Redesign of the modern portafilter for a manual Espresso Machine using a user-oriented approach

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Design Challenge

The thesis encompasses the redesign of a portafilter of a Manual Espresso Machine. The portafilter is used to fill and dose the coffee. Water is pushed through the coffee under pressure. Due to the pressure the residue that is left in the basket forms a dry puck. Currently, baristas use an external container in which the portafilter is emptied. Baristas empty the portafilter with repetitive hits on the metal container. In the context of a restaurant this is no considerable problem or part of the consumer experience. However, not every kitchen in a household is equipped with a metal container. Consequently, the main nuisance of the user is to empty the portafilter. As a result, the user-experience of the machine is significantly lower than intended. The mission statement of Philips is *To improve people's lives through meaningful innovation*. In order to fulfill this statement, the starting point of all products is to analyze the problems that local people face. As a result the design target is:

"Redesigning the portafilter for a Manual Espresso Machine that is easier to clean using a user-oriented approach in order to enhance the usability "

The research consists of three definitive parts in order to fully capture the approach taken by Philips. Firstly, two possible personas are composed. By choosing two extremes, the users between these extremes are covered. The most valuable aspects for both the personas, is that the machine gives them the feeling of being in control of the machine. An essential part of feeling in control is dedicated to an easier emptying system for the portafilter. Secondly, thorough testing is done in order to understand the struggle through the eyes of the user. There are multiple factors that influence the convenience of emptying the portafilter significantly. The first factor is the amount of pressure that is applied to the coffee after the portafilter is filled with coffee. Less applied force results in a stickier residue. The third part is an active survey for potential customers.

Survey

After testing, 3 different concepts are developed. In order to avoid an abundance of choice for the respondents of the survey, it is decided to reduce the amount of concepts. The first questions of the survey are dedicated to general questions in order to validate the results. The respondents are asked for first impressions of the two remaining concepts. This is done in order to avoid priming, which would lead to unreliable data. A second method that is used to avoid priming, is the level of detail in which the concepts are elaborated. In order to be consistent, it was decided to develop the concepts on the same level of detail. Consequently, the respondents are unable to judge the concept solely based on the drawing.

Based on the feedback, a final concept is developed. The aim of the redesigned portafilter is to enhance the experience of using the machine. This is done by making the process of emptying the portafilter easier and less tedious. Since emptying a portafilter with its current design is often seen as a nuisance, the overall value of the machine for the customers declines. The user experience is improved in various ways. First of all, the current portafilter requires significant force in order to be emptied. Secondly, this force is often not enough after the initial hit. The portafilter needs approximately 5 hits before the puck comes out. It can feel amateurish and unsophisticated to empty the portafilter like this. With the new design, the user no longer needs excessive force.

A secondary added value for the user introduced by this system is the fact that less residue remains in the basket after emptying. The new system scoops the residue from the side where this is necessary. In some cases, a lot of coffee grind sticks to the side after emptying the portafilter. While this seems harmless at first glance, this ultimately means that a lot of coffee grind is flushed down the sink, resulting in congestion. The prevention of this happening is an added value.

Discussion

While the new design does fulfill the design target set in the introduction, there are some aspects that need further attention. Due to the unforeseen circumstances caused by the Corona crisis, a couple of the aspects of the final design remain quite superficial. Ideally, a proof of concept or prototype would be created. the main recommendation for making a prototype is to do actual user testing. Since user feedback has been a significant part of the design process, the feedback would be even more essential during actual testing. Since this is line with the view of Philips, conducting user tests with a prototype would be a logical continuation of the project.

In conclusion, the redesign of the portafilter enhances the user-experience significantly. The user-oriented approach has helped to create a product that satisfies the needs of the customer. The new mechanism enables the user to be in control and use the product safely without annoyance. Consequently creating a better user-experience and offers the user the barista-style coffee they desire.

References

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