Creative Brief

Project Details

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Company Name: HealthChoice Promotions, Inc.

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Project name: Dehumidifier Redesign

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Company Background

Founded in 2020, HealthChoice Promotions, Inc. is a healthcare technology company that identifies gaps in the product market with products intended to improve the health and wellness of users. It also engages in consultation services with product designers to strategize how to improve the user experience for users with physical and cognitive disabilities.

Project Concept

The project concept entails a redesign of a dehumidifier with a focus on increasing its capacity to address the multiple needs of users with chronic health conditions. The value of the project is to enhance the responsiveness of the product to better accommodate users by addressing deficiencies that limit its use and don't fulfill users' needs. Essentially, the intent is to create a more contemporary version of the product that improves air quality and supports the wellness objectives of users with allergies and serious respiratory ailments.

Business Objectives

The business objective is to recreate a common household item and further its capacity of usefulness to be purchased as a product aid for health improvement and sustainability for individuals with compromised health conditions. In order to increase commerce and customer engagement, a further business objective entails partaking in promotional partnerships with healthcare organizations that will endorse the merits of the redesign and its attained objectives in improving the experience of use, enhancing the quality of air within the room and location, and augmenting health support for those users dependent upon it for their health and well-being.

The product objective is to offer a diversity of settings to accommodate the multiple temperature requirements to effectively address these health ailments. It is also to improve the user experience by designing a user interface that encompasses usability heuristics that are presently lacking. Further, it is to assist individuals with

disabilities who often contend with these ailments to be able to access it independently to support their healthcare needs.

User Value Proposition / Benefits

There is a plethora of user benefits. The overriding benefit is its ability to remove more moisture from the air in quicker intervals and concurrently, to remove humidity in a comparable manner. This will improve the overall air circulation within the room that the product is being used. The improvement in air quality will result in an outcome of improved comfort for the user. It will also support improved respiratory function. Further, with updated technology, it will also cover more square footage to accommodate the size and design of more contemporary homes.

The redesign's health improvement outcomes will be predominantly correlated with addressing a diversity of allergy needs, asthma, chronic obstructive pulmonary disorder (COPD), lung cancer, and the labored breathing of users afflicted with heart disease. The redesign will diversify the user experience with more options relative to the differing needs of individuals with these conditions and ensure the ability to ease the effort of breathing in and out on the lungs. It will also impart human-centered design and be user-friendly for people and older adults with disabilities.

UI Considerations

- One On button but the remaining buttons will be digitized and will be operated by a Touchscreen Interface.
- It will have auto turn-on and turn-off features to support the user's schedule.
- The option to change temperature identification from Fahrenheit to Celsius. This makes the product more universal and broadens the market with a global user approach.
- Within the Touchscreen Interface, there will be a button to increase temperature by increments of 1 degree Fahrenheit or 0.5 degrees Celsius. This allows for more customizability for users.
- Within the Touchscreen Interface, there will be a button to decrease temperature by increments of 1 degree Fahrenheit or 0.5 degrees Celsius. This also allows for more customizability for users.
- There will also be a section on the Touchscreen in which the user can type in a temperature setting according to need and/or preference. This endorses the usability heuristics of flexibility and efficiency of use.
- The Touchscreen will include a setting for the desired humidity range in increments of five percent.
- There will be an included button on the Touchscreen to increase fan power by increments of 1 with ten total available power settings. This will enable the user to control the amount of air coming into and out of the unit. The fan level also supports noise control as the lower the setting, the less noise emitted from the overall unit.
- There will be an included button on the Touchscreen to decrease fan power by increments of 1 with ten total available power settings. This will enable the user to control the amount of air coming into and out of the unit. The fan level also supports noise control as the lower the setting, the less noise emitted from the overall unit.

- It will include a display that illustrates the current humidity level. This will alert the user to make any needed adjustments for their health requirements. This supports the usability heuristics of visibility of system status.
- It will have a visual and auditory warning when the humidifier is almost out of water. A notification alert will appear on the Touchscreen. Concurrently, for those with vision issues, there will be a succession of three beeps every five minutes until the user turns it off and adds water. It will also auto shut off when the dehumidifier is empty to protect the unit.
- For users with sensory issues, there will be three noise control levels with a low setting, medium setting, and high setting.
- For users with vision issues, there will be five settings on the Touchscreen to adjust product lighting. Given that there will be older adult users, pushing a setting will be easier for tactile function.
- It will include a microphone adjacent to the Touchscreen for voice activation for users with limited vision and individuals with disabilities i.e. cognitive who are more adept at executing verbal commands that following directions. This will direct a basic navigation of the unit.
- There will be a short cut setting option as a My User Profile in which all user settings for typical use will be implemented at the touch of one button.

Audience

The primary audience for the product is people living with chronic health conditions affiliated with respiratory hinderances. Most products offer limited settings and accommodations to these users and this product redesign will eradicate the current one-size-fits all approach that exists with most present-day units. While there are some commonalities of symptoms suffered by users with these conditions, there are needs unique to the specific illnesses and individuals contending with them that have not been factored into contemporary designs but will be reflected within this redesign. Most of these conditions are across gender and the age spectrum so the design focus entails young children to older adults. With COPD, lung cancer, and heart disease, the demographic largely includes adults middle aged to elderly from 40 years of age to 70.

The secondary audience is any user that wants to improve the air quality in their home by reducing moisture and humidity. Essentially, those with a focus on the benefits of household use.

