Character Design based on the Interpretations of Ambiguous Images

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Abstract: In this paper we aim at presenting new approach in character design, which involves employing visual interpretation instead of rough sketching as an initial drawing step. We are taking cue from the famous Rorschach Inkblot Test, with disregards to its psychological analysis, we shift the focus towards the implementation of its imaginative side by employing the interpretation of symmetrical abstract inkblots as a stimulus for ideas, where one can rely only on the brain's visual experience to perceive an object, then use this perception to draw new character designs. In this paper we provide solution to the following problems: 1) What type of characters can we interpret in an inkblot? What are the visual aspects that affect character interpretation? 2) How can we control the interpretation in order to get predetermined characters? 3) In what areas utilizing inkblot interpretation can benefit the character creation process?

We started by creating a set of ten inkblots following similar technique to that in the Rorschach test. Then we asked a number of participants to examine each inkblot, look for an image or a hint of a character and draw their interpretations. The traced drawings were collected to be scanned, reviewed and analyzed. We used our findings to create "figure-blot" an inkblot pattern that approximates the human body features and blends ambiguity of details with clear object identity. The "figure-blots" were installed in the form of character flip-book, where the viewer has the advantage to modify subject of interpretation in order to achieve desired character perception. We made an experiment that involve asking participants with limited drawing skills to use our "figure-blot flip-book" prototype in order to find an interesting perception of a character. The results have shown notable efficiency in terms of achieving quick character conceptualizing, however the flip-book prototype would require some refinements in order to cover wider range of character interpretation possibilities. We believe that our method is easy to use and has the potentials to aid character designers particularly during brain storming sessions and early stages of production.

Key words: Character Design, Inkblot Printing, Visual Interpretation

1. Introduction

The inkblot is a symmetrical abstract pattern that can be produced by random drawing with ink on a piece of paper then folding the paper in half in order to get the ink pattern printed symmetrically.

Many character designers agree that coming up with ideas and building upon them is sometimes a challenging and daunting process, they often complain about their design efforts that took hours of hard work being rejected within

couple of seconds when it is reviewed by the producers. On the other hand producers would evaluate a "good designer" by his/her ability to transform written information and ideas into a design that reads well in terms of visual presentation. To keep their innovation wheel spinning, designers tend to arm themselves with good visual reference library for inspiration along with deep understanding of drawing fundamentals. However too much visual references can cause repetition that kills innovation, also over-sticking to drawing rules is not always the best way for artistic creation according to Feng Zhu an industry veteran who have developed an interesting method to deal with these issues as he explains in one of his online video tutorials "...specially for students who are enrolled in design schools, they are subject to a lot of rules such as perspective, anatomy, camera and focal point...etc and it is also the kind of rules that is when it comes to design, most students have to mentally prepare themselves for, and when they start to work, sometimes the rules start to take over the design and then it guides their process. For industry people, sometimes we start drawing with absolute chaos (random lines and strokes) but when keeping all the rules in mind, you start to see the design forming from the different light situations that is occurring through out the randomness, we like to call this Happy Accidents." Similarly, our approach in this paper also involve the employment of visual interpretation instead of rough sketching as an initial drawing step. We suggest employing the interpretation of symmetrical abstract inkblots to stimulate ideas, where one rely only on the brain's visual experience to perceive an object, and use this perception to assist creativity. We suggest that inkblots can help both professionals and non-professionals to sidestep their logical brain to access the creative side right away. What one sees in an inkblot can be the impetus for a concept or an idea, it can aid in character development by providing a visual workout for producers and character designers to build upon.

At the end of the 19th century, games involving the construction of imaginative interpretations of symmetrical inkblots known as "Klecksography" were common among children in Europe. Inspired by this game, the famous Swiss psychiatrist Herman Rorschach (1884, 1922) would go on to develop his famous inkblot test, in which the perception of inkblots was recorded and then analyzed using psychological interpretation in order to discover the underlying structure of the personality. In this paper we are rather concerned with the imaginative possibilities of the inkblots and it's implementations in character design.

