DESIGN THAT USES AI TO SUBVERT STEREOTYPES: MAKE WITCHES WICKED AGAIN

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ABSTRACT

The Witch is a typical stereotype-busting character because its description has changed many times in a long history. This paper is an attempt to understand the visual interpretations and character positioning of the Watch by many creators in different eras, AI is being used to help summarize current stereotypes in witch design, and to propose a way to subvert the Witch stereotype in current popular culture. This study aims to understand the visual interpretations of witches and character positioning by many creators in different eras, and to subvert the stereotype of witches in current popular culture. This study provides material for future research on character design stereotypes, and an attempt is proposed to use artificial intelligence to break the stereotypes in design and is being documented as an experiment in how to subvert current stereotypes from various periods in history. The method begins by using AI to compile stereotypical images of contemporary witches. Then, the two major components of the stereotype, "accessories" and "appearance," are analyzed from historical and social perspectives and attributed to the reasons for the formation and transformation of the Witch image. These past stereotypes are designed using the design approach of "extraction" "retention" and "conversion.", and finally the advantages and disadvantages of this approach are summarized from a practical perspective. Research has shown that it is feasible to use AI to summarize the design elements and use them as clues to trace history. This is especially true for characters such as the Witch, who have undergone many historical transitions. The more changes there are, the more elements can be gathered, and the advantage of this method increases. Stereotypes change over time, and even when the current stereotype has become history, this method is still effective for newly created stereotypes.

KEYWORDS

Multidisciplinary, Artificial Intelligence, Arts & Design History, Stereotypes, Concept Art.

1. INTRODUCTION

In popular culture, characters are often closely associated with certain elements, and stereotypes about the character are formed when these elements are common to various works. For example, if there are two women: a woman wearing a hat, carrying a broom, and standing by a cauldron, and an ordinary person, people always recognize the former as a Witch.

The Witch is a complex character with a long history. In most cases, stereotypes have constancy and continuity [1]. As for the iconography of witchcraft, the witch is a typical character that continues to defy stereotypes through a variety of transformations, including woodcuts, Renaissance oil paintings, images in print, and images in popular culture. In early modern Europe, fear and hatred of the Witch were widespread and persistent enough to be reflected in material culture and art. After the Age of Enlightenment, Witch beliefs faded in Europe, and by the 18th century, political persecution had largely ceased, and images of Witches were no longer as prejudiced or hateful as before. As the century progressed, the Witch became closer to the image with which we are familiar today. In recent years, more and more films have described the Witch positively, and Witches who were villains in earlier films have become positive characters in new remakes. At a time when positive images of witches are mainstream, the reintroduction of witches as villains may be a key point in overturning stereotypes and resolving the longstanding dichotomy between "good witches" and "bad witches".

This study provides material for future research on character design stereotypes, and an attempt is proposed to use artificial intelligence to break the stereotypes in design and is being documented as an experiment in how to subvert current stereotypes from various periods in history. The method begins by using AI to compile stereotypical images of contemporary witches. Then, the two major components of the stereotype, "accessories" and "appearance," are analyzed from historical and social perspectives and attributed to the reasons for the formation and transformation of the Witch image. These past stereotypes are designed using the design approach of "extraction" "retention" and "conversion.", and finally the advantages and disadvantages of this approach are summarized from a practical perspective.

2. CURRENT STEREOTYPES OF THE WITCH

We used wombo dream to generate 50 images of "Witch character design". 96% of the images have the character wearing a hat. 86% of the images have the hat shaped like an overall triangle. 94% of the images have the character wearing a long skirt or a long cape. A stick-like object resembling a branch appears in 18% of the images and is thought to be a cane or broom.
Disco Diffusion was used to generate 50 images of the "Witch Character Design" 98% of the images show the character wearing a hat, and 88% of the images show the hat is triangular in shape overall. 92% of the images show the character wearing a skirt or robeThe skirt is shorter than in wombo dream results, but the robe is essentially the same length.38% of the characters have clearly drawn female curves. 50% of the images show something like a cane or broom in the image. 24% of the images show a pot-like container. The Disco Diffusion character is also more revealing than wombo dream.
Based on these 100 AI-generated images, we summarize the following stereotypes about Witch's character design:

