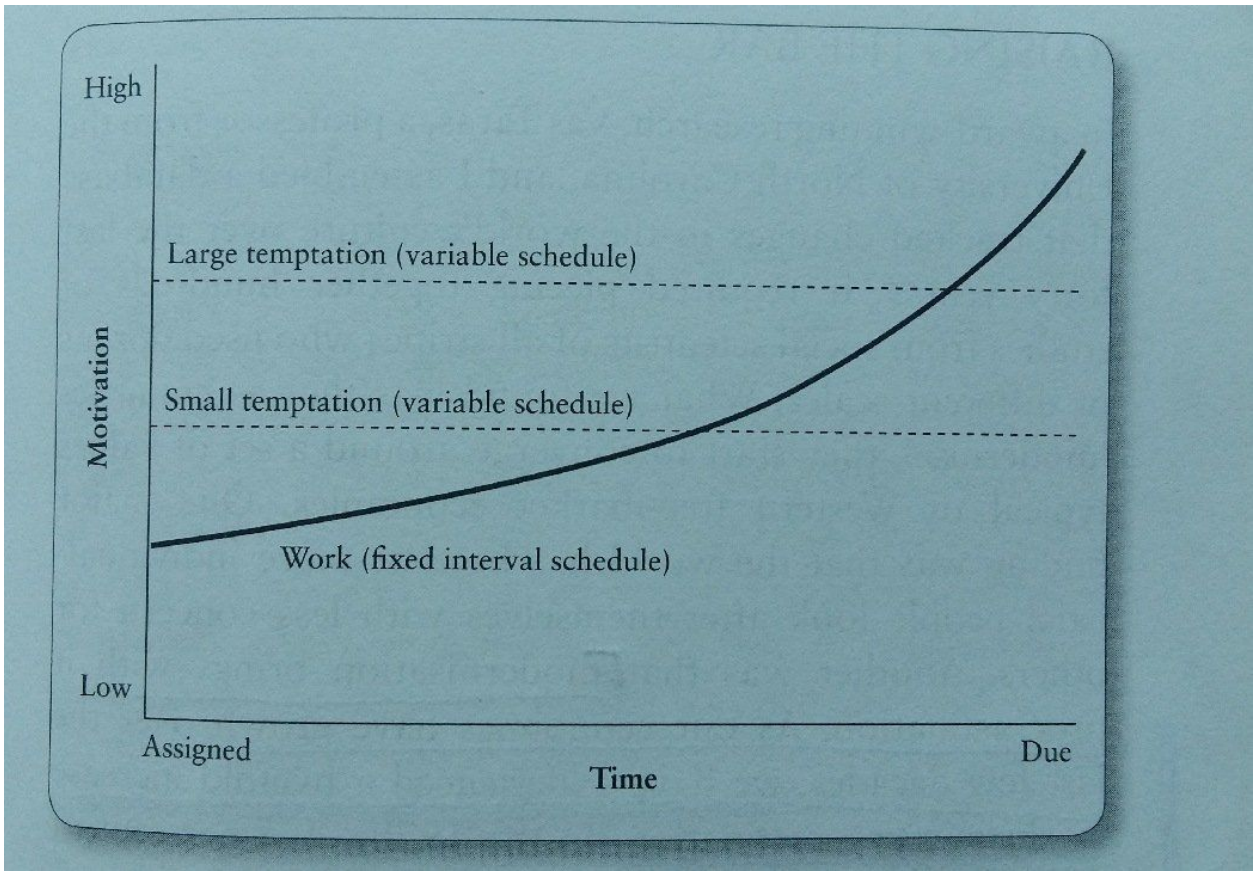
Procrastination Equation Visualization

Executive Summary

1) Briefly describe your proposed idea (paragraph or two, this can be an updated version of your proposal). What's the concept you'll be explaining?

I will be creating a visualization to explain Piers Steel's Procrastination Formula (https://www.njlifehacks.com/the-procrastination-equation-piers-steel-summary/). The idea is that procrastination is highly influenced by the motivation. The formula states that the motivation to accomplish a task is positively correlated with one's expectancy of getting the reward of completing the task and one's perceived value of the task as well as negatively correlated with the impulsiveness of the person and one's ability to delay gratification. Even though this could be written as a formula as Motivation = (Expectancy * Value) / (Impulsiveness * Delay), an interactive visualization incorporates ways that people can adjust each parameter to reach a higher motivation will help people to better understand the concept and how each thing could influence one's ability to beat procrastination.

