

3d Upcycling Projects Display And Education Website

Research On Optimizing the Product Display And Upcycling Education Of HD Design Company Through 3d Visualization

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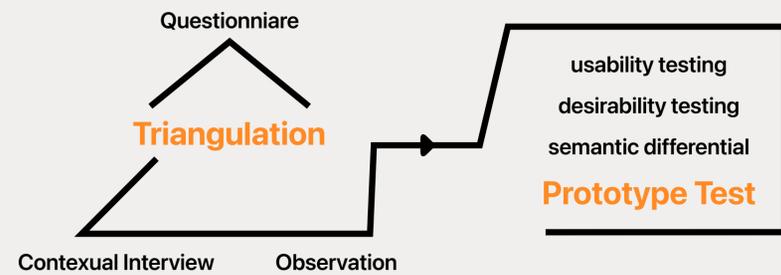
Abstract

Upcycling is an environmentally friendly manufacturing trend applied to many industries. HD DESIGN is also one of the interior design companies engaged in upcycling. Promoting upcycling-related products and knowledge is the company's goal in upcycling to enhance the company's brand image.

This project aims to optimize and design the company website to promote upcycling products and knowledge, while also discussing how Internet digital modeling technology can be applied. As a result, 3D web demos have a strong appeal to users due to their vivid performance effects and advantages in expressing data in a dynamic manner.

Study Methods

consumers aged 25-50, accustomed to using the Internet, and like plants. triangulation is to find their habits and attitude towards upcycling and internet 3D technology.

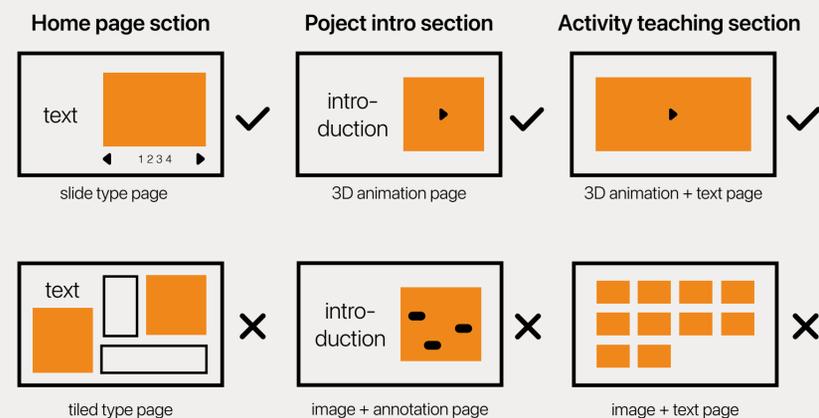
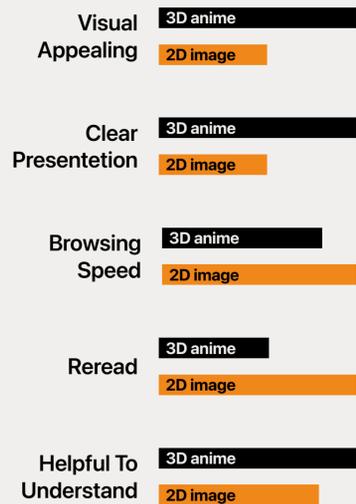


Testing & Evaluation

Usability testing - I invited offline users to participate in the prototype usability test. Based on observing user experience and talking about the process of completing a task, testers evaluate the usability of the product.

Desirability testing - 118 product-related adjectives were prepared, and the users chose 3 adjectives for each interaction based on reaction cards for Microsoft products (Barnum and Palmer, 2010). As a result of this test, I understand how different interfaces make users feel and discover their unique impact.

Semantic differential - users rated different interfaces after completing the prototype experience. In this test, I follow the semantic differential method (Huang, Chen, and Khoo, 2012).