1.2 Related Work

This paper is inspired by the prominent works in the areas of learning applied to character shapes and proportions; it can be compared to researches related to the usage of systematically stylized templates for character design generating purposes. To a certain degree, this paper also intend to employ pre designed inkblot templates for the same purpose of generating characters, However our study differs on one basic factor; most of the related researches have introduced character generating methods based on the conventional character designing trends, which is widely anticipated in animation classics, 3D movies, Manga and so on. These methods have proved to be useful in terms of helping unskilled artists to create characters or to control the visual content in order to fit the literal descriptive outline of the character. In contrast, we are pursuing a different goal to fulfill, that is to be generating new character concepts other than systemizing its visual appearance. Furthermore our method is aiming to provide a drawing tool that can be used by people despite their drawing skill level in order to visually enhance the communication between production and creative departments inside the studio.

1.3 Research problem

According to Dr Marcus du Sautoy a renowned oxford mathematician “symmetry is nature’s language, it helps us to understand so many different bits of the scientific world... for example molecular structure; the swine flu virus is a symmetrical object and it uses the efficiency of symmetry to be able to propagate itself so well, but on a larger scale of biology, actually symmetry is very important because it connects genetic information. In the daily life, people seem to consider symmetrical faces good looking; it is a sign of good genes and good upbringing”.

In this manner we define the unique nature of inkblots as combinations of neat symmetry that draw ties to living beings and the spontaneity that strikes inspiration. But with such understanding, the sole problem of this paper arise, how do we harness this beauty of inkblots so we can benefit the character designing process? We know that in professional working environments; design objectives are being already determined and focused brainstorming is heavily required with little time to waste on random thoughts and ideas. In other words, the whole approach seems inefficient when it’s put into practice. Imagine a designer trying to get inspiration of a kid character by looking through inkblots, probably a great amount of time would be consumed till the desired concept or idea is interpreted, meanwhile many random hints of various characters might pop out, animals, insects, aliens but not the targeted subject.

2. Methodology

2.1 The Relation between shape and interpretation

Inkblots are random and have no particular shape. Sometimes looking at them seems too abstract and has no graphical meaning, sometimes they could resemble an insect appearance, an animal, a human or all the images combined together in one single blot. First step to make use of them is to differentiate their shapes and separate them according to their interpretation validity. We ran an experiment starts with creating a set of ten inkblots made out of black watercolor. With the help of Kyushu University students, we gave copies of the inkblot set to a number of 38 participants (male: 22 /female: 16), each copy was provided with tracing papers attached to it.

The students were asked to look for an image or a hint of a character and trace their interpretations, the drawings were then collected and scanned, each drawing was given a code regarding to its original inkblot and the number of the participant. Later, the drawings were reviewed according to the following aspects:

(A) Interpreted character part: Face, Body, Other.

(B) Interpreted character type: Human, Animal, Creature, Other.

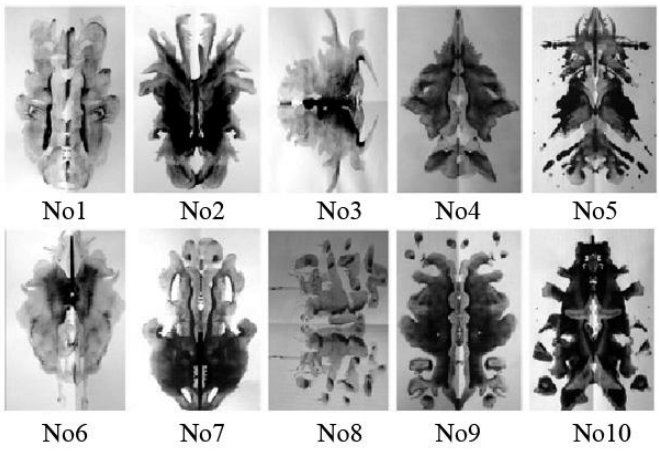

Figure.1 The original ten inkblots that were used in the experiment.

(A) Interpreted Character Part

Body	64%
Face	11%
Other	25%

(B) Interpreted Character Type

Creature	32%
Animal	30%
Human	8%
Other	30%

Figure.2 Inkblot No10 with resulted scores of aspects of interpretation (A) and (B) based on the experiment results.

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Note that the "Other" value means either no interpretation was recorded or the traced drawing was too abstract to give any additional meaning to the original inkblot. It is important to take in consideration that an inkblot would be disqualified from the study if the "Other" value was the biggest among the rest of interpretation aspects. Likewise, the final image of the interpreted character is dependent on the topmost value of (A) and (B) aspects. Consequently, the interpreted part of the character (head, body) and the interpreted type (Human, Creature, Animal) is easily determined by checking the higher values in the charts.