The original equation is shown below (from Piers Steel's book *Procrastination Equation*).



2) What level are you trying to teach for (high school? college? graduate school?). You should probably not be aiming at elementary school level, but if you have a great idea that's ok.

Above high school and beyond, the target user of the visualization would be anyone who is struggling with procrastination and wants to learn a bit more about procrastination.

Learning Objectives

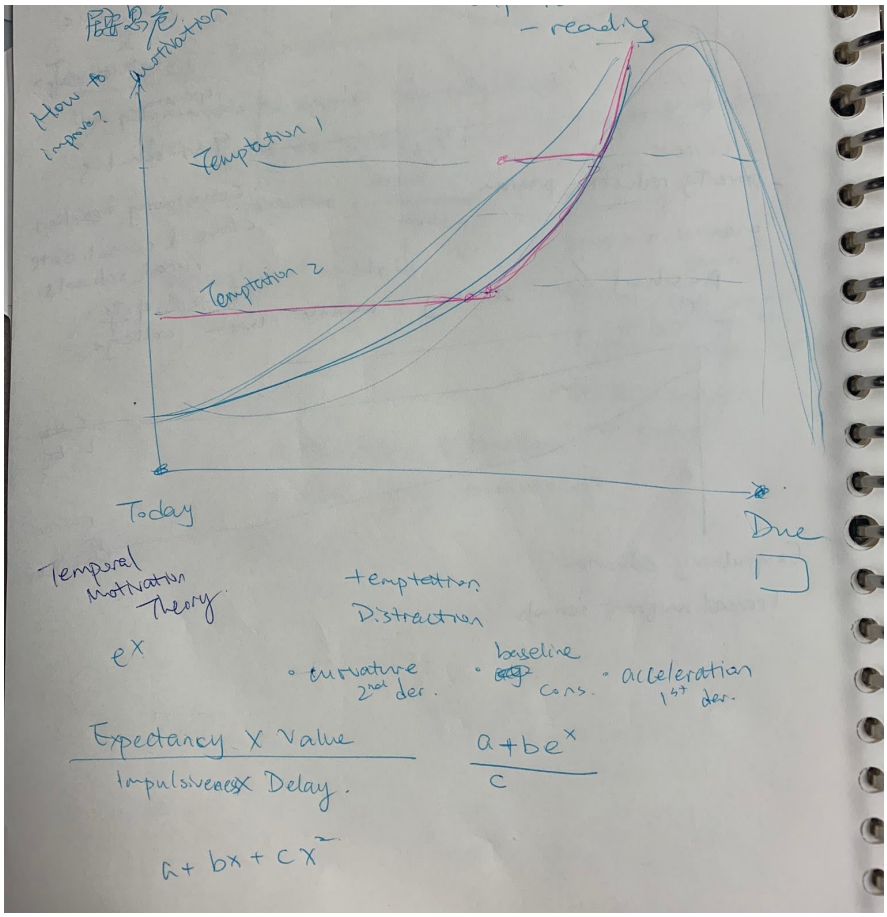
1. The viewer will be able to articulate the four main factors influencing motivation and procrastination.
2. The viewer will be able to predict the procrastination behavior given influencing factors.
3. The viewer will be able to monitor and adjust their motivation for completing a task through the improvement advice based on each influencing factors.