1. Accessories: Witch hat, wand or broom-like object, pot-like container, plant
2. Appearance: woman wearing a cloak/skirt

In addition to stereotypical images, positive images of witches have become mainstream in recent years. The first representative of a Witch in pop culture was Samantha Stephens in the 1964 episode of "Family Guy" (Bewitched). In the late 20th and 21st centuries, Hermione Granger in J.K. Rowling's "Harry Potter" successfully challenged the Witch stereotype. The musical " Wicked", which premiered on Broadway in 2003, was a huge success with the Witch in the lead role. Witch character design in games is also leading to positive images. The game" Little Witch in the Woods" released in May 2022 is an example.

3. ACCESSORIES

3.1. Witch Hat

Carlo Ginzburg argues that in medieval Europe, witchcraft was considered to be based on folk religion or "paganism" [2]. According to historians Apps Lara and Andrew Gow, the term "witch" broadly refers to accused pagans and people who were generally nonconformists in Christian European society, such as Jews [3]. Art historian Yvonne Owens points out that the European depiction of the Witch derives from "heretical" criticism and persecution of Jews [4]. This led to the hypothesis that the Witch hat is of Jewish origin. In this German-Jewish painting, many similarities between Jewish hats and Witch hats can be seen.

The Witch in early modern art is a villain, which is the result of the medieval European rulers associating Jewish hats with symbols of witchcraft, evil, and demons, which the artists were designed concerning.

Witch designs in contemporary art are still influenced by past stereotypes, and it is undeniable that any of these hypotheses are related to the marginalization of specific groups in reality.

3.2. Broom

Anthropologist Robin Skelton believes that the relationship between witch and broom originated in pagan fertility rituals. This ritual involved farmers dancing between wooden sticks, pitchforks, or brooms to encourage the growth of crops. She believes that this "broom dance" has been confused with rumored descriptions of Which gatherings [5].

Another theory is that witches used drugs to create the illusion of flight [6]; by the 16th century, this theory had evolved to the point where witches would use brooms coated with hallucinogenic drugs to enter the illusion [7]. Anthropologist Homayun Sidky disagrees with this view. He argues that these recorded Witch magic potions, whether they were magical or not, were fabricated by the authorities to portray the objects of persecution as more sinister [8]. Given that our knowledge of medieval witchcraft comes primarily from the records of magistrates and law officers, and from the testimony of the accused witches themselves at the time of their torture, one would think that such a claim would be possible.

The French poet Martin Le Franc's 1451 illustration of Le Champion des Dames (The Lady's Keeper) depicts a woman on a stick and a woman on a broomstick. Historians Alan Charles Kors and Edward Peters believe it to be the first known work of Western art to depict a broom and a witch.[9] In 1453, a man named Guillaume Edelin publicly criticized the church and was tried for witchcraft. After his torture, he confessed to a story about a Witch who flew on a broomstick [10]. This is the first testimony about witches and brooms in De Lamiis et Pythonicis Mulieribus (On Witches and Female Soothsayers), a treatise on witchcraft written by Ulrich Molitor in 1489. Some researchers believe that it reflects society's stereotypes of Witches at the time since it uses many visual materials of the time [11]. One of the paintings depicts a Witch in animal form flying through the air using a pitchfork.

In the woodcut "Witches' Sabbath" by Hans Baldung Grien in 1510, the Witch is shown flying on a goat with a pitchfork in her hand. Francisco Goy's oil painting "Witches Flight" (1797) shows witches flying without tools. Ricardo Falero's painting "Witches Going to Their Sabbath (or The Departure of the Witches)" (1878) shows both a broom, a goat, and a witch flying without tools. In the twentieth century, broomsticks continued to be used in the same way. In the 20th century,

brooms remained an important element in the creation of the Witch. For example, Albert Joseph Pénot's 1910 work "Départ pour le Sabbat".