We take Inkblot No 10 as an example to this process, as seen in Figure.2 the results of reviewing the collected drawings regarding the two aspects of interpretation (A) and (B). The data in aspect (A) indicates that 64% of the participants had perceived a body in the inkblot, compared to a small number with 11% only, perceiving a face. For this reason Inkblot No.10 represents an image of a body. As for (B) nearly equal values: Creature 32%, Animal 30% in addition to Human 8% which is too small to be considered, leaving us with two possibilities of interpretations: either animal or creature character.

By this example of the evaluation method we determine which traced interpretation to use as a concept for creating the final design. The Figure.3 contains some collected drawings from the experiment based on Inkblot

No10. As we can see in the top row labeled as "Qualified Characters", the four drawings features similarly what appears to be a humanoid bear, in contrast, the bottom row contains examples of "Unqualified Characters" because a relation between the drawings is hardly being noticed, each drawing stands independently, these solo cases of interpretations are hard to be considered as a rule in the study, in most cases they are disregarded.

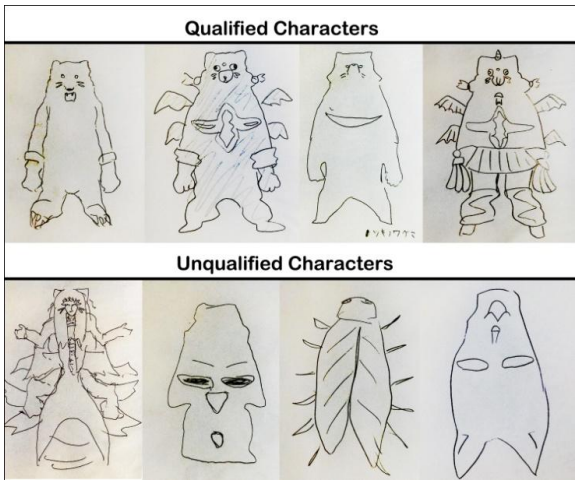

Figure.3 the Interpreted “qualified and unqualified” characters based on inkblot No10.

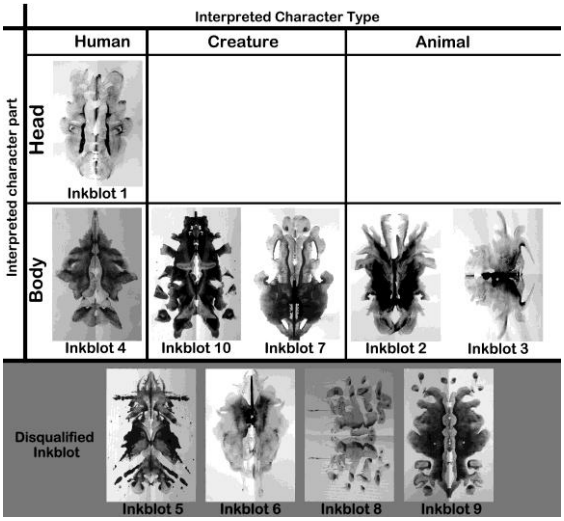

Figure.4 The original 10 inkblots organized according to the subjects of interpretation, the area marked in grey refers to inkblot that gave mostly “unqualified character” interpretation.

As seen in Figure.4 we reorganized the original ten inkblots according to the subjects of interpretation, the horizontal axis refers to the interpreted character part while the vertical axis refers to the interpreted type of character. The area marked in grey contains the disqualified inkblots.

Below we address some of the useful findings we could get from reviewing the collected drawings:

In all of the ten inkblots, participants seemed to be triggered when finding hints of eyes. Symmetric black or white dots make a good resemblance of the eyes as they are scattered all around the ten inkblots, imagining a geometric relation between the dots and other landmarks which according to its relative position, size or shape can resemble other facial features such as nose, cheekbones, jaw…etc.

The perception of faces occurred more with inkblots that have clearer oval shape, However, when an inkblot is positioned upside down, the geometric relation order of the facial features is usually broken, nonetheless it paves the way to a new different interpretation based on the new position.

Interpreting results is affected by the perception tendency of shade and color including black, grey with attention to the negative space perception as well.