Create an Exam

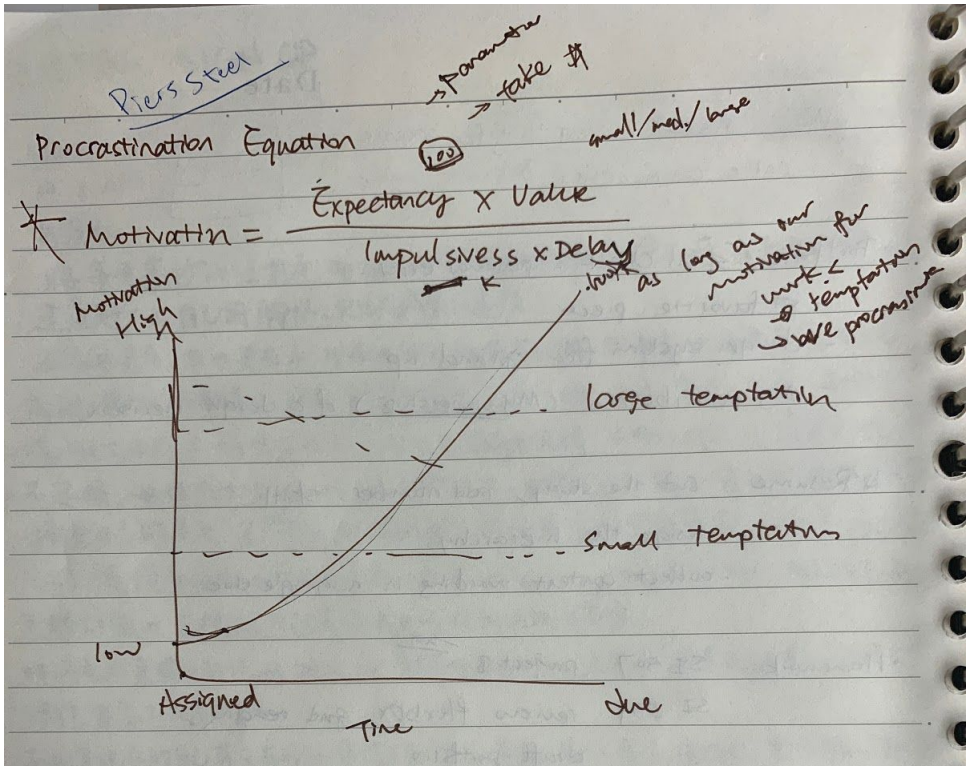
1. What are the two factors positively correlated with motivation? What are the two factors negatively correlated with motivation? [text entry]
2. Given that there are three temptations of different levels, watching a movie with friends(low), eating snacks (medium) and watching Netflix(high), for completing a practice exam for a psychology class, what procrastination behavior could one have and till what point will one be able to complete the practice exam?
3. How to reduce procrastination in completing the practice exam through decrease delay or impulsiveness? (c)
    A. Give a reward after completing the practice exam.
    B. Contrast the current state with potential future state.
    C. Turn off internet access or block Netflix.
    D. Tell your friend that you must finish the practice exam before hanging out with them.

Your sketch/screenshots (as many pages as you need)

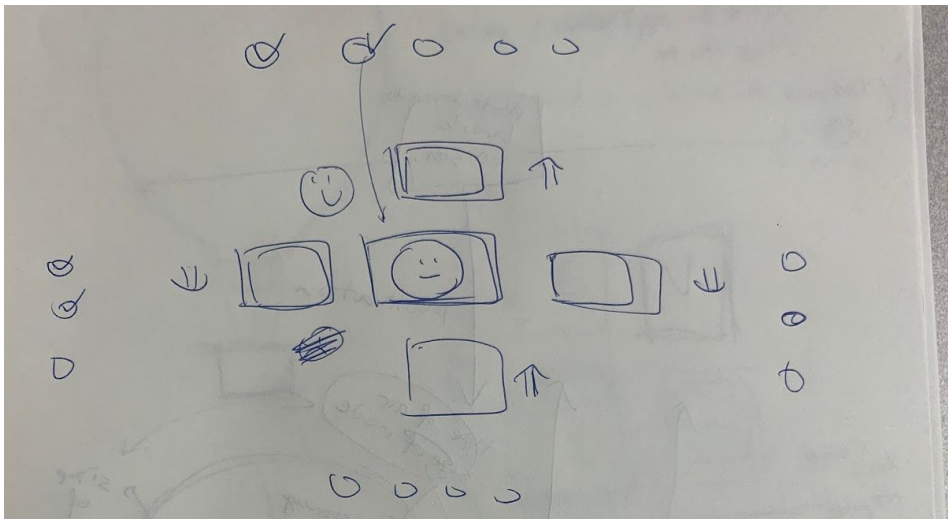
Provide screenshots (with short captions or annotations describing what's going on… especially the interactive bits) here.



