SUBVERTING TWO CHARACTER STEREOTYPES AT ONCE： EXPLORING AI'S ROLE IN SUBVERTING STEREOTYPES

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ABSTRACT

The Aim of this paper is to explore different ways of using AI to subvert stereotypes more efficiently and effectively. It will also enumerate the advantages and disadvantages of each approach, helping creators select the most appropriate method for their specific situations.

AI opens up new possibilities, enabling anyone to effortlessly generate visually stunning images without the need for artistic skills. However, it also leads to the creation of more stereotypes when using large amounts of data. Consequently, stereotypes are becoming more prevalent and serious than ever before. Our belief is that we can use this situation in reverse, aiming to summarize stereotypes with AI and then subvert them through elemental exchange.

In this study, we have attempted to develop a less time-consuming method to challenge character stereotypes while embracing the concept of "exchange." We selected two character archetypes, namely the "tyrant" and the "mad scientist," and summarized their stereotypes by generating AI images or asking ChatGPT questions. Additionally, we conducted a survey of real historical tyrants to gain insights into their behavior and characteristics. This step helped us comprehend the reasons behind stereotyping in artwork depicting tyrants. Based on this understanding, we made choices about which stereotypes to retain. The intention was to empower the audience to better evaluate the identity of the character. Finally, the two remaining character stereotypes were exchanged, and the design was completed.

This paper documents the last and most time-consuming method. By examining a large number of sources and examining what stereotypical influences were used, we were able to achieve a greater effect of subverting stereotypes. The other method is much less time-consuming but somewhat more random. Whether one chooses by subjective experience or by the most frequent choices, there is no guarantee of the best outcome. In other words, it is the one that best guarantees that the audience will be able to quickly identify the original character and at the same time move the two characters the furthest away from the original stereotypical image of the original. In conclusion, if the designer has sufficient time, ai portrait + research or chatGPT + research can be chosen. If there is not enough time, the remaining methods can be chosen. The remaining methods take less time and the designer can try them all to get the desired result.

KEYWORDS

Multidisciplinary, Artificial Intelligence, Arts & Design History, Stereotypes

1. INTRODUCTION

Stereotypes are prevalent in every culture and media, especially in popular culture [1]. For instance, in video games, female characters are often cast in the role of "Damsel in distress" to fulfill game objectives and advance the storyline [2]. Similarly, print media frequently depicts Latina women with a sexy yet uninhibited image [3]. These stereotypes are also present in the film industry, with approximately 85% of the global box office revenue coming from Hollywood films, influencing gender, race, and cultural stereotypes established by the U.S. film industry that spread widely to other media [4].

Artificial Intelligence (AI) is a rapidly advancing field, making significant strides and evolution in recent years. This technology has transformed various industries and impacted our lives. For example, numerous AI image generators have become widely used in the creative and technological sectors, allowing anyone to easily create visually appealing images without requiring artistic skills. However, generating images from massive datasets also contributes to the proliferation of stereotypes, making them more prevalent and serious than ever before. In this regard, the study aims to utilize AI to group and exchange elements of stereotypes to overturn prevailing stereotypes.

In past studies, we have used AI to compile stereotypes of pop culture "witches." We summarize the stereotypical image of the Witch today. We then analyze the two major components of the stereotype, "appendages" and "appearance," from a historical and social perspective, and attribute the reasons for the formation and transformation of the Witch image. These past stereotypes will be designed using the design approach of extraction, preservation, and transformation, and finally, the pros and cons of this method will be summarized from a practical perspective.

The research results prove that this method is feasible. At the same time, however, the method has several drawbacks. The most obvious drawback is the need to spend a lot of time on a literature review.

Also, in the various methods of stereotype subversion, we have studied, whether replacing stereotypes with image-based media with information obtained from textual media or replacing current stereotypes with past stereotypes of characters, the exchange of stereotypes is essential. Such an exchange of elements is not only effective in subverting stereotypes but is also used for innovation.

Building on the concept of "exchange," the study proposes a method to overturn character stereotypes more efficiently with less time investment. By selecting two character archetypes, "tyrant" and "mad scientist," the stereotypes associated with them are grouped using AI image generation or through questions posed to ChatGPT. The study then delves into the investigation of historical real-life tyrants to deepen understanding of their actions and traits, which helps comprehend the reasons behind the stereotypes depicted in the artwork. Based on the knowledge about the reasons behind the character's stereotyping, the study chooses which stereotypes to retain, enabling the audience to better judge the character's identity. Finally, the remaining stereotypes of the two characters are exchanged, and the design is finalized.

This time-efficient method allows for overturning stereotypes of two different characters simultaneously. Additionally, the approach offers flexibility, as the step involving historical investigation can be omitted when time constraints are pressing. However, some historical investigation may still be necessary to more accurately select the stereotypes to be retained.