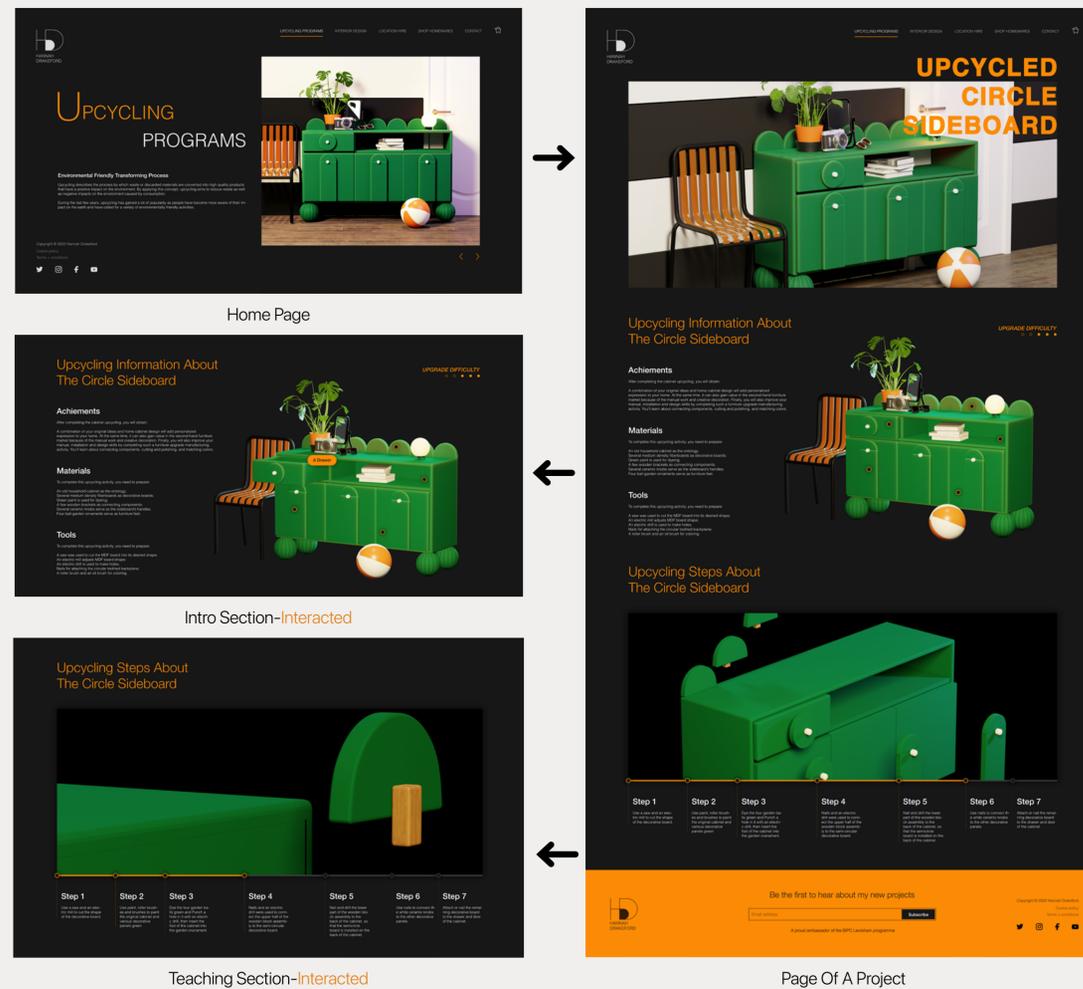
Introduction & Background

In recent years, upcycling has gained popularity as people become more aware of their environmental impact. Upcycling involves creating high-quality products from waste or discarded materials. Upcycling is about incorporating creative ideas, designs, or technologies into used products, not just maintaining them (Wegener, 2016).

It is still difficult to upcycle furniture. Since many enterprises and consumers lack knowledge of technology and product life cycles, upcycling is not possible. They fear it will be a challenge to change costs. People may also misunderstand upcycling concepts. And most interior design and furniture brands only sell and customize products. They do not promote and educate upcycling. It is more common for regional waste disposal agencies and furniture design magazines.