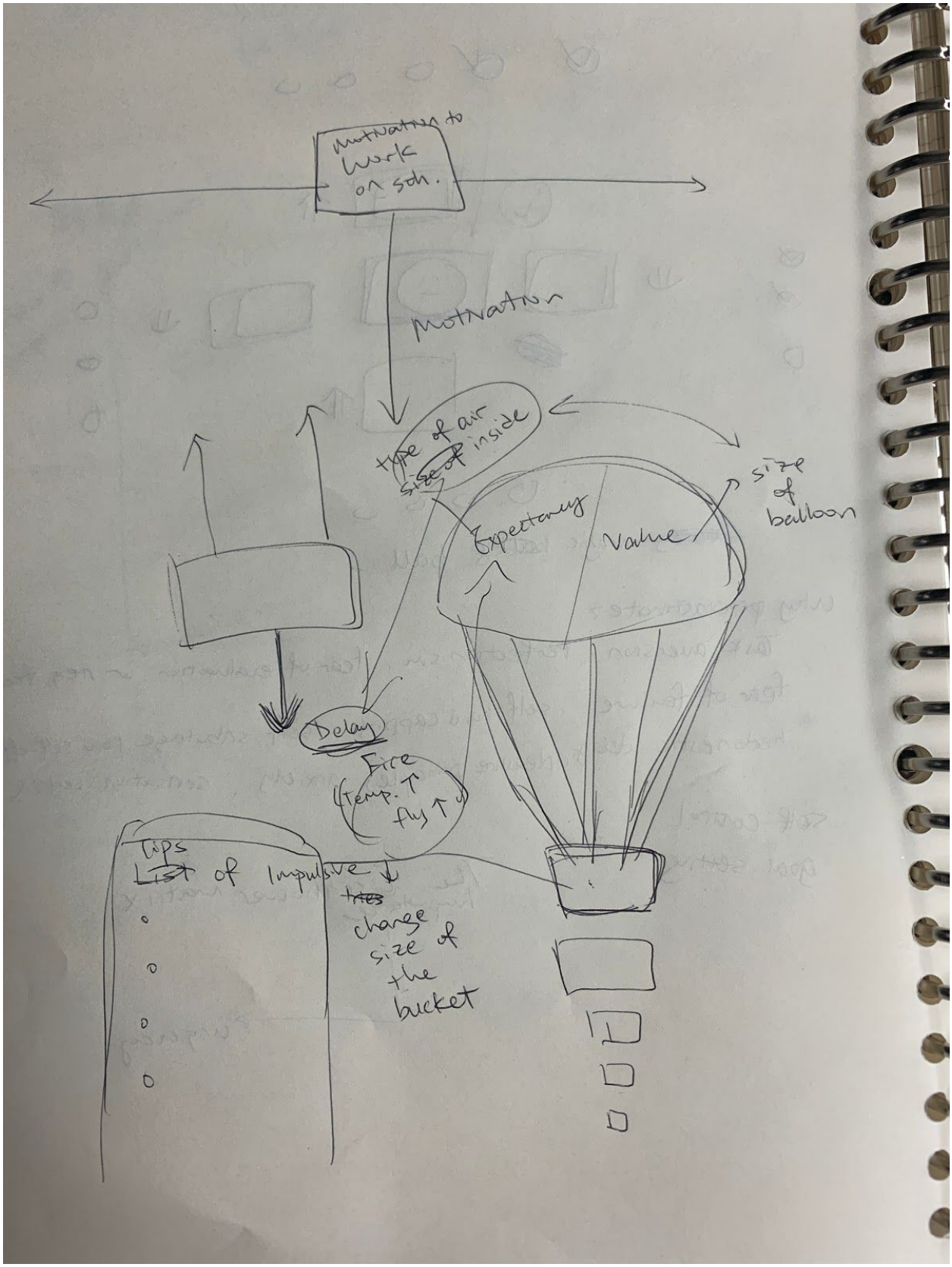
(solution sketch)



