The Important Aspects Necessary in Creating a Showerhead

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1.Introduction

In the field of technology, companies are being pressured to create tech-savvy, innovative products that provide their users with the best experience while creating a fundamentally lower environmental impact. As the increasing population continues to overexploit ground water, several parts of the world are confronted with daily struggles as their communities are being left with little to no, good drinking water. Scientists predict, "Following changing weather patterns, population growth, lifestyles and demographic shifts, pressures on our water resources are on an exponential growth trajectory and are likely to aggravate with scenarios of more doubts by 2050" (Mousumi, 2019). The importance of saving water is crucial for these reasons and for several more.

With 8% of water consumption being used for showering (Critchley & Phipps, 2007), the showerhead industry is among one of the many that are being pressured to create new means of water conservation. With that being said, the showerhead industry is faced with issues including: 1) How to create a showerhead that conserves water while still providing its users with the best washing experience and 2) How to create a showerhead that's still cost-friendly for its buyers. Based on these issues that the industry is facing, the purpose of this research brief is to use effective research methods to answer the questions regarding the creation of eco-friendly showerheads while still reminding budget-friendly and providing its users with a positive experience. The remainder of this brief is structured as follows: After a description on the methods used to obtain research, then a discussion of findings will take place, focusing on the major themes and insights identified throughout the research. Finally, the conclusion of this brief will summarize the major ideas and findings that are offered throughout the entirety of the research brief.

2. Research Methods

In order for research to be both credible and effective, there are many criteria in which it must follow. For research to be included in this brief, the specific research was chosen based on its relevancy, credibility, and importance. The evaluation for each article, journal, or study began with its domain. Locating specific articles that include information about cost and eco-friendly benefits is a challenge as the sources located include one important factor but not the other. Therefore, the of multiple search engines while searching for each individual showerhead benefit is pivotal. This allows for a broad set of findings in which one can choose from. Starting with Google Scholar, the search term, "Eco-Friendly Showerhead" and "Cost-Effective Showerhead" are used to find sources that included these important aspects of the research. After searching this, a plethora of results will flood and at this point, filtering the relevancy of the research is of importance. After finding this information on Google Scholar, then the same search terms can be taken to the UMN Library where one could cross-check the research to see the alignment in what was found on Google Scholar. This is important because it can check the credibility of the

sources. If one appears on both search engines, it's more likely to be a credible source. Beyond this, the research included in this brief include the following:

- Published within the last 15 years
    - If otherwise, is relevant or well-known in industry
- The authors have credible and scholarly backgrounds
- The source that the research is found is well-known or peer-reviewed

After passing this test, the source is deemed credible and relevant and can be implemented into the following research brief. With the information previously given, ten sources were chosen in order to give an understanding on how to create a showerhead that is both cost-effective and environmentally friendly while still providing the user with the best experience.

3. Discussion

One of the biggest findings throughout the research is that despite the common belief that being more environmentally friendly comes at a cost, being environmentally friendly can be actually be quite cheap. The book, *Picture Yourself Going Green* says, "The Average American household uses approximately 350 gallons of water each day; that's almost 128,000 gallons a year. The EPA reports that the average household incurred a yearly water bill of $500. It also suggests that simple changed made to use water efficiently could save you about $170 each year" (Morgan, 2009). But the question still remains, how does one create these showerheads?

Effective Water Pressure

Showering is a task is done nearly everyday by individuals. Cleaning for people can be a time in there day where they get to relax. Therefore, while being eco-friendly for some people is important, having a relaxing shower is something that is also important to them. A solution for this can be found in a recent patient agreement for a newly released showerhead not yet on the market. It says, "The binary functionality of the message mode or pulsating mode allows the showerhead to produce a stronger fluid force during the pulsating mode, allowing the use to experience more intense "massage" mode, even with lower fluid flow rates" (Water Pik, Inc., 2020). This massage mode is important because the for many people, showering can be a stress-reliever or a time of day where they can collect their thoughts. In fact, the term *hydrotherapy* is "one of the basic methods of treatment widely used in the system of natural medicine" (Mooventhan & Nivethitha, 2014). Hydrotherapy is the use of water in its various forms, used to promote health and used to treat diseases. Another source explains that health benefits of a *hydrobath* as, "bath with water jets, the water pressure will stimulate your touch receptors, increasing blood flow and lessening tension in your muscles" (Avalon, 2016). The source continues on to explain how a hydrobath helps to lower stress by affecting physiological processes by decreasing stress levels and calming the body. These sources directly relate as they explain how one benefits from a high-pressured shower or bath.

Environmental Beliefs' Effects on Conservation

Studies have found a link between environmental beliefs and water consumption. A study found in the *Journal of Environmental Psychology* (2003) found that those with "*water utilitarian"*

beliefs, or a belief that the purpose of life is to increase the amount of positive things, in this case being water, they found that these people were positively related to water consumption (Corral-Verdugo et al., 2003). This means that the individual perceives that water is an unlimited or disposable resource. They, in fact, don't believe that this is a problem that needs to be solved. The study conversely found that those who saw water consumption as a problem, were more likely to take measures to conserve it. This is important as it signal that the target audience of this new product would include those who see water conservation as a necessity. Another study called, "New Environmental Paradigm", explains how attitudes and beliefs within a society can directly affect the community's environmental impact (Dunlap & Liere, 1978). This means, that those in a society who have a negative outlook on how their behaviors effect the environment will inversely do little to help conserve it. The relation of the articles is significant as they illustrate the importance of a societies outlook in order to have a change.

Budget-Friendly Costs

Showerhead can have a prince rage from $19.99-$199.99. According to Business Insider, the "Best Budget Shower Heads", range from about $15-$60 with brands including Delta, WaterPoint, and Speakman (Schurman & Chang, 2020). The average person probably couldn't see themselves investing well over $100 on a showerhead that might save them an extra twenty-dollars in a year. The answer here is to produce a showerhead that incorporates the high-pressure, water-conservation techniques as we've previously discussed but make the selling price a dollar amount that appeals to the customer. Many of the showerheads that are being sold now are of great design, they just simply don't include the multiple settings that the consumer desires that offer them the message technique. Beyond this, another article involving the sustainability of effective shower heads focus on its value as an "multi-perspective concept that extends beyond the limits of the firm" (Giles, 2016). The purpose of this article is to display how the value of a product corresponds with the customers predisposition of its worth. Therefore, the general population believe that a shower heads value lies somewhere between $20-$60, the market should produce products that lie within that price range.

A Possible Solution

One of the infamous ways that we waste water is by letting it run for three to four minutes, allowing it to "warm-up". I offer the possible solution- including a *trickle mode* option in an already designed showerhead. A trickle mode would restrict the flow of the water, basically putting it on pause, restricting the flow of water without the user actually turning it off. This mode option would include a smaller width than the remaining showerhead modes, so the flow of the water channel becomes restricted. This would allow for the water to warm up, but conserves those gallons of water you might possibly be wasting by allowing that few minutes of endless flowing water while you wait for it to "warm-up". While this solution has its flaws- for example, it doesn't solve the fact that you're still wasting the water when actually taking the shower, I think that it's a move in the right direction.

4. Conclusion

Creating a showerhead that is cost-effective while still providing the user with an eco-friendly and relaxing design is a necessary step that the company must take in order to stay ahead with competing brands. The sources give a collective idea that the way a society views a specific product is a signal for the way it should be produced and for how it should be produced. By implementing these eco-friendly features that we can implement into a pre-existing design, we show our customers that we are not only committed to providing them with new technology advances, but that we are also taking a step in a greener future.

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