The resulted elongations of ink splattering (if it approximates an upward-pointing pentagram) would often be perceived as a resemblance of the bodily features: legs, arms and head. However too many of these elongations as seen in inkblot No2,3,8 would tends more towards insect or creature perception.

The experiment also showed that more than 70% of the total number of collected drawings was interpreted entirely as one object. This means that the judgment of the participants is more influenced by inkblot silhouette or outline rather than details inside.

Ultimately we could form some general thoughts and conclusions that can be considered as positive and negative impressions:

A) Positives: In most cases interpreting any inkblot leads to unlimited amount of ideas and inspiration about characters, what makes it more fun is the fact that the more number of viewers joins the interpretation session the more possibilities of ideas will come out, besides that, positioning the inkblot upside-down just doubles the possibilities.

B) Negatives: Using inkblots to stimulate imagination and creativity is implementable but it suffers from giving too arbitrary results, which is not bad from an experimental artist point of view, yet carrying on with this method to more professional working environments would require more control of the resulted outcome.

2.2 Controlling the results of interpretation

Interpreting a character starts once the first visual hint is grasped. During an interpretation viewers tend to link the randomly oriented blot based on the first hint they saw, then they start to find logical sequence that binds all the hints together in order to create full object perception. Different people interpret abstract objects differently considering differences of age, sex, education, culture, visual experience…etc. According to the findings of the previous experiment which have showed that the silhouette is a fundamental element of interpretation; general silhouette determines more about the identity of an object and less about visual details (See figure 3: four different designs of a bear character that were interpreted based on the same outline).

We suggest controlling silhouettes of inkblots in favor of controlling the overall character interpretation, to do so we have created two sets of half body-shaped stencils. (Male body set and female body set), each set contains three stencils, the stencils for both male and female figures were inspired from two drawings of the human ideal proportions as demonstrated in Andrew Loomis's book "Figure Drawing for All It's Worth". We used the two drawings to create skinny and fat versions of each set. We coded all the stencils as the following: M=Male,

F=Female, T=Thin, R=Regular, F=Fat. Out of 6 original stencils about 60 prints were created, we refer to it as "figure-blots".

All the "figure-blots" were piled and bound together in the form of character flip-book prototype similar to the ones enjoyed by children in kindergartens. Accordingly each print had to be segmented into three parts:

1- Head
2- Upper limb area
3- Lower limb area.

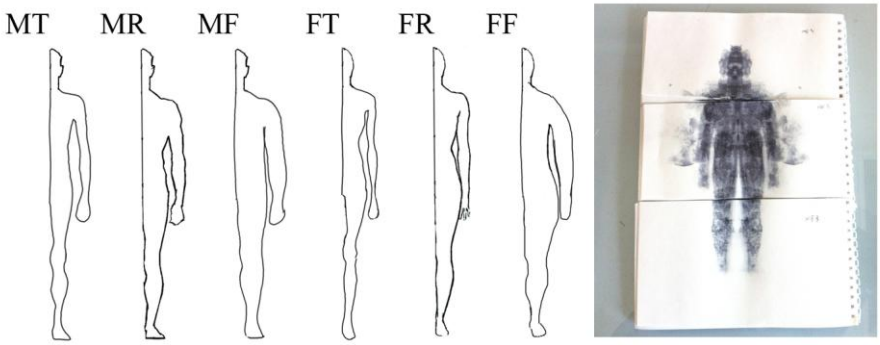

Figure.5 The stencils used for creating the “figure-blots” along with the flip-book prototype.

By using such method, we aim to achieve partial control of character interpretation, since that all figure blots we used share humanoid outline, it suppose to unify the targeted interpretation, at the same time decrease possibilities of getting traced images of unidentified objects or creatures. Aside from controlling the outline; the content of the "figure blot" remain abstract and ambiguous. We believe that the final character design would be a combination of controlled interpretation (figure stencils) and open to interpretation (the viewer's imagination and creativity).

