number of ideas), flexibility (the different types of ideas), and originality (the rarity of the ideas). A person who is capable of producing a greater number of uses for the brick- with each use measured for its different type and rarity- is considered to have more creative potential. Presumably, they will be able to look at a problem involving bricks and recognize a way to use the brick that no one else can see- thus producing a creative solution.

While the results for these types of assessments are typically reliable, it is debatable if they actually predict a person’s success in creative problem solving. Afte

**Problem Solving Activity**

I want to give you a problem solving activity. I’m going to tell you about a problem scenario, and I want you to do a few things: 1. Describe the problem; and 2. Come up with solutions.

*(Activity 2) There is a classic case in which the tenants of a large office building complained about the increasingly poor elevator service.A consulting firm specializing in elevator-related problems was employed to deal with the situation.It first established that average waiting time for elevators was too long. It then evaluated the possibilities of adding elevators, replacing existing elevators with faster ones, and introducing computer controls to improve utilization of elevators. For various reasons, none of these turned out to be satisfactory.The engineers declared the problem to be unsolvable.*

*The problem has now fallen to you, how would you address this problem? To further illustrate the scenario, imagine the office building has 10 floors, and that there are two elevators.*

Now I’d like everyone to rate the creativity of each solution from 1-5, 1 being not creative, and 5 being wildly different. Afterward I’ll tell you what the canonical answer says.

*When exposed to the problem, a young psychologist employed in the building's personnel department made a simple suggestion that dissolved the problem. Unlike the engineers who saw the service as too slow, he saw the problem as one deriving from the* ***boredom of those waiting for an elevator****. So he decided they should be given something to do.He suggested putting mirrors in the elevator lobbies to occupy those waiting by enabling them to look at themselves and others without appearing to do so. The mirrors were put up and complaints stopped.In fact, some of the previously complaining tenants congratulated management on improvement of the elevator service. (Ackoff, 1999)*

How creative would you rate that solution?

While I, personally, don’t fully agree with the diagnosis of the problem, the example still proves a point: In order to access wildly different solutions we may not need to depend on crazy ideation skills. Instead, the way we conceptualize the problem can highly influence our behavior when searching for solutions: Understanding the situation as one of boredom is very different from one of elevator problems.

**How can this be of use to you?**

Creative Solutions to problems are not guaranteed to be better than normal solutions. But in certain cases they can provide an option that IS better, but not outrightly obvious. A method that can help this process is to recognize how your stated problem would resolve the issue. The fixing of the elevator would -> people to stop complaining about the speed of the elevators.

So in that case, perhaps a new form of the problem is: “People are complaining about the speed of the elevators.” With a stated goal of getting them to stop complaining (or having reason to complain).

Being aware of this process can be helpful in thoroughly understanding the situation and the ways to approach it- even if it doesn’t provide you with a necessarily superior creative solution this time around.

I hope you all enjoyed this presentation. If you have any comments or further questions feel free to reach out (yy2688@tc.columbia.edu)