

Defining the Problem**The Coffeehouse**

At the Protestant Learning Center, an effort is made to ensure that the more advanced students learn skills that will help them function in the outside world once they leave the school. In the past year, they have started a student-run coffeehouse to show the students how to prepare and deliver coffee as well as deal with money and change. Though the coffeehouse has been operating in a budget deficit, it has managed to train around eight to ten students on this basic job. Even so, there are many recurring problems that prevent the shop from being run in the most efficient manner possible. Several different problems and project ideas have been outlined below:

Cup sorting: The shop uses three different sizes of Styrofoam cups to serve the coffee – small, medium, and large. All the cups are white Styrofoam, and they are placed in stacks next to each other on the counter. This arrangement leads to student difficulty in identifying which cup is which since they are not clearly labeled. The cups also have a high coefficient of static friction between them, so it is difficult for the servers who lack fine motor skills to separate them. The cups also take up valuable counter space.

One suggested solution is to use a cup dispenser to sort the cups because certain dispensers will only allow certain sizes of cups to fall through. Both wall-mounted (Fig 1.1) and counter dispensers (Fig 1.2) were found available on the web. Slight modification could be done to ensure that the level of the cups available in the dispenser could be seen. Another idea would be to put some sort of better labeling above the cups or use a standard stand the size of the cup against which the server could compare the cup size. Finally, one could also use some sort of coloring scheme to label the cups, but this idea could be rather time-consuming.

Fig. 1.1 – Cup dispenser
[www.dispenserworld.com]

Fig. 1.2 – Cup dispenser
[www.stak-pak.com/cup/graphics/]

Delivery Tray: The students deliver the coffee to different members of the school using a flimsy and disposable Dunkin' Donuts cup-carrying tray. While the large and medium cups fit snugly into the slots, the small size cup wiggles around in the hole. Also, the tray itself only holds four cups and has no good handles. The cardboard tray is also subject to degradation when the coffee spills on it and because of continued use. Finally, the student themselves also have to count change while holding the tray. There is no good location to store money on the tray, so they have to carry around an envelope in addition to the tray itself. There are several spills and accidents because of the flimsiness of the tray.

One solution would be to make a more permanent holding tray out of Lexan or clear plastic so that it is light and could be easily washed. This tray would hold up to six beverages, and it could also contain some sort of holder for the change (Maybe something similar to a change holder that is found in automobiles). Handles should also be added so the servers can hold the tray more easily; if a system which required only one hand to operate could be invented, that would be optimal. A final solution is to devise some sort of rolling cart system that the students could

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place the drinks on and then wheel around the office. The fact that the coffee shop is on the second floor makes this a less-than-optimal solution.

Tea and Hot Chocolate Cabinet: At the coffee shop, there is also a cabinet which holds several individual bags of tea, hot chocolate, and artificial sweeteners. Because of its sideways orientation, it is tough to access and rather disordered. The students have a hard time discerning which packages are which, and the confusion leads to a larger mess. In addition, the three different sized cup lids are stored in the cabinet as well, and the students also have trouble distinguishing between the different sizes.

Some sort of spring-loaded dispensing mechanism could be created so that the different packages were all stored in a more orderly fashion. The lids could also be stored in this way. Another solution would be to make a cabinet with several drawers which could be pulled out so that each different item could be stored in a different drawer. Finally, one could use different Tupperware containers to accomplish the same goal. The cabinet should be reduced in size and made to fit on the counter so that it faces out to the server instead of sideways.

Sugar Bowl: The sink currently is covered by a 17.5" by 23" piece of plywood with a 10.5" diameter hole cut out of the middle. A metal bowl is lowered into this hole and filled with sugar to be used in the coffee. When the servers desire to use the sink, the bowl is removed and the tap is turned on. A problem occurs because the bowl has a very small lip on it, so it is extremely difficult to lift it out from the plywood hole without some serious coordination.

Adding handles to the bowl or more of a gripping hole in the plywood would eliminate the need for such dexterity. The system could also be redone so that the bowl is not situated in the sink and there exists a proper sugar dispenser that could be self-contained so it made as little mess as possible.

Counter Setup: The counter itself is arranged in what some may consider a very inefficient way. The setup takes up almost all of the counter space (See Fig. 2.1), and there is very little room for the actual preparation of the coffee. Many of the storage elements do not fit properly onto the counter space, and there are serious problems when spills occur. The dual use of the sink is also a problem as it requires effort to remove the bowl and use the tap.

A systems approach could be taken to this problem, evaluating what could be done to increase efficiency in the process. Reorganization and better labeling would be two of the primary elements of this new view of the counter space. There are many possible solutions to this problem.

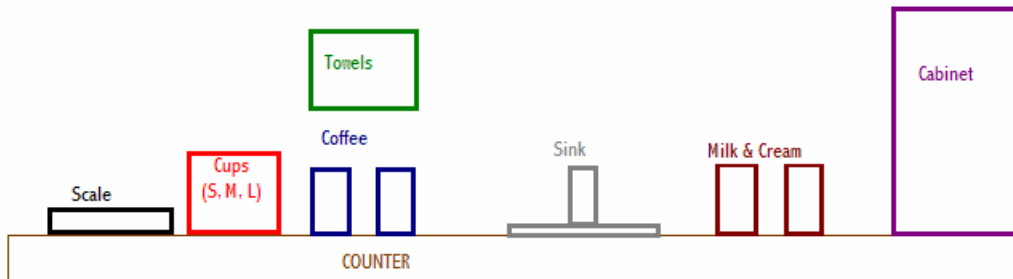


Fig. 2.1: Visual representation of current counter space usage

Our short trip to the learning center showed that there were many areas for improvement in the coffee house. These areas involve both development of new products and redesign or reorganization of existing components.

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