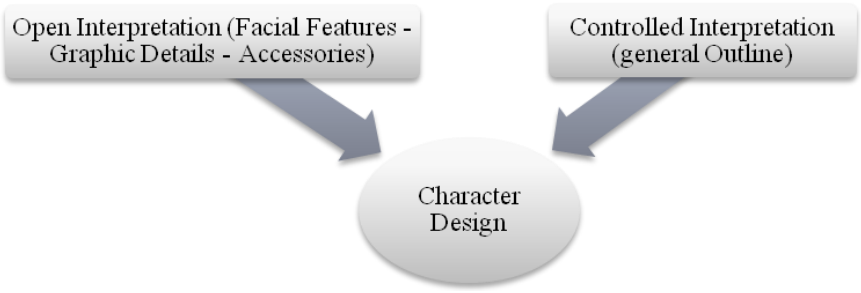

Figure.6 Character interpreting process.

To measure the validity of the proposed "figure-blot" method, we displayed the character flip-book to a group of 20 participants mostly students (Male: 11, Female: 9) from different international origins with various drawing

skill abilities. In a similar way to the first experiment, we intended to let the participants to trace their interpretations, however this time participants were shown 5 card groups and they were asked to pick one card from each group, each card had a character attribute written on it, and all the cards were facing down so the selection occurs on absolute random basis. The idea of including the cards in the experiment is that we wanted to imitate the character design working atmosphere in reality, since real designers have to work on all types of characters and don't get to choose what to design or draw.

The table below shows the content of each card group:

Group Name	Card 1	Card 2	Card 3
1- Gender	Male	Female	
2- Race	Human	Mutant	
3- Personality	Good	Wicked	
4- Attitude	Weak	Regular	Strong
5- Body Type	Thin	Fit	Fat

After picking one card from each group, we asked the participants to check their cards. With limited time of 10 minutes, they were asked to draw two characters (5 minutes for each) that represent the same features written on their cards. For the first character, participants had to use their imagination only by drawing on white paper, while for the second character they were provided with the flip-book to flip through the prints and choose which figure-blot to trace. the experiment also included a simple form were participants had to fill in some information such as: their drawing skill, the time it took for drawing each character, choose which character do they prefer in terms of visual quality and how accurate does the character represents the given attributes on the cards.

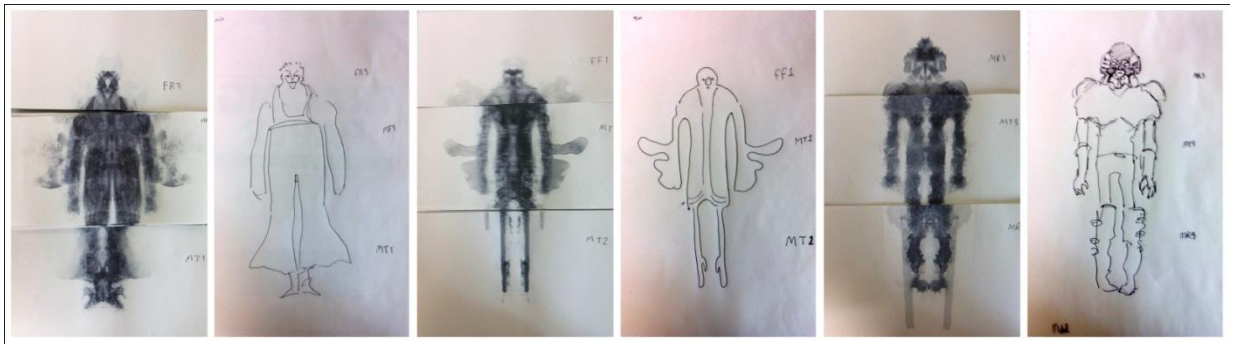

Figure.7 Three examples show character concept designs interpreted from the flip-book with the original figure blot source next to each design.

3. Discussion

The review of the traced character concepts has shown a weak connection between the figure-blots and the character's gender which means that from the same figure-blot we could get both male and female character interpretations, aside from that issue, the real merits and limitations can be outlined as the following:

A. Merits

When looking back to the first experiment, we could notice that many participants took relatively long time interpreting some of the inkblots, in many cases we received blank tracing papers, or some interpretations were as ambiguous as its original inkblot, these cases have shown that some forms of inkblots are unreliable (Figure4. see the inkblots in the grey area). In contrast, participants reacted quickly with the figure-blots. Although some results were difficult to be identified or to be oriented by race or gender yet these unreliable results remain relatively few. The interesting point is that the vast majority of the participants achieved quicker drawing time when tracing the figure-blots compared to normal drawing. The collected feedbacks in the questionnaire have showed that most of the participants think that drawing over inkblots has positive effects on minimizing the time that is usually spent struggling with drawing fundamentals such as anatomy, proportion, pose…etc, to a certain extent we could sense more concept designing presence in these types of drawings.