Design

High - fidelity prototype as follow:

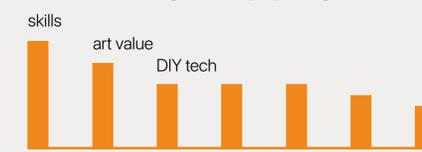


Interior and furniture design is where HD Design specializes and widely uses internet digital modeling tech. Visualizing 3D targets digitally creates a realistic image. Internet furniture design also uses 3D visualization technology. In this technique, static spatial states of research objects can be visualized, dynamic trends of objects can be simulated, and immersive experiences can be created. According to the case study, 3D visualization technologies can be presented on web pages and mobile devices mainly as web VR, AR and 3D rendering form.

So, By integrating upcycling education content with HD design, users can gain a deeper understanding of HD design. Moreover, they can learn about upcycling at the same time, creating an innovative two-way publicity strategy for HD products and upcycling.

Research Results

Users want to gain in upcycling



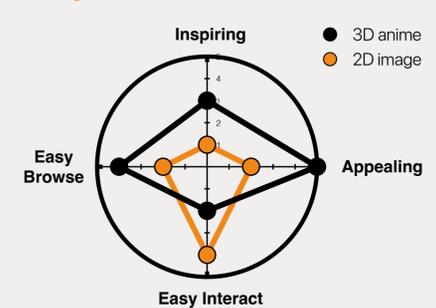
Users' frustrations in upcycling



More than 50% of 25-55 users support upcycling (Appendix A). Cognitive penetration is very low, and most users lack understanding of the concept. Users expect to save money and learn skills by upcycling. The 25-35 age group is interested in the skills and use value of upcycling. 35-45 age groups tend to know the commercial value and use value of the item; 45-55 age groups want inspiration. 25-55-year-olds are least likely to upcycle due to a lack of ideas, time, and energy. 3D visualization tools are popular among people aged 25-55. A key advantage of the Internet VR visualization tool is its panoramic view. Viewing becomes immersive with AR. With 3D modeling visualization tools, product details, details, and effects can be viewed. On the Internet, 3D modeling is most common. **To promote knowledge and display upcycling products, the web version is more suitable for 3D modeling and rendering.**

Internet digital modeling technology can improve the effect and user experience of furniture project displays compared with flat images.

Ability radar chart between 3D and 2D



Using 3D demos, users can view more information and have fun because they can dynamically display different angles and states. Users understand and interact better with 3D demos. For example, converting real-time statuses manually. Interactive and visual effects are better with 3D demos.

Internet digital modeling technology is more effective than flat images at promoting and educating upcycling-related knowledge.

Users feel coherent and detailed due to its advantages in presenting dynamic data. When there is already a lot of information about upcycling, it helps reduce user burden and improve user experience by displaying part of the information through 3D videos.

The Internet modeling technology is more entertaining and immersive than flat images in information transmission.

A 3D demo is a more entertaining, appealing, and immersive information delivery method than graphic images based on desirability and usability tests. When a web page shows product details and dynamics, users are interested and attracted.

Conclusion

This project tests and experiments whether Internet digital modeling technology can be effective and innovative for promoting and educating furniture upcycling. After prototype testing, it succeeded. **This display method and upcycling knowledge and activity teaching system will undoubtedly have unique advantages for product display and upcycling knowledge, which can enhance user experience at a lower cost.**

Upcycling and displaying furniture products on the Web are the main research objectives. 3D visualization tools for this scope focus on interactive systems, animations, and effect drawings. Future exploration and research related to this project could include m- web pages and apps as well. Mobile AR technology, for example, may promote and teach upcycling information. In the city, for example, there is a lack of time, energy, and tools for large-scale furniture upcycling. As upcycling activities focus on small household appliances and furniture decorations. Will users enjoy the activities more and be more enthusiastic about them?