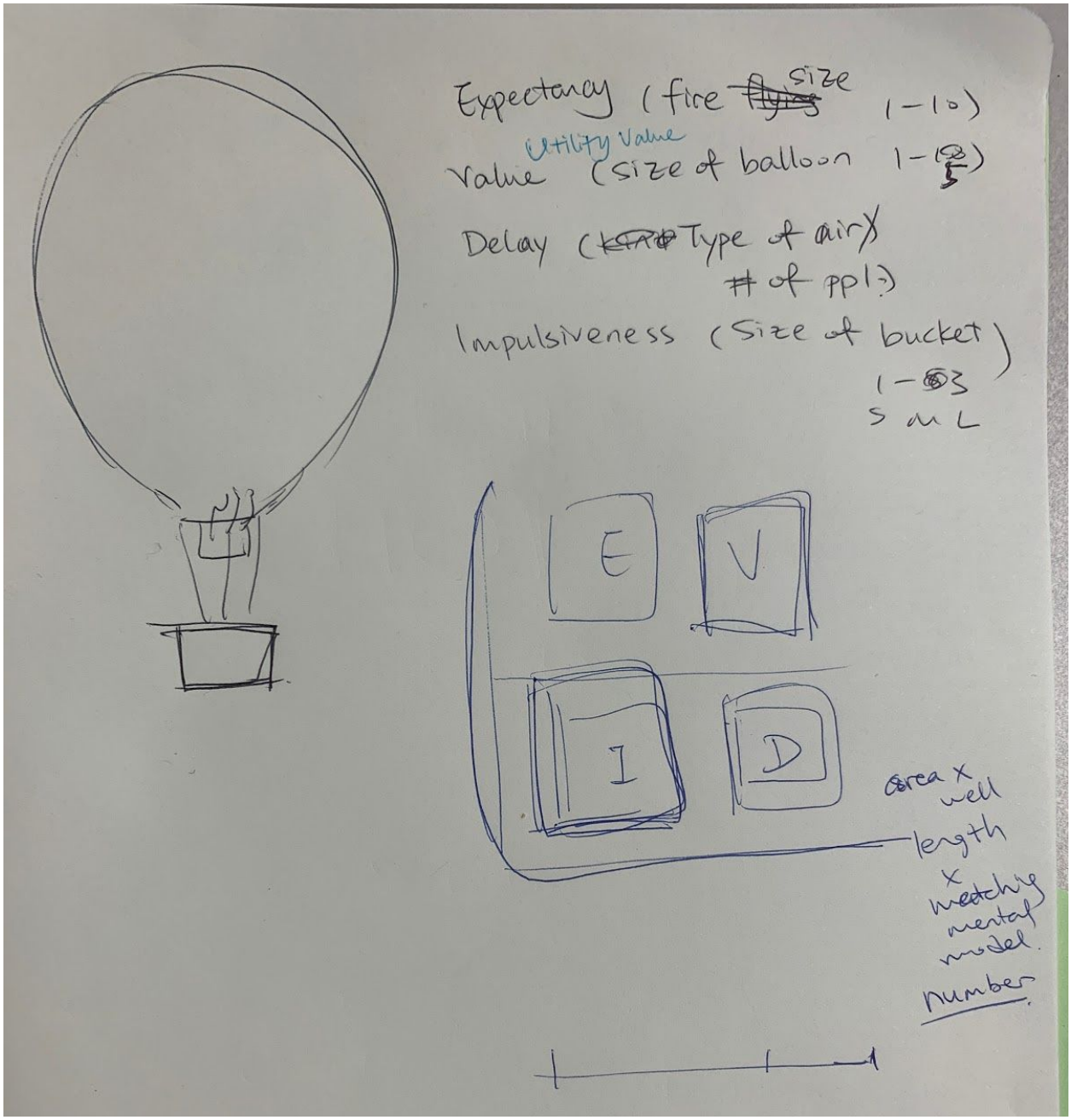
(solution sketch with stable templation in dashed lines)



(alternative solution: change of facial expression based on selected steps on increasing/decreasing influential factors for the motivation)


Motivating to work on sth.
Motivation
type of air inside
size of
Expectancy
Value
size of balloon
Delay
Fire
temp. ↑
fly ↑
Tips
List of Impulsive
change size of the bucket

(alternative solution: increasing factors pulling the motivation up, decreasing factors dragging the motivation down)



(alternative solution: hot air balloon)
(alternative solution: number of each level on a chart, no interactivity designed yet)

Why will your vis help?