B. Limitations

The participants in this experiment were not equal in their drawing skills, therefore we got some feedbacks mostly from expert designers and illustrators that they felt their creativity being restricted when being forced to trace a predetermined character poses and proportions. This was basically the major limitation of the study, at this point our method seems to work well mostly among none drawing expert people.

We acknowledge some other points that needs further investigation, for example the two interpretation experiments were affected by the participant cultural background, the Japanese students in the first experiment and the international students in the second experiment seemed to share common interest in Japanese manga, we could feel the elements of manga in the collected drawings most notably in drawing hair styles, costumes and other accessories. We believe that this study would require deeper investigation in terms of the relation between the interpretation and the interpreter which might lead to more interesting and valuable conclusions.

The flip-book experiment can be refined by adding more diversity. So far we only tried creating figure stencils made out of standing pose, besides having stencils made out of one ideal figure proportion, we are considering to include other design aspects such as the body built and tall or short proportions in addition to adding more diversity to the stance of arms and legs that can drastically influence the pose.

We imagine that the flip-book prototype would be best implemented as a creative reference tool, to give designers a quick suggestion for character concepts, Aside from that we believe that the rest of the designing process is to be carried out by the designer.

In the final analysis we would like to emphasize the point that this study presents more of an imagination training and quick tool for generating character concept and ideas rather than being a drawing method. Clearly the traced

characters still need professional effort to be ready to perform in reality. Therefore in Figure8 we will show an example of how to move one of the experiment traced characters to the next level in the design process. As you can see the participant drawing in the middle did not contribute much to the original inkblot, although the body drawing looks dull the focal point of interest is in the head, in fact the participant was trying to illustrate the following attributes as found on her experiment cards: (Gender: Male, Race: Mutant, Personality: Wicked, Attitude: Strong, Body Type: Thin). We took the drawing and did a quick sketch to highlight the facial features she draw ultimately looking like an alien character that may fit for antagonist role in a Sci-Fi storytelling.

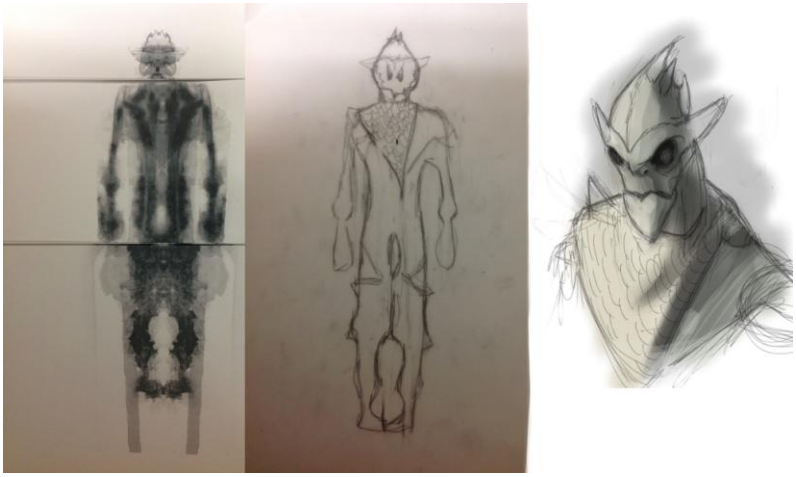

Figure.8 Example of design progression. From left: the original figure blot combination, the traced character by one of the experiment participants, our quick suggestion for the character face.

4. Conclusion

The entire premise of this paper is to employ interpretation of ambiguous images for creating concepts of characters. Based on the drawing experience level of the people who participated in this paper's experiment, we believe that we achieved a decent character creating efficiency in terms of enabling unskilled people to express their ideas about characters in short amount of time. With such conclusion in mind, we can imagine how implementing the interpretation methods in working environment would help filling the gap between the writing and creative departments in one company, therefore we encourage writers and directors to try the proposed methods as a quick way to visually transfer ideas and character concepts to the designers. Using stencils to create figure-blots is flexible method and can be recreated efficiently by any creative studio, we suggest for creators to create their own standard figure stencils so it match their artistic styles.

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