

# Coloring the World of Visually Impaired Character in 'Broken Faith'

Christine Mersiana Lukmanto

Universitas Multimedia Nusantara

Corresponding author. Email: [christine.lukmanto@umn.ac.id](mailto:christine.lukmanto@umn.ac.id)

## ABSTRACT

Colour coordination techniques in animation are crucial in delivering the message and the concept of the story. It maps out the emotion, feeling, and mood of the setting or environment. This research discusses how colour will be utilized to express the psychological aspects between character and environment. Environmental psychology in Broken Faith gives an impression of an uncomfortable atmosphere to the character as she feels the horror and terror of having low vision and living as a visually impaired person. Her emotional and psychological performance in life will be expressed in a coloured environment based on her color psychology by utilizing three dimensions of color: hue, saturation, and brightness.

**Keywords:** *Psychology of colour, Environmental psychology, Visually impaired, Hybrid animation.*

## 1. INTRODUCTION

The computer-based colorization techniques for animation have been developed throughout the years as technology's involvement becomes more accessible and inexpensive. [1] Colour in animation is considered a notable feature in the animated film. The process of colorization could be a challenging procedure and a complicated process that requires times and resources. It is important to understand the audience's response to the psychology of colour.

Art director will use colour to gives attention in emotions, feeling and mood of the story to deliver the message and the concept of the story. The choices of the colour will be decided according to the artistic consequences and psychological responses of the viewers. In Broken Faith film, the character who has a low vision expresses her emotions throughout the hybrid animated movie and the colour would influence viewer's perspective. This documentary film tells the director's event when she was suffering from a low vision in result of Recurrent Corneal Erosion. The researcher will utilize the colour of 2D environment in term of the hue, saturation brightness and colour spectrum which will be related to colour theory and colour harmony based on a low vision's psychology condition on the scene and character behaviour concept on the last research which are temperament, pessimist and introvert. [2]

## 2. PURPOSE RESEARCH

The researcher focuses on colouring a visually impaired world's in a form of 2D environment for a hybrid documented animation that would make the viewers to empathize the character's mental struggle informationally, emotionally and psychologically. The emotion, feeling and the mood of the environments' colour will be portrayed to convey the message and the concept of Broken Faith. Thus, it will be challenging for the researcher as it requires time and resources on colouring each individual objects and characters to let the audience to response psychologically to the experiences, horror and terror of losing sights. This research will use hue, saturation and brightness into consideration in colouring the environment.

## 3. LITERATURE REVIEW

There are few literatures about colour in animation, colour theory, psychology of colour, environmental psychology and psychological of coloured environment which will be used in this research. They are the resources and a guide in the process to colourize the world of low-vision character.

### 3.1. Colour in Animation

Colourization in digital form gives more freedom for the colour artist to alter colour with a range of colours and

to generate the colour corrections to each components of the image such as individual object or character. [3] To create a natural look on the background, a more muted colour was used to complement in a Disney’s cel animated.

**3.2. Colour Theory**

Many mathematicians, physicists and theologians established their own theories to figure out the colour system, the law of colour and the harmony of colour which are known as colour theory. [4] Colour combination theory or colour harmony was then introduced in a form of colour wheel which consists of 6 hues which are placed in an order in a continuous circle primary colour, secondary colour and tertiary colour. [5] Recent studies argue that a variable of lightness of colours and chroma can be harmonious when colours are set in a sufficient distance, level of lightness and similar chroma.

**3.3. Psychology of Colour**

Colour is associated with human emotions measured with a correspondent which results in some associations on material perception and perceptual dimensions. [6] The meaning of colours could be varied based on the human perspective that will determine their mood, behaviour and even their personality based on internal and external factors. [7] For instance; culture, religion, gender, age, race, nationality, society, environment and personal experiences.

**3.4. Environmental Psychology**

Environmental psychology has an important role to human’s behaviour in presenting and improving their relation to natural environment. [8] Fundamental psychological process, the management of social space and human interactions can analyse the human behaviours and experiences.

**3.5 Psychological of Coloured Environment**

Colour is one of the aspects that would determine the psychology of the story in art and animation. Coloured environment has a high influence to human’s performances on their behaviour whether it is a negative or a positive perception to surroundings. It will be affecting their moods and emotions physically, psychologically, physiologically and sociologically. [9] Physical disabilities people are sensitive to environmental colour; they find blue, green and purple colour displayed in environment are destructive. [10] A natural environment where they can find calm, relax and peace could effects human’s cognitive abilities. [11] Blue and green coloured filters on environment design can create an unnatural atmosphere.