The equation is very hard to visualize and apply when there are multiple outside factors are taken into consideration. If people have multiple tasks that they would like to understand how they would possibly behave on completing, they may use the parameters to adjust each curve on the same graph and easily predict their own behavior and expose the potential procrastination spots. As a result, this tool/visualization will then be able to help people decrease the possibilities of procrastination through identifying temptations and the impacts of concurrent tasks on hand.

The use of curve is appropriate because this maps the model of people tend to have little motivation to work on things until the deadline approaches.

The use of multiple lines (ability to add new lines) is appropriate for people to customize and compare different tasks at hand, which helps them to visualize and predict their motivation changes/ potential procrastination behavior).

The use of color to show tasks to accomplish and temptations as well as distractions help them to see the interaction in play.

The x-axis is set to be today till a date that the user can input on the side and show the number of days left so that the visualization can help the user to plan their task accomplishment/ procrastination coping strategies.

A limitation of my design is that the parameter scales or measurements are subjective as the numeric values may not map uniform standards in different viewer's perspective.

Encoding method is yet to be furnished but for now I would like to have the curve formula be an exponential formula y(motivation) = a(expectancy) + b(1/impulsiveness) * c(value/delay)^x (a, b, c are parameters to change). Expectancy is the baseline where the motivation could start on, should always be non-negative. Impulsiveness is an amplifier of people's preference/ tendency on delay, thus having it as a multiplier of the exponential function. Delay is hard to measure and thus putting it as the denominator of the exponential function. There are quite a few methods to improve value for a task, thus having it as the base of the exponential function to show bigger impact of the change of value on one's motivation.

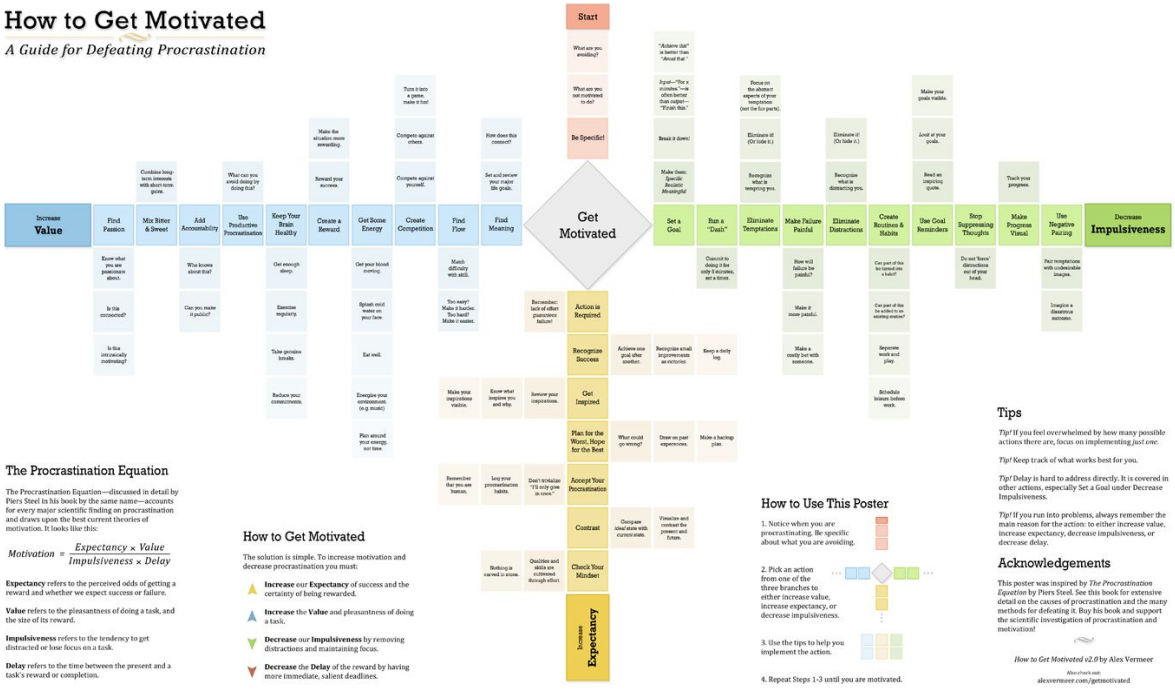
Archive of Experiments (as many pages as you need)

