

Visualization Methods for Exploring the Ethical Implications of Fashion

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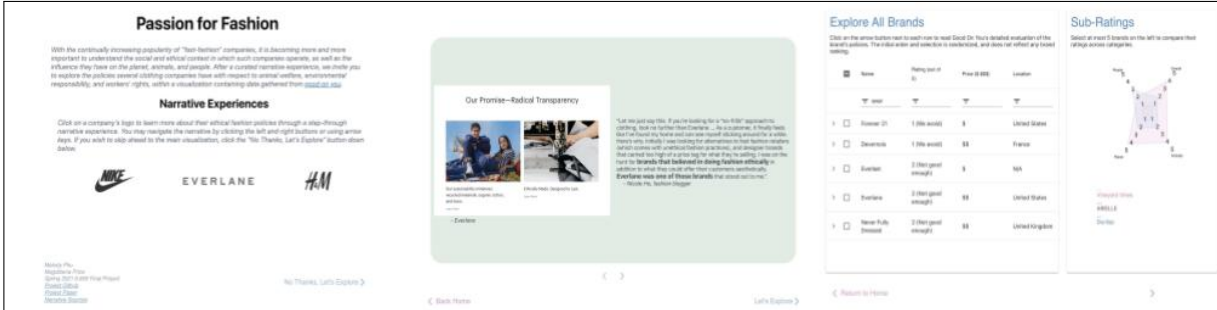


Figure 1: Side by Side View of the Visualization: Note that not all aspects of the visualization can be showcased here.

ABSTRACT

The growing popularity and influence of fast fashion has levied a heavy tax on our planet, our animals, and our people. The policies and virtues that companies operate by have significant impacts on worker well-being, resource conservation, and animal welfare. Through a narrative visualization, we introduce three top runners in the fashion industry, each with their own reputation and evolution. Afterwards, we invite users to select and compare ratings between companies, guiding them towards a more comprehensive understanding of the differences in policy and practice amongst the companies. We found that users appreciated the level of freedom and customization within the exploratory section, and gained valuable and novel insights from following along with the narrative experiences. Through this project, we successfully highlighted the necessary considerations for an ethical and sustainable product within the fashion industry. We also brought to light an often overlooked issue within a largely consumerist society.

Index Terms: Fashion industry—Ethics of fast fashion—Visualization—Visualization design and evaluation methods

1 INTRODUCTION

With the exponential growth of “fast-fashion” companies, it has become critical for consumers to understand the social and ethical impacts of their purchasing power. To address this knowledge gap, we sought to create a data visualization that showcased not only quantitative measures of ethical and unethical policies, but also qualitative measures that empower individuals to use a critical lens when deciding where to put their dollars.

Our goal was to showcase the varying dimensions in which a company can be considered both ethical and unethical, and to invite users to explore these companies and develop their own conclusions. To achieve this, we include both an exploratory visualization with ratings and an introductory narrative experience that guides the user along a journalistic “exposé”, enabling meaningful engagement with the material.

The data set we put together was gathered from “goodonyou.eco”, a publicly available website that rates fashion companies’ policies

in three categories: people, planet, and animals. It also provides a qualitative assessment of a particular company’s policies, and then assigns them an overall rating from 1 (“We avoid”) through 5 (“Great”). Our visualization aims to aggregate this vast resource and provide additional context through a set of carefully curated narratives.

2 RELATED WORK

In the following section, we discuss related non-profit work that explores the ethics of the fashion industry using qualitative and quantitative methods.

2.1 Good on You

Good On You [3] is a publicly available online directory and blog that evaluates the policies and practices followed by a wide range of fashion companies. Founded in Australia in 2015, the website’s goal is to “make fashion fair and sustainable” [3]. The website devises a five-point rating system in three different categories - People, Planet, and Animals, which makes the evaluations simple and accessible. Within their brand directory, they provide reasoning and sources for their ratings, promoting transparency and cultivating trust with the viewer. The website’s simple design is quite commendable, but leaves room for improvement. In particular, the sheer number of companies represented makes it challenging to compare companies with each other and understand the general trends and patterns across the directory. Despite this, we were deeply inspired by this database, and we wanted to create a visualization that encapsulated the same goals and message, while improving upon the original.