**4. METHOD RESEARCH**

This research tries to create a believable world that will fit for the character to live in environment that supports the idea on her fragile psychological traits. Literature study and observation will be the approached research methods for the researcher. She will select the colour to use by looking at the three dimension of colour; hue, saturation and brightness based on the psychology of the character. In order to make the colour of the environment looking more natural and compatible to the character’s’ colour, the researcher will try to minimize the range of colour. The concept of colour to use is to create an ominous atmosphere of terror and fear to the apartment where she lives and the eye hospital.

**5. CONCEPT OF COLOURING ENVIRONMENT**

As it was mentioned on the method research, the concept of coloured environment on Broken Faith is to express character’s psychology distress on having an impaired vision. The colour will be used to give an impression of the world though the experience of terror and fear of losing sights as her visual suffering. As the character suffers from a low vision, the world in colour to express her feeling would be applied based on the psychological condition.

This research will be focusing on the three environments in Broken Faith; character’s bedroom in an apartment, street to hospital and character’s bathroom in an apartment. The Tabel 1 below describes how a character psychological condition determine the dominant colour for each environment based on the colour theory and psychology of colour.

The art director will use blue and green as the dominant colour to make the environmental look more natural and will mute its hue and value to balance it out with the character, therefore the character will stand out more than the background. In the bedroom scene, the character condition is in depressed mood as she discovers that her symptoms of recurrent pain developed. She then feels very uneasy and uncomfortable in the middle stage of the story at the street to hospital. The last scene where she feels relief when she has met her goal in getting the eye medicine but at the same time she feels pity for herself shown by her expression in the mirror.

**Table 1.** Colour coordination based on psychology

Environment	Psychological Condition	Dominant Colour
Bedroom	Depressed, pain, fear	Grey Blue
Street	Uneasy, uncomfortable, terror	Dark Green
Bathroom	Relief, pity, pathetic	Light Blue

## 6. THE COLOUR APPLICATION IN A LOW VISION WORLD

The researcher will apply the colour coordination based on the literature review, observation study and the concept of the colour as figured in Table 1.

### 6.1. Psychological Colour of the Bedroom in a Low Vision World

Character’s apartment will be shown throughout the movie, the story begins in her bedroom apartment and will end in her bathroom apartment. In Broken Faith, the main environment for the character would be in her room. Character lives in a small modern apartment where the space is so compact and designed with bedroom, kitchen, dining room and bathroom.

The hue for the bedroom will be grey and to make it more artistic, the researcher will use value and brightness on the shades of darker blue. This is also decided based on the character emotional state of depression, fear and pain. The white hand strokes will also be shown in the background. This combination will create a slightly uncomfortable feeling to the viewers as it shows the character’s psychological situation, however this blue will balancing out the nature of the environment, the familiar space, the fear and terror as shown in Figure 1.

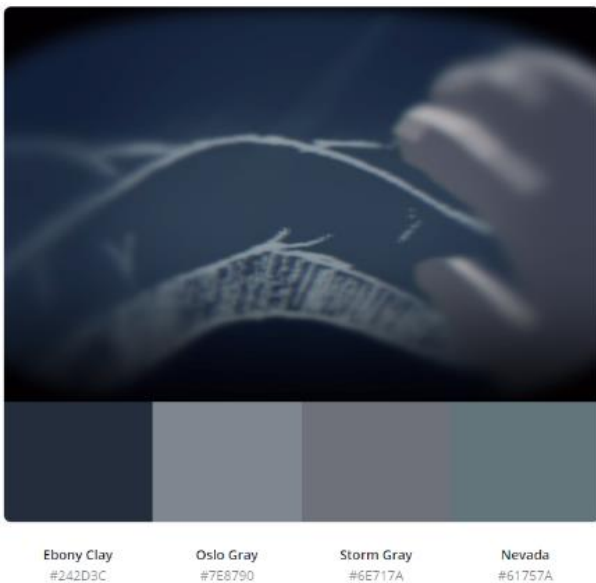






Figure 1 Colour palette of the bedroom in Broken Faith.

In order to get the right shade of colour, it is important to have the colour code in digital. This will allow the right shade when working on a different computers. The colour components of hue (H), saturation (S) and brightness (B) will define the colour based on its value and by looking at its RGB spectrum which consists of red (R), green (G) and blue (B), it gives the details of the hue.