As you try various experiments keep a record of them here. These can be napkin sketches, whiteboard scans, Illustrator documents, prototype images, etc. Anything goes. Try to keep track of why you like them or decided to toss them. **Do not skip this!** ***We expect to see alternatives that you tried.***

Inspiration/Competitive Analysis

Source & Inspiration:
https://www.njlifehacks.com/the-procrastination-equation-piers-steel-summary/#targetText=MOTIVATION%20%3D%20EXPECTANCY%20x%20VALUE%20%2F%20IMPULSIVENESS%20x%20DELAY&targetText=The%20Procrastination%20Equation%20accounts%20for,to%20tackle%20the%20tasks%20decreases.

https://alexvermeer.com/how-we-use-the-procrastination-equation/ (The beginning content for my design).



Competitors:

- https://www.youtube.com/watch?v=Qvcx7Y4caQE (step based beating procrastination)
- https://www.youtube.com/watch?v=pKyHX0zqynk&t=123s (research talk about procrastination, could be a good place to see some other variables to be included in my design but not helpful visualization competitor)
- https://www.youtube.com/watch?v=arj7oStGLkU (Rational decision-maker vs. procrastination monkey vs. panic monster: illustration of three components in procrastinator's mind and the interaction of the speaker talking about the situation and the role taking control of the steering wheel is a great side illustration when people play the graph based on the timeline in my solution.)

- https://www.wikihow.com/Stop-Procrastination-With-Visualization (It visualizes the storyline with static photos, which is a way to show the steps that people can take on beating procrastination)
- https://en.wikipedia.org/wiki/Magic_8-Ball Randomize the potential ways to get motivated.
- https://en.wikipedia.org/wiki/Hot_air_balloon (Use parameters of the hot air balloon to visualize the factors that influences procrastinators as an alternative design to visualize the four factors) - speed of balloon flying up(motivation), the air that's in the balloon(delay), the fire strength(expectancy), the size of the balloon(value) and the size/weight of the bucket(impulsiveness).
- https://whydoiprocrastinate.com/ (great way to visualize/ux flow how to identify the procrastination factors and then give suggestions based on the rating, which illustrates the map created by Alex Vermeer.)

Peer-Robin Notes (If you get interesting feedback you want to share)

During the peer-robin, I didn't present on this idea. I will update this section with feedback from my peers later.

Earlier Topic Selection

-- individual proposal from previous submission ---

I found two datasets that are related to education/ literacy rates that I am interested in learning more about. Involving in DreamCorps International, an NGO dedicated to improving Chinese rural children's literacy, I am very interested in generating some compelling visualization to demonstrate the problem of low literacy rate in China comparing worldwide, and the overall educational status in China.

The two datasets are:
https://www.education-inequalities.org/countries/china#?dimension=all&group=all&year=latest

https://www.education-inequalities.org/indicators/rlevel_prim#?sort=mean&dimension=all&group=all&age_group=rlevel1_prim&countries=all&survey=PIRLS

One question that I would like to answer with the final visualization:

How China is ranked globally for the filtered list?

--redirect the focus on children of migrant workers and children left behind --
Article that I would like to increase readbility/ interpretation on:
https://clb.org.hk/content/migrant-workers-and-their-children

http://www.stats.gov.cn/tjsj/zxfb/201904/t20190429_1662268.html

Database: http://www.stats.gov.cn/tjsj/ndsj/2018/indexeh.htm
http://www.stats.gov.cn/english/Statisticaldata/AnnualData/

Interesting topic of visual:
https://www.statista.com/statistics/278906/per-capita-expenditure-of-private-households-in-china-on-education-and-recreation/
https://www.statista.com/statistics/227314/number-of-universities-in-china-by-region/
https://www.statista.com/statistics/226982/number-of-universities-in-china/
https://www.statista.com/statistics/278863/per-capita-expenditure-of-private-households-in-china-on-education-and-leisure-since-1990/

https://www.statista.com/topics/2090/education-in-china/
https://www.nytimes.com/2001/02/12/news/chinas-long-but-uneven-march-to-literacy.html

https://www.worldcrunch.com/culture-society/children-left-behind-migration-education-and-crime-in-china/left-behind-education-workers-delinquency/c3s16111#.U5GAwOJGDHk

https://reap.fsi.stanford.edu/zh-ch