

Overview

For this project, we are assessing the quality of the affordances and constraints of our product, the free-style Coca-Cola machine. We focused on the product's strengths and weaknesses, and whether it was efficient in fulfilling its task of giving the user its desired flavor of soda. We further deconstructed the concept of the free-style Coca-Cola machine explain each piece in the following paper. The reasoning behind our selection deals with creativity. We deliberating back and forth contemplating different concepts and we finally chose the free-style Coca-Cola machine because of the uniqueness factor. Our objective was to choose something that no other group would choose and think “outside of the box.” Also, by choosing something unique, it gave us a chance to dig deeper into our findings and find interesting facts about this machine.



Approach

When observing our product and how well it performed its task, we focused on a couple of things; one thing was how user friendly the product was, and how consistent the product was at fulfilling the user's request. The first thing we did was observe how the machine worked worst. We studied what happened when people went up to the machine and whether it was successful and consistent in making the customer happy with the product. Once we got the understanding of the machine we tried it out and tested it ourselves. We tried different combinations and evaluated the machine for its accuracy, accessibility, as well as consistency. We also had customers try it out as we observed and commented on what to select and see what their thoughts were regarding the machine. The machine itself is self-explanatory and has a large digital interface. The user is easily self-guided through the process by the digital display and physical characteristics of the machine.

Affordances

An affordance, according to Webster dictionary, is "the qualities or properties of an object that define its possible uses or make clear how it can or should be used (Merriam-Webster)." The following are the affordances of the Coca-Cola Freestyle machine:

1. The bowed-in drink placement area
2. The ice dispensing lever
3. Soda dispensing "Push"
4. Digital display screen
5. The spillage grill



As explained in 1 (bowed-in drink area) this clearly shows the user where to place the cup by displaying the drink dispensing nozzle and being the only insert on the machine. The circular indent at the bottom of the drink placement area matches up perfectly with the bottom of the cup which affords the user to place their drinking cup there. Also the light inside of the insert draws the user's attention to the insert showing its importance. This design also has some cons, such as the distance from the soda dispensing nozzle to the bottom of the cup. This large distance causes the soda to splash when it hits the cup which in turn makes the soda lose its carbonation. To correct this problem, the soda placement area could be moved higher up which would lessen the impact of the soda in the cup. This would lead to less carbonation being lost.



The second item on the list is the ice dispensing lever. This lever, like all levers, gives the affordance of pushing. There is also an imprint labeled “ICE” which allows the user to understand what the lever is for.



The next affordances is the soda dispensing “push” button. This affords the user to push the button to dispense the soda. This affordance isn’t a good one for a few reasons. The first being that there are no directions for what the button does. The next reason is because the button creates another area for interaction when in this situation less is more. Users that were tested wanted to push the selected soda on the screen to dispense the soda and became frustrated when it didn’t come out. It wasn’t until after a moment or two that they discovered the “push” button

and used it to get their selected soda. To solve this design flaw, the push button should be changed to a digital one and placed inside the display screen.



The next affordance is the digital display itself. This affords for the user to interact with this area to make their soda selection. The pros of this area are the lighting, the instructions, and the hierarchy. The lighting automatically draws the user's vision to the area. Then the instructions communicate to the user what to do without giving direct instruction on how to do it. An example is the question in the initial display, "What would you like to drink?" this makes the user select a category without directly telling them to choose one of the following. The last pro of this display is the hierarchy. The first screen gives categories of flavors. The following screen then gives the options of sodas in that category. Then after selecting a flavor, the last screen gives the original flavor plus many options of add-in flavors. This hierarchy makes it easy for the user to find the soda they want or explore the options in their selected category.



The last affordance of the Coca-Cola Freestyle machine is the spillage grill. The circular metal tray matches up with the shape of the cup indirectly showing the user where to put their cup. This area also allows for spills to not pile up and make a mess on the machine. By putting the grill inside the dispensing area it gives it a self-explanatory feeling to put the cup on it. This part has no cons since it is a solid base and keeps the machine clean.

Constraints

According to merriam-webster, a constraint is “something that restrains the user’s actions or behavior” (Merriam-Webster). The following are the constraints of the Coca-Cola Freestyle machine:

1. The bowed-in drink placement area
2. The size of the machine
3. Digital display screen



The reason the bowed-in drink placement area is a constraint is that it that it doesn't allow the user to use a cup that is too large for the area. This area is lacking a needed constraint there is no exact area to put the cup. If the user puts the cup to far forward in the bowed-in area the soda will hit the side of the cup causing it to spill out of the cup.



The second constraint is the size of the machine. It is a large machine constraining it to an open area most likely away from the busier parts of the facility. This machine is bulky making it useful for the customer, but causes a great loss of working space for the employee. It also makes it difficult for a business to use this machine if they have limited space, which would cause a business to purchase a standard smaller drink dispenser causing less drink options and potentially dissatisfied customers.



The last constraint is the digital display screen. It doesn't allow the user to dispense their drink or ice from the display. This display only allows for choosing the drink options. The size of the display could also be a constraint for those with poor vision since the font size is relatively small.

Case Study

Steps	Description	Affordances	Constraints
1	Place cup in bowed-in drink area	Shape of the area Spill guard/cup holder	Size of the area
2	Dispense ice	Ice Lever	
3	Select category of drink	Touch screen interface	Touch screen interface
4	Select type of drink from the categories	Touch screen interface	Touch screen interface
5	Select subcategory from the selected drink option	Touch screen interface	Touch screen interface
6	Dispense drink	"Push" dispensing button	

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Conclusion

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