

Designing reusable soap bottles for Savvy

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Savvy is a start-up business that offers reusable cleaning and hand soap bottles[1]. The focus of the assignment was to design new soap bottles that are sustainable and can be the new brand builders of Savvy.

The company does not only offer products but also a service. The client receives a reusable bottle with the first online order that can be refilled with water and dissolvable tablets which arrive in the mail every month. The subscription facilitates the user's life and it is better for the environment because of reusability and decreased transportation weight. They currently have two different bottles namely a hand soap bottle and a cleaning soap bottle. Savvy wants new bottle designs that could become their brand builders. They want a better-looking design that is simultaneously sustainable which introduces the main research question:

“What do the bottles have to look like to be attractive and simultaneously sustainable?”

To address this question different analyses were done to better understand the options, restrictions, and wishes of the stakeholders. In the competitor analysis, the competing brands were analyzed and what Savvy considers as their strong and weak points. This gave early on a better understanding of what the company was looking for in their brand. After that, a material analysis was done on transparent materials for the bottles, namely plastic, and glass. The two were compared and the outcome was that for a plastic bottle recycled PET was the best option and for a glass bottle borosilicate glass was the best option (with glass finishings of tempered or plastic-coated glass)[2][3][4]. In the first part of the user analysis, the different generations were analyzed on how they behave and think about sustainability. The outcome was that generations have different drives to act sustainably, primarily social norms, personal norms, personal benefits[5]. In the second part of the user analysis, the existing clients of Savvy were asked about their material preference, choosing between recycled plastic or glass. The majority of the respondents preferred a recycled plastic bottle with the main reasoning that glass breaks and can be dangerous. Following was the design analysis where relevant design aspects for a soap bottle were analyzed. It was found that color intensity and weight affect the consumer's perception of the products, a unique shape could help a bottle to stand out, and ease of handling is important[6][7][8]. For the last part of the analysis, the working of a spray and foaming soap pump mechanism was studied. Restricting dimensions and design possibilities for both bottles were found, as well as some optimal dimensions for a spray[9].

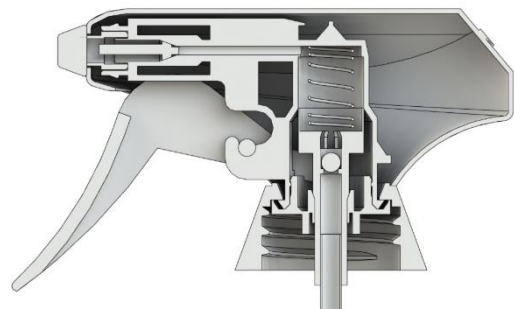


Figure 1: Solidworks spray mechanism

For the ideation of the bottles, multiple collages of different styles of bottles were made and discussed with Savvy. This gave the insight that Savvy likes the more minimalistic and luxurious styles, and dislikes sustainable-looking or too creative/crazy-looking bottles. Secondly in the ideation process sketching and Solidworks modeling was done and in discussion with Savvy, four concepts were selected to be worked out in more detail (Figure 2). The four worked-out concepts were all liked by Savvy but also had some (potential) shortcomings. The decision was made to choose concept 2 as the final design with the main argument that it is a unique design that Savvy still finds pretty and the bottles could serve as the brand builders for Savvy.



Figure 2: Four different concept designs



Figure 3: Final spray bottle and hand soap bottle design

Changes were made to make the conceptual design into a final design with the desired requirements (Figure 3). The mechanism of the spray was modeled in Solidworks (Figure 1) and of the hand soap pump downloaded from GrabCAD [10]. The final material choice of the bottles was recycled PET plastic, based on the user's preferred material.

In the last part of the design process, the concepts were reviewed by asking (potential) clients about the final design through a survey. The bottles were rated with 3.18 and 3.31 out of 5 on likability. This number and the other results of the survey were not widely optimistic, mainly because people were not enthusiastic about the square shape but preferred fluent and round shapes. This concluded that the design was too unique (in a negative way) for most of the respondents. They were also asked about their liking of the other three concepts and 56.9% liked concept 1 for a new Savvy bottle.

The main research question can not be fully answered yet. The analyses partially give answers about the different aspects of the desired design like material, color intensity, shape, user preference, and more. Even though the outcomes of these analyses were incorporated into the final design, they did not reflect the design preferences of the consumer well enough. Further research could be done on selecting the most sustainable material for every part of the bottle. Instead of discussing design preferences with mostly Savvy, the opinion of a larger amount of people could be analyzed. Finding out if the consumers dislike unique designs in general or just this final design could be interesting, as well as working out and reviewing concept 1.

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