Although the Witch's flying abilities in 21st-century popular culture have diversified, the association between the broomstick and the Witch has not diminished.

3.3. Cauldron

In the 1489 De Lamiis et Pythonicis Mulieribus, weather magic appears in addition to flight. This can be seen in the woodcut in which two witches stand next to a burning cauldron and cast weather spells. Designed by Jacques de Gheyn II, "Preparation for the Univation" (1610) depicts a cauldron and clouds emerging from it. St. James and the Magician Hermogenes, carved by Pieter Bruegel the Elder in 1565, also contains similar elements.

In the 17th century, the witch and cauldron stereotypes were again reinforced in Act IV, Scene 1 of Shakespeare's famous tragedy "Macbeth". In 1775, Daniel Gardner painted this scene, in which a witch and a cauldron are seen in the same scene, but in different costumes. Three Witches in Georgian costume make a potion in front of a cauldron; as can be seen in John William Waterhouse's The Magic Circle of 1886, the Witches' costumes are different from the stereotype, but the cauldron and the stick are still depicted. Some scholars have pointed out that the cauldron and the fog piercing the sky are the author's indications of the Witch's danger [12].

In 20th-century film and television, the cauldron does appear, but the fog from the pot rarely rises into the air as in the earlier painting. Perhaps for technical reasons on the one hand, and on the other, the cauldrons emphasize their potion-making abilities rather than their weather magic.

The above-known images and records indicate that the stereotypical influence of witches using brooms (or other wand-like objects) and cauldrons (or similar containers) was already present and well-established in the 15th century. These two stereotypes, unlike the Witch's hat mentioned earlier, have changed relatively little and continue to this day.

4. APPEARANCES

4.1. Gender

In the early modern European tradition, witches were not exclusively women, but are now stereotyped as women [13][14]. According to estimates for continental Europe, the British Isles, and the American colonies, 75 to 80 percent of those tried for witchcraft in early modern Europe were women [15]. This stereotype was further solidified, and in modern English, "witch" invariably refers to women. The Concise Oxford Dictionary defines "which" as "a witch, especially a woman believed to have dealings with the Devil or an evil spirit". a woman supposed to in the 21st-century fictional work Harry Potter, the male witch is replaced by the term "wizard." LARA APPS and ANDREW GOW point out that the term "wizard" was rarely used as a synonym for the male witch in premodern sources and argue that to use different terms for male and female witches is to exclude men from the discussion of early modern witches [16].

Then, why did witches come to refer specifically to women? Many scholars believe that medieval and Renaissance artworks about witches were inspired by "Canon Episcopi" [17]. In "Canon Episcopi", women use their spiritual power and physical seduction to enslave men and lead them down the path of eternal damnation [18]. This led painters to focus on more seductive women. These artworks are excellent and are not only historic but are also used as references by their

creators. As the elements of Witches' Sabbath (1510) and Witches' prepare, a magic ointment (1571) is strikingly similar.

4.2. Appearance of Witches before the 18th Century

In addition to hats, cauldrons, and other accessories, there were three main stereotypes of witch appearance in pre-18th century paintings: nude female figures, older female figures, and ordinary female figures in the costumes of the time. These three appearances are sometimes in the same painting. For example, a nude older woman is tied to other elements to convey Witch's message.

Most Renaissance images of witches were nude, and as mentioned above, Renaissance painters were influenced by the views of the "Canon Episcopi" and often depicted witches nude and seductively. In addition to this, the 15th and 16th centuries were important periods for Western nude art. Artists with a renewed interest in ancient Greek and Roman art brought the human body back into artistic innovation [19]. In the earlier Middle Ages, nudity was considered sinful, and art was primarily for religious purposes.