Assumptions and Research

The characteristics of the product that must exist include a digital interface, a variety of temperature settings, humidity settings, a mold control removal setting, auditory functions for visually impaired users, noise control levels for individuals with sensory issues such as autism, error prevention capacities, and shortcut settings for chronic users for flexibility and efficiency of use. Sensory analysis will also include users with eye sensitivities that need to be able to adjust product lighting. With regards to avoiding assumptions, usability analysis and research required for the redesign includes more medical exploration to align user settings with healthcare outcomes. It will also comprise of the collection of disability data to improve usage capacities with a variety of individuals on the disability spectrum, both physical and cognitive.

Competitive Landscape

	Whirlpool	Maytag	Frigidaire	Honeywell
Features				
Moisture Reduction	50 Pints Per Day	40 Pints Per Day	45 Pints Per Day	40 Pints Per Day
Humidity Reduction	Relative Humidity (RH) Level – 46 pints	Relative Humidity (RH) Level – 40 pints	Relative Humidity (RH) Level – 45 pints	Relative Humidity (RH) Level – 40 pints
Air Quality: Dust Mite Removal	30% Per Day	20% Per Day	25% Per Day	20% Per Day
Reduction of Mold	1 Week	1 ½ Weeks	1 Week	2 Weeks
Temperature Range	4 Settings	3 Settings	4 Settings	3 Settings

The four main competitors in dehumidifier design are "…Whirlpool, Maytag, Frigidaire, and Honeywell" (Worthers 2022). There are five main user features that correlate with the needs of the primary and secondary users listed above. With an emphasis on features that are affiliated with our redesign and health use, the findings are as follows. Moisture reduction entails the removal of irritants from moist areas of the home and in the air. Side effects of excessive moisture in the air includes "…persistent cough and running nose which can trigger allergies, asthma, and COPD" (Tang et al. 2021). Of the four products, Whirlpool performs the best with a removal rate of 46 pints per day and Frigidaire is next with 45 pints per day. However, all are underperformers with respect to chronic health conditions as physicians recommend a rating of moisture reduction "…of over 60 pints per day" (Worthers 2022).

Humidity reduction is applicable to allergies, asthma, and other lung conditions. None of these have been designed to include a focus on user use for individuals with lung cancer or those with heart disease contending with breathing difficulties. The above competitive landscape features indicate that Whirlpool removes the highest percentage of humidity "…per a typical room size of 971 square feet with 46%" (Worthers 2022). For allergies and asthma, the recommended rating is "…between 40-50%" (Tang et al. 2021). This indicates that all four products perform well in this area. For the proposed users with lung cancer and heart disease, the recommended humidity range for healthful living is between "…30-50%, but with a physician preferred range of 30-40%" (Tang et al. 2021) especially in geographic areas with higher daily, monthly, and yearly humidity rates.

Ratings for dust mite removal yield comparable ratings with Whirlpool in the lead with "30% removal per day and with Frigidaire as a close second at 25% per day" (Worthers 2022). The American Association for Respiratory Care (AARC) recommends dehumidifiers with a "…rating of over 50% per day for allergies and asthma and over 65% for more serious lung diseases" (Walsh 2019). Hence, these

products don’t align with outcomes for improved and sustained respiratory function. Dust mites restrict the lungs. They can cause “…wheezing, chest tightness, and breathing difficulties” (Walsh 2019). Moreover, if a user with a serious condition experiences an attack, it can result in a decline of oxygen to the brain.

Mold spores are in the air. Mold is correlated with “…allergen production, respiratory system attacks, and the generation of potent toxins” (Pelletier 2019). It can also cause a condition known as “…hypersensitivity pneumonitis which can become a long-term lung inflammation” (Pelletier 2019). Dehumidifiers are slow to respond to mold and on average, with a well rated product such as Whirlpool, it takes about a week to eradicate low levels of mold in the home. Frigidaire has a comparable rating. The lack of immediacy with a response is a concern for users highly susceptible to respiratory triggers and long-term ailments.

Temperature range and the ability of users to make adjustments to accommodate their specific condition is important. Traditionally, dehumidifiers come with under five settings which is a comparable finding to the four products listed above. The range is often between “…25-65 degrees with a mid-range of 45 degrees” (Worthers 2022). Thus, users are limited in choices and a common problem is that the unit makes a room too cold. Room temperatures can be affected depending on room size and the duration of use of the dehumidifier. While cooler temperatures are an asset in contending with respiratory conditions, too much cold can also elicit breathing difficulties. The design is also short-sighted as health conditions ebb and flow and users often don’t require the same temperature daily. Dehumidifier operating temperature choices need to be increased in order to accommodate the aforementioned concerns of user limited use.

Industry competition is fierce with respect to the number of competitors that provide this product. However, the slant on healthcare is not as predominant. Essentially, this redesign is correlated with an oligopolist approach in which there are a smaller number of producers and sellers. Moreover, the focus on disabilities and independence of use further supports this actuality. What can be learned from the competitive products is the overall function of a dehumidifier and how to troubleshoot performance issues. Additionally, what can be gleaned is the shortcomings of their products and how to build on their intentions to achieve the results that coincide with the redesign’s goals of meeting a diversity of healthcare needs. The redesign’s digital user panel will enable the product to stand out as it will entail a comprehensive user interface board that addresses all of the intentions as outlined above.

Works Cited

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