2.2 Other Initiatives

There are a handful of other organizations that have attempted to quantify and display the evaluations of fashion companies and the impact of their policies. Such groups include the Baptist World Aid of Australia, a not-for-profit Christian organization which publishes an annual ethical fashion guide [1] and Fashion Revolution, founded in the wake of the Rana Plaza disaster in 2013, which publishes a Fashion Transparency Index [2]. We decided to work with the Good on You website given the breadth of companies covered in their evaluation.

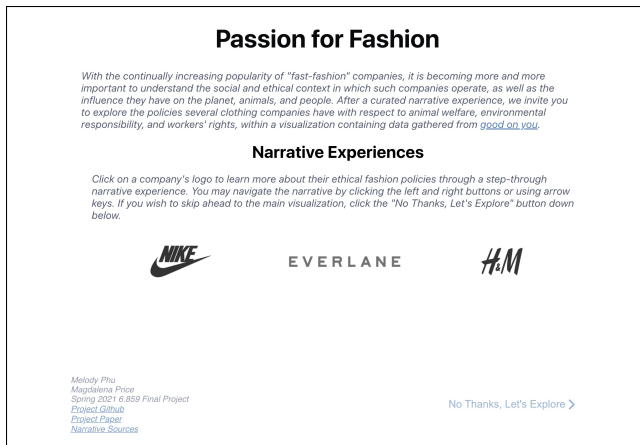


Figure 2: Snapshot of the Introductory Page

3 METHODS

In this section, we outline the methods in which each component of our visualization was designed and implemented, in addition to the data collection process.

3.1 Landing Page

We first designed an introductory landing page for users to read more about the visualization’s purpose and the main dataset. This page also needed to incorporate sources, provide additional context about the project, and prepare the viewer to start a follow-along narrative experience or jump to the main visualization. We took into account styling feedback that suggested we have the content be more centered on the page, and we made sure to enable the buttons to be visibly responsive to better guide user interaction.

3.2 Narrative Curation

The next stage involved curating a set of new article excerpts and company statements to put together three narratives, or journalistic “exposés”, which users could follow along with. For the first narrative about Everlane, constructing the story was relatively straightforward, given our familiarity with the company, its promises, and its practices. For Nike, a quick google search unearthed various records of human rights violations and factory condition scandals throughout the 90s and 2000s, which we used as a starting point for the narrative. Finally, in the case of HM, one of the most well-known fast fashion retailers, we had to search through company statements to find recent publicized efforts (or lack thereof) towards sustainability and ethical practices.

Once the necessary content was gathered and ordered, the next step was to determine the best method of showcasing the story. Our first approach was a Parallax scrolling experience, which would draw the user’s eyes to the next “bundle” of information as they navigated to the bottom of the page. Given the amount of information on display, it was unfortunately hard to navigate and comprehend the narrative. We received significant feedback from users that had a hard time figuring out what text they should focus on; one anonymous peer reviewer said “The amount of text and different content on the scrolling page resulted in me being a bit overwhelmed and not knowing what exactly to look at”. In response, we decided to move to a one-at-a-time “click-through” narrative that could be controlled by mouse or arrow keys. We also implemented a mapping that bolded certain, key parts of the text.

The implementation for this section, which was mostly done in React.js, was largely self-made, to allow for optimal customization and modularity. Some general methods included creating containers