After the Reformation of 1517, painters were able to choose their subjects more freely, moving away from the religious realm and toward secular and mythological nudes. During this period, it became fashionable to portray witches as nude women. Lucy Chiswell argues that this practice emphasized the sexual power of the witch and the need to control this sexual power. On the one hand, it associated nude female images with powerful and dominant figures, while on the other hand, it contributed to the rise of the Witch craze [20]. The nude Witch image also merged well with long-standing stereotypes of the Witch.

In the 9th century, Canon Episcopi associated witches with the devil, and in the 11th century, Bishop Burchard of Worms described a wicked woman being deceived by the devil. The wicked woman is spoken of as having crossed the world at night on some animal with the "pagan goddess" Diana. This short sentence shows that the Witch, the Devil, and paganism were inseparable at the time [21]. And it is the nude Witch image that alludes to the sexual relationship connection between Witches and demons.

The first known images of witches in Western art also appear as pagans. And Charles Zika has pointed out that the iconography of witchcraft in the 15th century was often represented by pagan figures of the time, often in groups. For example, Albrecht Dürer's Die Vier Hexen (The Four Witches). Such depictions amplify the pagan threat. Moreover, "pagan" goddesses are often depicted nude. For example, another popular subject during the European Renaissance was Venus. Thus, Witch's nude images were also associated with paganism and heathenism.

The above article summarizes three reasons for Renaissance nude statues.

1. They emphasize the sexual power of the Witch and send a message of the need to control this sexual power.
2. It implies a sexual relationship or connection with the Witch or the Devil.
3. It implies paganism and heathenism.

In addition to nude women, witches are often depicted as old and ugly. Salvator Rosa's "Witches at their Incantations" was painted around 1646, coinciding with the height of the European witch craze. The most prominent figure in the painting is an elderly nude woman making something in a cauldron. Everywhere in early modern print culture, it is implied that the body reveals the inner thoughts and actions of the individual and that the ugly, aging body is a mirror reflecting the distortions of the mind [22]. In other words, the old and disfigured appearance suggests the

wicked mind of the witch. This creative thinking lasted a long time, and it was only around the 19th century that this stereotype was broken in some works.

As mentioned earlier, poor, elderly women made up a large percentage of Witches accused and executed in the English-speaking world [23]. The creation of a Witch is a social process, and the relationships of women within the community determine whether the accusation is successful or not. They had even fewer opportunities for defense [24]. Thus, the older Witch image is also a reflection of reality.

The image of the older Witch is also very similar to the Hag of European folklore. The hag usually looks like a dried-up old woman and is often depicted in fairy tales such as "Hansel and Gretel". The hag is often considered evil [25].

The ideas of early modern intellectuals can be found in William Gouge's bestseller "Family Responsibilities" published in 1622. They believed that men had the right to rule and could govern women through marriage [26]. Witches then destroyed established social norms and threatened the stability of the family, the center of social order. Ulrich Molitor's "De Lamiis" (1489), for example, depicts a woman holding a demon. The figure conveys the Witch's threat to monogamy, as the woman's headscarf in the painting indicates that she is married.

And according to C. Millar, the familiars are considered Which children [27]. In the woodcuts, the Witch is depicted as an anti-maternal figure by having her demonic "child" drink her blood. These paintings convey the Witch's actions as a poor imitation of the British social ideal of the "good mother" [28]. The figure of the Witch symbolizes the harmful, selfish, anti-mother, allied with the devil, a dangerous and inherent enemy within the family and parish [29].

The Witches dress like normal people but engage in acts "outside the norm," and Matalene Carolyn argues that these images and projections of the Witch inversely define the role of women in society. Whatever the Witch is, she is not a good woman [30]. These pictures constantly warned and even threatened women not to cross the line or else they were witches. Multiple examples from the time suggest that women were also dominated by this idea, admitting to being Witches themselves and confessing to being "bad" mothers, "bad" wives, and "bad" neighbors [31].