The primary objective of this research is to explore various AI-based methods to efficiently overturn stereotypes within a shorter time frame. It aims to enumerate the strengths and weaknesses of these methods to empower creators to select the most suitable approach for their specific situations. Moreover, the study provides a reference and inspiration for future research related to stereotypes.

This paper first lists all methods then describes the actual process in detail using the most time-consuming method as an example, and finally lists the results obtained from all methods and summarizes the pros and cons of each method.

2. METHODS

The methodology of this study is divided into three major steps.

Step 1: Select two character archetypes.

We decided to choose characters with significant differences. We observed that even among randomly generated character pairs, they were already distinct archetypes. The selected archetypes are the "explorer" and the "jester," the "trickster" and the "tyrant," and the "hero" and the "sage." For this study, we chose the "tyrant" and the "mad scientist."

Step 2: Next, choose AI image generation or chatGPT.

When inquiring about the differences between the "Tyrant" and the "Mad Scientist," chatGPT provided information about the relative distinctions between these two character archetypes, including their overall image, costumes, and facial expressions. This step reduced the time needed for subsequent exchanges regarding stereotypes. However, some details, such as the slimness of the mad scientist's face and the tyrant's lack of hair, were not mentioned, as they were only compiled after observing the images.

Step 3:

For AI image generation:

Give preference to stereotypes that can clearly indicate identity. If none are available, select the stereotypes that appear most frequently in the image.

Examine detailed information.

For chatGPT:

Give preference to stereotypes that can clearly indicate identity. If none are available, make a subjective selection.

 Examine detailed information.

This paper mainly documents the most time-consuming methods. Firstly, we summarize the character stereotypes from the images generated by AI. Next, we analyze the data to determine which stereotype influences can achieve a greater subversion of stereotypes. Finally, we select the reserved stereotypes.

3. SELECTING RETAINED STEREOTYPES

3.1. Tyrant

The word "tyrant" has a very long history, dating back to ancient Greece. In the early days, the word was considered more neutral. However, some, such as the Greek philosopher Plato, took the view that "tyrant" was a negative term [5]. Aristotle also defined a tyrant as a monarch who commits extreme atrocities against people and others [6].

During the Enlightenment, the English philosopher John Locke argued that tyrants act beyond their own power. Tyranny is not for the good of the people but for the personal benefit of the tyrant. He contrasted "tyranny" with "human rights and democracy," a view that influenced later writers[7]. In one of his books, he wrote, "Where law ends, tyranny begins."[8] Voltaire, another Enlightenment writer, also believed that tyrants were capricious and ignorant of the law[9].

As history progressed, tyrants became closely associated with "cruelty and tyranny. The Encyclopædia Britannica describes a tyrant as "an absolute ruler who does not obey the law" and "one who usurps the sovereignty of a rightful ruler."[10] To further understand the role and stereotypes of "tyrants," we divide "tyrants" into two main groups of subjects of study: tyrants as recorded in works that existed in history, and tyrants as they appear in works of fiction.

Using Crayon, we generated portraits of 20 "tyrants". The results showed that the "tyrants" had a number of obvious similarities. First, they are all middle-aged men. Ninety-five percent of the tyrants have sparse hair. About 50% of the tyrants have beards. Fifteen percent of tyrants are bald.15% of tyrants have eyes of a different color than humans. They all have serious, grim expressions on their faces, and 20 percent of them are clearly angry. Twenty-five percent of the tyrants were dressed in warlike attire, including military uniforms, medals, and armor.

In the previous section, we looked specifically at the backgrounds of the tyrants. The results showed that they fit the AI-generated stereotypes of tyrants. In particular, their angry expressions and war-reminiscent clothing indicated cruelty toward others.

Next, we surveyed several tyrants that existed in history and we will give two examples.

Xia Jie. The 17th and last ruler of the Xia Dynasty in China. A tyrant, he led an extravagant and lewd life. He used the wealth of the people to satisfy his own desires. He is traditionally regarded as one of the causes of the end of the Xia Dynasty and is portrayed as a tyrant and oppressor by the people of his time and later generations [11].

His reign was often marked by indifference to internal affairs, and class conflicts became increasingly severe. According to the Jukjeon, he used the wealth of the people to build palaces and carve luxurious buildings [12]. He also sought out beautiful women from all over the country and drank with them day and night [13]. Figure 1 depicts this scene. Not only was he a drunkard, but he was also excessively strict about food, and any servant who made the mistake of eating or drinking was immediately executed [14].