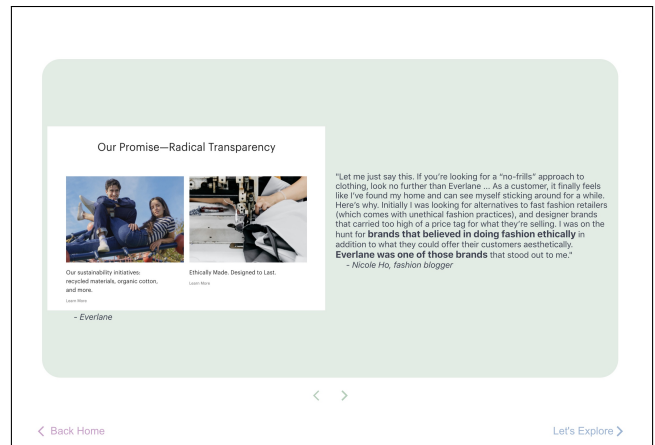


Figure 3: Snapshot of the Introductory Page

Field	Description
Description	A short 2-3 sentence written by GoodOnYou editors that summarizes the company's policies and resulting evaluation.
Apparel Types	The types of products (e.g. tops, swimwear, shoes) sold by a company.
Location	The known location of a company's headquarters. May be any set of countries or “Worldwide”.
Ships To	The known locations to which a brand ships to. May be any set of countries or “Worldwide”.
Overall Rating	Rating from 1 (“we avoid”) to 5 (“great”) assigned qualitatively to the brand.
People Rating	Rating of 0 (“insufficient information”), or from 1 (“we avoid”) to 5 (“great”) assigned to the impact of a brand's policies on people in the supply chain.
Planet Rating	Rating of 0 (“insufficient information”), or from 1 (“we avoid”) to 5 (“great”) assigned to the impact of a brand's policies on the planet.
Animals Rating	Rating of 0 (“insufficient information”), or from 1 (“we avoid”) to 5 (“great”) assigned to the impact of a brand's policies on animals during product development and manufacturing.
Evaluation	Detailed explanation of why each company received their overall rating and sub-ratings.

Figure 4: Indicators Collected in the GoodonYou Dataset

to group text and images together in different kinds of layouts, maximizing button navigability, and including a fade-in transition styling on top of each of the content code blocks.

3.3 Data Collection

To obtain the data, we employed common web-scraping techniques using popular Python libraries. Since the Good on You website is a lazy-scrolling, react-based website, our script uses Requests and Selenium to simulate a user scrolling through to the bottom of each result page to obtain the full HTML source code, and BeautifulSoup to parse the results for relevant information about each brand. In total, there were 2159 unique brands with comprehensive ratings listed by Good on You. For the purposes of scaling down our data set, we decided to focus on women’s apparel brands. For each brand, we collected ratings, sub-ratings, and additional attributes of each brand, as shown in Figure 4.

Upon closer evaluation, we discovered that some apparel types, including “bottoms”, “outerwear”, and “accessories” were not collected in our web scraping process. While this does pose some concern for the thoroughness of our analysis, many brands cover multiple types of apparel types so we are confident that almost all of

	Name	Rating (out of 5)	Price (\$-\$\$\$)	Location
> <input checked="" type="checkbox"/>	FAGUO	3 (It's a start)	\$\$	France
> <input checked="" type="checkbox"/>	Molly Bracken	2 (Not good enough)	\$\$	France
> <input checked="" type="checkbox"/>	Rapha	2 (Not good enough)	\$\$	United Kingdom
> <input type="checkbox"/>	Zella	2 (Not good enough)	\$\$	N/A
> <input type="checkbox"/>	UNIF	2 (Not good enough)	\$\$	United States
> <input type="checkbox"/>	Havaianas	1 (We avoid)	\$	Brazil
> <input type="checkbox"/>	Minga London	3 (It's a start)	\$\$	United Kingdom
> <input type="checkbox"/>	Furla	2 (Not good enough)	\$\$\$	Italy

Figure 5: Interactive Table for Users to Explore Individual Brands

the brands listed by Good on You are still represented in our dataset.

3.4 Exploratory Visualization

On the left side of our exploratory component, we designed an interactive table (Figure 5) which lists each brand in a row containing their name, their overall rating (1-5), their price range (in dollar signs), and their location (as available). Users can also click an arrow icon to expand the row, and read Good on You's full-length evaluation of the brand.

On the right side, we designed a series of visualizations that users may interact with, allowing them to compare up to five brands or explore certain overarching trends in the dataset. In the first visualization, we encoded these ratings in a radar chart (Figure 6), allowing users to get a general sense of how well a brand performed versus another. Within this chart, there are four axes: people, planet, animals, and overall. While we considered removing the dependence between any axes by encoding the overall rating using colors, we decided to keep it on the chart to allow users to better distinguish the individual brands.

In the next visualization, we designed a clustered stacked bar chart (Figure 7) to offer a high level view of how each apparel type typically gets rated according to Good on You. Each cluster represents an apparel type (e.g. tops, dresses), while the three bars represent the distribution of ratings for people, planet, and animals in ascending order. We used colors to encode the ratings themselves, which are displayed in the legend below the visualization. We also further break down the ratings into a set of radial charts (Figure 8) which show the distribution of ratings in each category: Overall, People, Planet, and Animals.