4.3. Appearance of Witches after the 18th Century

From the 18th century onward, these three outward appearances persisted, although they were no longer malicious and prejudicial.

This is because the persecution of Witches gradually ceased in most European countries in the second half of the 18th century. Compared to the pre-18th century Witch image, the post-18th century Witch image became less associated with the devil and paganism. Scholars have noted that the 19th century saw a diversification of Which images and an increase in positive images [32]. There was also an increase in the fusion of the Witch with other characters, such as Cunning folk, fairy godmothers, and gods.

The positive image of the Witch today is inherited from the above fusion. The older Witch image developed into the Fairy Godmother, as in Sleeping Beauty and Beauty and the Beast. The ordinary female figure evolved into the folk healer, well-versed in medicinal herbs. The nude Witch image evolved into the sexy or fashionable woman.

5. DESIGN

First, in terms of character positioning, the dichotomy of "good witch" and "bad witch" still exists in popular culture. But it is undeniable that positive portrayals of witches are the norm, especially when considering the creations of independent artists. Therefore, to overturn the current stereotype, we decided to return the role of the Witch to that of a villain. On the other hand, in terms of visual imagery, although there have been breakthroughs in the portrayal of the Witch in many works in recent years, through AI, we can see that the Witch stereotype is still deeply rooted. Therefore, we examined each of the stereotypes compiled in the AI and compiled a chronology of their development. Based on these past stereotypes, a character concept for the villain witches was created. The table is shown in Table 1.

Table 1. A chronology of the development of the image of the witch

	Overall	Witch hat	Brooms	Cauldrons
Middle Ages (before the 14th century)	Associated with the devil, appearing mainly as pagans or people tempted by the devil.	They rarely wear hats.		It was already present and established in the 15th century.
14th ～ 17th century	While nudes are usually depicted during the Renaissance, another image references a typical housewife of the time, especially a old woman.	Based on the dress code of the time. Some wear witch hats.	It was already there and established in the 15th century.	The mist from the pot often rises into the air. It is usually combined with weather magic. In some cases, it is used to make potions.
18th ～ 19th century	Stereotypical images, such as the broomstick and the witch's hat, are almost fixed. At the same time, character development was diversifying.	The image of pointed hats is almost solidified, mostly wearing witch hats.	It is represented not only by brooms, but also by pitchforks and sticks.	In addition to the cauldron, there are also large containers.
20th ～ 21st century	Witches in everyday clothes have increased and fashion and gothic features have been added, but the stereotypical image still remains. In recent years, positive images have become mainstream	Most are wearing witch hats.	With relatively little change, the stereotype has continued to this day.	It still appears, but is almost exclusively related to potion making, not weather magic.

5.1. Elements Extracted from Past Stereotypes: Demons and Pagans

From the stereotype of the Witch's Hat, we extracted the Devil. Among the many hypotheses about Which hats, we decided to examine the hypothesis about Jewish hats in detail. The reason for this is that there are many similarities between the historical persecution of Witches and the persecution of Jews. For example, stigmatization is associated with the devil in both cases. On the other hand, the broom stereotype is associated with "pagans. Some scholars believe that the connection between witches and broomsticks may have its origins in pagan rituals, and the decline in the persecution of witches since the 18th century is largely due to the weakening of the association between witches and pagan demons. Thus, we believe that these two factors are key to the re-emergence of the Witch as a villain.