Xiajie relied on the vice minister and ostracized the virtue minister. The vicious minister Zhao Liang gave advice to Xia Jie to please him, to extort and brutalize the people. Minister Cigu, who saw Xiajie's extravagance, advised him that he would never be loved by the people unless he was an industrious and frugal emperor who loved them. Another minister, Guan Longfang, repeatedly advised Xia Jie, accusing him of extravagant spending and murderous habits, telling him that the

people wanted him to die quickly and that only by correcting his own faults could he win their hearts. Enraged, Jie executed Guan Longbang[15].

In his later years, Xia Jie became even more lewd and even created a lake filled with liquor called "Night Palace," said to be large enough for a boat to navigate, and his servants often drowned in it when drunk [16]. As shown in Figure 2, a relief topiary from Shandong depicts him sitting on top of two servants. This not only symbolizes his abuse of power but is also a well-known habit of his [17].

Leopold II was the second king of Belgium from 1865 to 1909. He was called the "King of Architecture" because he commissioned many buildings, city plans, and public works projects in Belgium [18]. Many of these were done with the profits from the development of the Congo Free State [19].

In the early years of his administration, he was convinced that overseas colonies were the key to the country's strength. Therefore, he worked vigorously to secure colonial territories for Belgium. On February 5, 1885, the Congo Free State was established under the personal rule and private army of Leopold II [20].

Leopold II intended to accumulate wealth through the export of ivory, but it did not reach the expected level. At that time, in the 1890s, the price of natural rubber was rising, and the free government decided to put its labor force into the labor-intensive job of sap extraction for rubber factories. For-profit, the Liberal government led by Leopold II forced local people to work. When production quotas were not met, beatings, kidnappings, and mutilations of locals were commonplace, as were widespread killings [21]. There is a photo of a Congolese man sitting on the ground looking at the mutilated body of his daughter [22]. Estimates of the death toll range from 2 to 15 million[23].

In 1890, George Washington described the actions of the Congolese Free State government led by Leopold II as a "crime against humanity. These facts are corroborated by numerous witnesses and evidence. For example, the on-site inspection by the International Commission of Inquiry and the 1904 "Casement Report."[24]

From the AI-generated images, the tyrant stereotypes were summarized as follows. Male, middle-aged, beard, sparse hair (or baldness), serious expression (or anger), eye color different from the general population (e.g., red eyes), war-inspired clothing. In conjunction with the discussion of real historical tyrants, we decide that "middle-aged" and "war-associated clothing" should be retained. There are two reasons for this:

1. "beards" and "thinning or balding hair". These two stereotypes actually reflect the stereotypical appearance of the middle-aged/villain. Especially the latter. The character of the tyrant is the villain in most works. Studies have shown that male villains have a higher percentage of thinning hair [25], which is a stereotype of the villain rather than the tyrant. The hairstyles of tyrants vary from culture to culture. For example, Xia Jie is one of the most famous tyrants in Chinese history. According to excavated artifacts and documents, male lords of the time wore their long hair tied in various shapes on the top and back of the head[26].In addition, past research[27] has shown that gender change is a quick and effective way to overturn stereotypes. Therefore, we did not select "male" and "beard" and left "middle-aged".

2. The three remaining stereotypes are all visual representations of the tyrant's brutal characteristics. In particular, the "angry expression" and "different eye color from the general public" are typical means of portraying a brutal character. The tyrants examined in this study

show a common characteristic of cruelty. They used inhumane means such as torture and murder against others. In addition, an examination of historical documents and artwork shows that they basically did not treat others as equals. Rather than being angry, their attitude was to take things for granted. Therefore, we decided to leave "warlike dress" behind. This maintains the stereotype of the tyrant as a brutal murderer, while at the same time alluding to his identity to some extent.

3.2. Mad Scientist

Using Craiyon, we generated portraits of 20 "mad scientists". The results showed that the "mad scientist" had a number of obvious similarities. First, the most obvious feature is a broad forehead, which is found in 100% of the mad scientist portraits created. The next most obvious feature is disheveled hair, which is present in 98% of mad scientist portraits.90% of mad scientists wear glasses or similar goggles.80% of mad scientist faces are thin. In terms of clothing, 80% of the mad scientists wore white shirts, 45% wore formal academic clothing, and 25% wore white coats. In addition, 25% of the mad scientists had scientific instruments such as test tubes.

Next, several mad scientists were investigated. Here is an example:

Rotwang is one of the most famous mad scientists of the early movie screen. He appears in Fritz Lang's film Metropolis (1927) [28]. The film is a German Expressionist science fiction silent film. It is on UNESCO's Memory of the World list[29] and is considered one of the first feature-length science fiction films[30].