4 RESULTS

Next, we discuss the results of our visualization design in the context of our original project goals. We also address the improvements made since the minimum viable product stage.

4.1 User Scenario

In the final product, a user begins at our introductory page (Figure 2), where they are given an introduction to the goals of the project, access to several links to learn more about the project and its data sources, and the option to select from one of three narratives or instead navigate to the main visualization. We now run through a user scenario in which a company chooses to follow the Everlane narrative experience.

Within the narrative experience, a user can navigate between clusters of curated text and image information via the central buttons or via the arrow keys. At any point, they are free to return to the home page, or continue to the main visualization. Finally, on the main visualization page, the user can search for and select up to

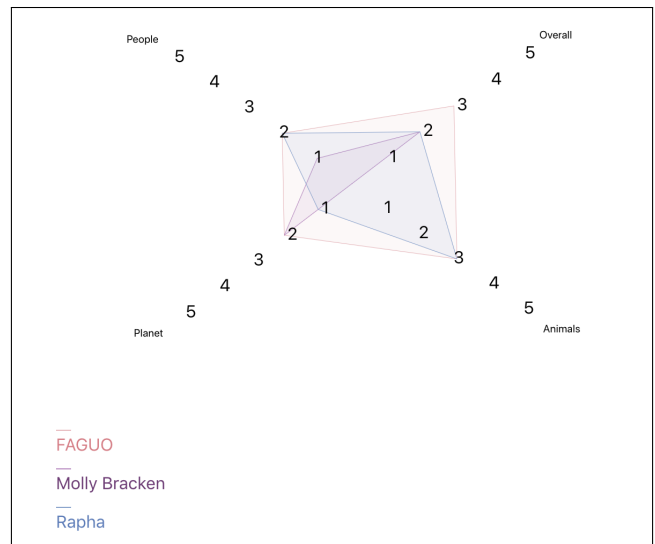


Figure 6: Visualization for Comparing Brand Ratings

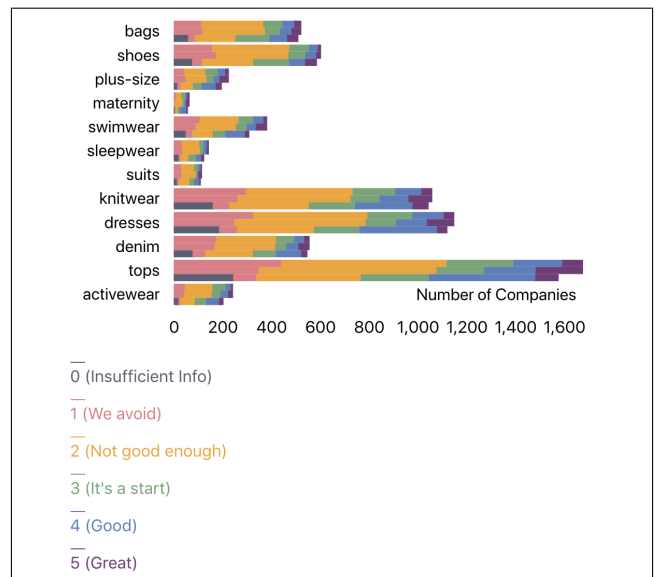


Figure 7: Visualization for Exploring Brand Ratings by Apparel Type

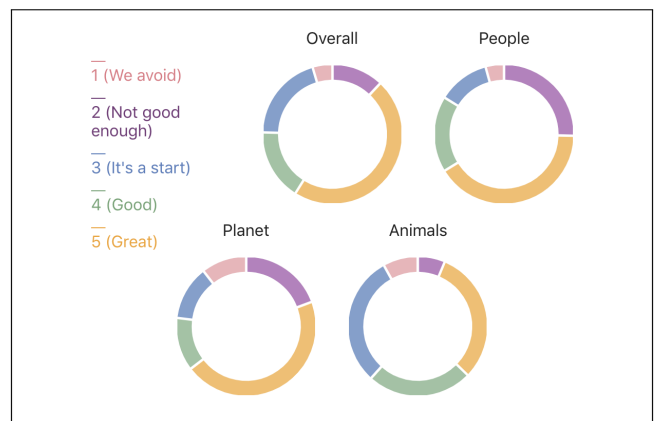


Figure 8: Visualization for Exploring Rating Distribution

five companies to compare in an accompanying visualization. Other visualizations on this page also enable the user to see patterns in the comprehensive dataset, and the user is free to return to the home page as they please.