5.2. Elements Retain from Past Stereotypes: Gender, Old Age, Nudity

Witches in current popular culture refer specifically to women. Research shows that male witches do exist and that in some areas men are accused of being witches more than women. At the same time, the men accused of being witches, ranging from vagrants to clergy, rarely share common characteristics. This is a subversion of stereotypes and therefore designs the Witch as a normal male. Conversely, in the case of female witches, middle-aged women are more likely to be considered witches, and many works depict witches as middle-aged women. This reflects the thought that "old and ugly appearance signifies the evil heart of a witch". Therefore, we designed witches as elderly women who are confident in their beauty. Witches in popular culture are almost identifiable by their costumes. Therefore, we retain elements of Renaissance nudity. They are also depicted on the ground in Hans Baldung Grien's "Witches' Sabbath" (1510) and in the woodcut "Witches prepare a magic ointment " (1571), referring to the bones scattered on the ground. We are designing nude, bone-wearing pagans as witches.

5.3. Elements converted from Past Stereotypes: The Cauldron and the Stereotypical Witch Image

In early modern works, it is clear that cauldrons are often depicted in the midst of weather magic. In popular culture, on the other hand, the Witch cauldron is often associated with medicinal herbs. Therefore, the stereotype of the cauldron is converted to weather magic. The Witch is represented by an image of a Witch manipulating light sources and being constantly illuminated by top and back lights. The stereotype of the Witch is so strong that, for example, most people associate the Witch with her hat and broom. Also, in modern times, Witches are often depicted in groups to represent the danger of paganism. So, in the final design, we silhouetted the Witch stereotype and filled it with three Pagan bodies.

The design mind map and concept sketches are shown in Fig. 1 and Fig. 2.
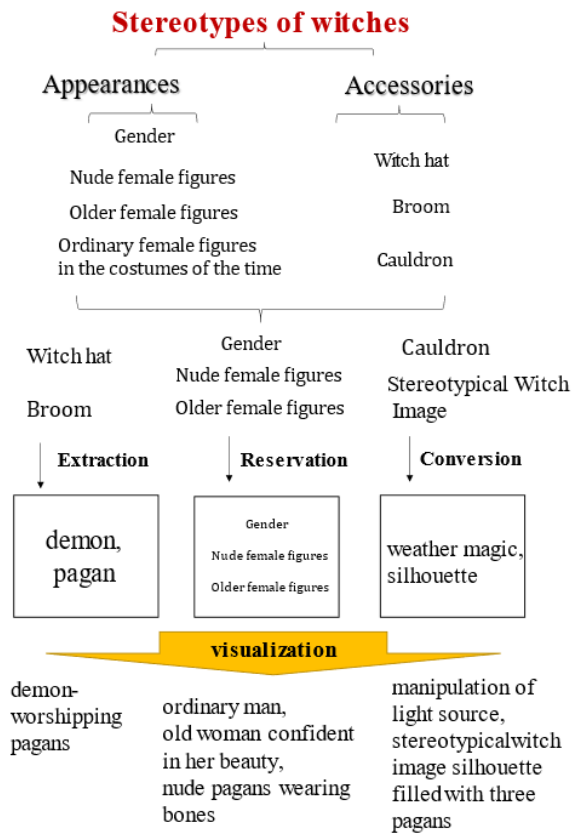

Figure 1.   Design mind map

Figure 2.   Concept sketches

6. LIMITATION AND CONCLUSION

Research has shown that it is feasible to use AI to summarize the design elements and use them as clues to trace history. This is especially true for characters such as the Witch, which have undergone many transitions throughout history. The more changes there are, the more elements can be gathered, and the advantage of this method increases. Stereotypes change over time, and even when the current stereotype has become history, this method is still effective for newly created stereotypes. However, it is still unclear whether this method can be applied to characters with a short history, especially if the stereotype has not changed since the character's birth, which theoretically makes the "find from past stereotypes to overturn the current stereotype" method impossible. This method also has the disadvantage of being time-consuming. If design time constraints are short, we do not recommend this method.

Finally, we do not think that making the Witch a villain again is a regression. First, it was designed in a different context than history and is not malicious. Second, the current mainstreaming of positive witches is a reversal of the "bad witch" stereotype of the past. We cannot stop overturning current stereotypes in order to keep creating new ones.

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