

## **SP777 Assignment 4: Brainstorming**

This assignment is in 3 parts – questions, brainstorming, and research.

### **Questions:**

Today in class, we talked about the music stand, the scooters, the ramp, the cafeteria trays, the coffee shop cup holders, and coffee shop organization. In going over what we saw, we realized that there were some things that we did not understand or interpret in the same way. Come up with at least 2 questions for each of the projects I listed that you would like to ask the people at the learning center. Assume we need to design a solution for each and ask as many questions as you need to define the problem more thoroughly. Avoid asking about specific solutions by focusing on what the basic needs are. Instead of, “do you want a drum holder that adjusts both angles and height,” ask, “which angles are best for playing the drum, and does it vary from person to person?” “How high should the top of the drum be relative to the chair? To the ground? Does it depend on the person using it?”

### **Brainstorming:**

For Monday, we are focusing on the problems of the coffeehouse cup holder and the cafeteria tray. Now that these design problems have been defined, it is time to concentrate on thinking of solutions. Try to think of as many different ways as possible to solve the problem. Do not critique your approaches, just write down as many things as possible. Be sure that you do not focus on a single approach. Use sketches and notes in your design notebook to record your ideas. For Monday, choose 6 approaches and write a brief paragraph describing each. Make large, well-labeled sketches so that others will be able to understand them. We will talk about these in class, do not worry about having a complete design or the best approach. The goal is to come up with as wide a range of approaches as we can. Later we will talk about what is possible and what is the best way, but not yet. Write it down even if it seems impractical. It might lead us to a better solution.

There are three basic types of design ideas which you may generate: scaled designs, evolutionary designs or revolutionary designs. A scaled design is when there is an existing design which does the job well, and just needs to be scaled for your application. An evolutionary design is when an existing design is pretty good, but fundamental improvements can be made. A revolutionary design is when a totally new approach is used to achieve the same function as an existing design, but with better performance. All three approaches can have successful results, in fact your final design will probably be a combinations of all of them.

**Research:**

After doing some brainstorming and sketching, be sure to do some research. What is already out there? What things do this already, even if they are not meant for this application? How might we modify an existing design? Is there something out there we can just buy instead of re-designing? Be sure to look at the URLs for the catalogs given to us by the learning center, as well as finding new ones. Write down what you find and tell us how you use these existing products in your solutions. Do you use parts of them? Not at all? What did you find that was useful, or that would not work in this situation? Write a paragraph in your notebook answering these questions

I will be collecting your notebooks in class on Tuesday for grading.