4.2 Functionality and Improvements

Compared to the minimum viable prototype stage of this project, the final version of the home page is more centered and provides more context about the narrative experiences, as well as links to relevant information about our project and sources. From a user interaction standpoint, we also implemented more responsive buttons, which increase in opacity and size upon hovering.

For the narrative pages, as mentioned in Section 3.2, the final product switched from a scrolling experience to a “click-through” experience, and also incorporated selective amounts of bolded font. With the “click-through” approach came an additional layer of navigation, which was still intuitive thanks to the left and right arrow buttons (as seen in Figure 3). Here, the up, down, left, and right keyboard functionality is enabled, giving the user another avenue of navigation. The largest change to this section from the minimum-viable prototype was the addition of two more narrative experience options. Respectively, the Nike, Everlane, and HM experiences cover the stories of potential for change, unmet promises, and unrealistic approaches.

We have also implemented significant improvements on the original brand list component. The table now supports pagination (since there are more than 2000 brands), expanding rows to read the detailed evaluation of each brand, a selection feature for interacting with the Radar chart (Figure 6), and filtering and sorting by any column. Finally, since the minimum viable product stage, we have added a couple more visualizations for users to explore a high level view of the ratings across all brands and each apparel type. Each explores a different field with respect to the ratings, which adds extra functionality to augment the in-depth brand exploration in the interactive table.

5 DISCUSSION

Our system has a number of strengths, about which we received feedback from users during our design process. To start, the narrative visualization effectively reveals both negative and positive impacts of companies to our target audience. When reading through the Everlane narrative experience, one anonymous peer reviewer commented, “... as I was reading I was thinking they were an example for ethical practices, and then I found out it was essentially a scam. If that is the experience you are going for, then you nailed it.” By introducing news article excerpts and company statements in a carefully designed order, we were able to extend powerful and thought-invoking messages to our audience, encouraging them to think more about the ethical impacts of prominent brands in the fashion industry.

Others commented on how they could easily learn about their favorite companies through the exploratory visualization. By designing an interactive table with pagination for users to read about individual brands, our visualization gives users a high level of freedom as they explore the brands. Similarly, the radar chart (Figure 6) enables users to closely compare a few brands of choice and see how they fare against each other. The high-level charts also provide an aggregated view of companies evaluated by Good on You that are otherwise hard to observe from the original website.

We received some comments about communicating which brand users should look into as good examples of ethical fashion. Because the ratings are binned into only five levels for three subcategories, and because some data is marked as “insufficient” on Good on You, providing conclusive recommendations was out of the scope of our visualization project.

Ultimately, the intent is not to shame individuals for purchases they have made at certain companies; we recognize that the ability to support ethical companies comes at a heftier price tag. Instead, Passion for Fashion provides baseline tools for users to learn about the ethical implications of the fashion industry and to use a critical lens when choosing where to spend their money.

6 FUTURE WORK

An important goal of the original dataset that we were not able to fully address was highlighting purchasing power, and empowering users to “put their money where their mouth is”. Although briefly noted in the Nike narrative experience (where we highlight the pivotal protests that took place), future work could expand on showcasing the power of the consumer and directly encourage users to make more thoughtful purchases.

One way Good On You achieves this goal is by suggesting similar (in terms of pricing, style, etc.), but more highly rated companies when users search for a particular brand or clothing type. Through this method, they have the potential to more directly influence future purchases of the viewer, and they also have the potential to recommend new, ethical brands. As a result, they achieve a more concrete impact on consumer shopping patterns. For future work on our own visualization, one might imagine a large tree graph with companies grouped and organized by color (overall rating), with clusters for brand “style” type or clothing type. Text analysis of company descriptions could also add other indicators of similarity.

Another place to expand on this visualization could be via the aggregation of companies’ financial data, such as annual sales or total units sold. This could be used to evaluate the influence and prominence of groups of companies within the industry, and help the user better understand how fast fashion has permeated the market. Lastly, we initially included only women’s fashion companies to narrow the scope of our dataset; future work could expand the dataset to include men’s and children’s fashion.

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