Rudolf Klein-Rogge plays Rotwang, a brilliant but evil scientist [31]. He is a mighty scientific force, and the machines he creates are key to the functioning of Metropolis, but he is ruled by his own fierce desire for revenge and lust [32]. In the film, he falls in love with a woman named Hel, but Hel chooses to rule the city and dies after giving birth to the protagonist; Rotwang pretends to have created the robot to resurrect Hel, ostensibly at the behest of the city lord, but in fact he is secretly working to create a destructive desire among the wealthy elite of Metropolis secretly instructs the robot to cause [33].

Rotwang's visual image has had a major influence on the stereotype of the "mad scientist" in popular culture. First, the crude appearance of his laboratory contrasts with his cosmopolitan fashion sense. The laboratory is filled with scientific tools: bubbling glass containers, twisted and intricate pipes, and Tesla coils, dials, and controls of various sizes. These elements influenced the design of many laboratory scenes in subsequent films [34]. Second, his appearance and dress code are also groundbreaking. In the plot, Rotwang loses a hand in the process of developing a "robot". He, therefore, fitted himself with a fully functional metal prosthetic hand and put on a pair of black rubber gloves. This made the black rubber glove the symbol of a mad scientist for a while. In addition, Rotwang's unkempt hair, crazy and ambitious eyes, and exaggerated smiles and gestures were also used as references by later mad scientists. For example, Dr. Meirschultz trying to bring the dead back to life in "Maniac" (1934) [35].

One study examined 1,000 horror films released in the United Kingdom between 1930 and 1980. The researchers found that 30% of these films featured mad scientists or their creations as villains, and even when they did not, 39% of the threats in the films appeared as a result of scientific research. Scientists appear as heroes in only 11% of the films. And most of the evil geniuses share the same fate, trying to "play God" by creating life, but with doom in the end [36].

The stereotype of the mad scientist generated from AI images is a broad forehead, disheveled hair, thin, wearing glasses, white shirt, white robe, or formal attire, and carrying scientific tools.

In conjunction with further research on specific mad scientists, we categorized these elements according to the characteristics of the mad scientist they are intended to display.

Stereotypes reflecting intellectual traits: a broad forehead, glasses.
Stereotypes that reflect madness: messy hair, skinny.
Stereotypes that reflect identity: white shirt, white coat or formal wear, having scientific props.

The stereotypes we ended up keeping were: skinny and having scientific tools. The reasons for this are as follows:

1. Based on our study of Frankenstein, we thought it was important as a prototype to have the character embody the madness of trying to play God. Therefore, our first step was to keep the stereotype in such a way that it embodies the characteristics of madness. Disheveled hair is a good representation of insanity, but at the same time, it is the opposite of the stereotype of a tyrant with sparse hair. So we believe that interchanging these two points should produce a more pronounced result.

2. stereotypes that reflect identity, and chose to have scientific tools. Rotwang's study shows that even without a lab coat or formal attire, having scientific tools in the character's hands or in the background can reflect the scientist's identity to some extent. Therefore, no other clothing options were chosen.

3. stereotypes that reflect intellectual traits were not kept because they are also reflected in the scientific tools.

4. CONCLUSIONS

We once again summarize our methodology and its strengths and weaknesses.Sort by order of shortest time used:

ChatGPT + Leave stereotypes to show identity

Pros: can be used by people with no design experience. Fastest method.

Cons: May be subjective if the selected character prototype does not have a stereotype to indicate identity.

AI image generation + select most frequent stereotypes.

Pros: very fast

Cons: need to summarize stereotypes from image results. The highest percentage of stereotypes are likely not reflective of character archetypes.

ChatGPT + Research

Pros: chatGPT can provide corresponding stereotypes, which saves time.

Cons: Takes time to research information. It doesn't always give the stereotypes that can be summarized visually.

AI image generation+ research

Pros: Sometimes can summarize stereotypes not mentioned in chatGPT.

Cons: most time-consuming method.

This paper documents the last and most time-consuming method. By examining a large number of sources and examining what stereotypical influences were used, we were able to achieve a greater effect of subverting stereotypes. As a result, it was concluded that it would be better to keep the tyrant's "middle-aged" "war-inspired clothing" and the mad scientist's "skinny" "carrying scientific tools" and replace the rest of the stereotypes. This would allow the audience to immediately recognize the original characters and would best distance both characters from their original stereotypes.

The other method is much less time consuming but somewhat more random. Whether one chooses by subjective experience or by the most frequent choices, there is no guarantee of the best outcome. In other words, it is the one that best guarantees that the audience will be able to quickly identify the original character and at the same time move the two characters the furthest away from the original stereotypical image of the original.

In conclusion, if the designer has sufficient time, ai portrait + research or chatGPT + research can be chosen. If there is not enough time, the remaining methods can be chosen. The remaining methods take less time and the designer can try them all to get the desired result.

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