In the bedroom colour coordination, the researchers are aiming at the colour of grey and blue to describe the emotion condition of a character in this scene. In Table 2, it explains the details of the dominant colours which are ebony clay (#242D3C), oslo gray (#7E8790), strom gray (#6E717A) and nevada (#61757A). The HSB of its colour and RGB spectrum will be shown in the table:

Table 2. Colour coordination of the bedroom

No.	Colour	Name	HSB	RGB
1.		Ebony Clay #242D3C	H: 217% S: 40% B: 24%	R: 36 G: 45 B: 60
2.		Oslo Gray #7E8790	H: 210% S: 12% B: 56%	R: 126 G: 135 B: 144
3.		Storm Gray #6E717A	H: 225% S: 10% B: 48%	R: 110 G: 113 B: 122
4.		Nevada #61757A	H: 192% S: 20% B: 48%	R: 97 G: 117 B: 122

In term of the colour harmony, this colour of bedroom colorization in Figure 2 is still considered as monochromatic colour where the colours are lining in one hue. When looking at where the colours are situated which are not in a one perfect straight line, these colours still gives a dramatic atmosphere scene of a character’s depression, pain and fear in her low vision world.

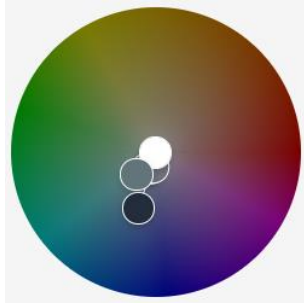


Figure 2 Colour harmony for bedroom colorization

### 6.2 Psychological Colour of the Street in a Low Vision World

In the climax of the story arc structure on Broken Faith, the character will be shown on the street looking as if she got lost on her desperate state. The horror and terror is building up as the character struggles to find her way to the hospital. Pedestrian's path and some pedestrian will be shown in the scene to emphasize how busy the street is and how scary it is for the character to wonder around the street with her low vision.

The current emotional mood of the character is in an uncomfortable state due to her terror of sight loss. She feels uneasy as she walks on the street to find her ways. For this environment, the researcher decides on using a green colour to give more of unconformable feeling. The value and brightness on the shades of darker green will be used to create ominous environment as the character is unfamiliar with the space and feeling lost in the middle of the crowd as seen in Figure 3.

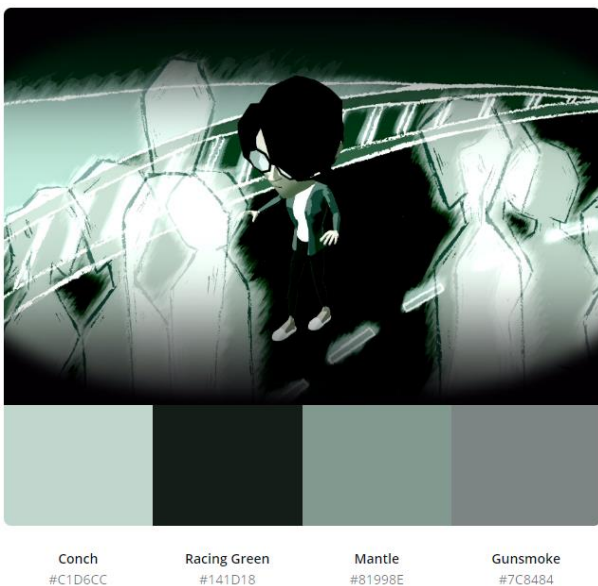






Figure 3 Colour palette of the street to hospital in Broken Faith.

By considering the character's psychological state of terror, uneasiness and uncomfortableness; the colour coordination for the street scene of dark greenish look is chosen to complete the colour design for this scene. HSB and RGB spectrum of the scene are explained in Table 3 which also figures the dominant colours of the street scene; ebony conch (#C1D6CC), racing green (#141D18), mantle (#81998E) and gun smoke (#7C8484).

Table 3. Colour coordination of the street

No.	Colour	Name	HSB	RGB
1.		Conch #C1D6CC	H: 151% S: 10% B: 84%	R: 193 G: 214 B: 204
2.		Racing Green #141D18	H: 147% S: 31% B: 11%	R: 20 G: 29 B: 24
3.		Mantle #81998E	H: 152% S: 16% B: 60	R: 129 G: 153 B: 142
4.		Gun Smoke #7C8484	H: 180% S: 6% B: 52%	R: 124 G: 132 B: 132

The line of the colour selection for the scene is aligned in a one perfect hue of green which are shown in the Figure 4. A harmony of the different values and saturation of dark green in a colour wheel is placed in a category of monochromatic colour. The dramatic effects on character's emotion is the uncomfortableness of her psychological condition.

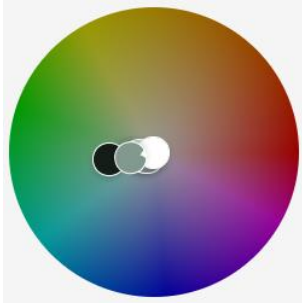


Figure 4 Colour harmony for street colorization

### 6.3 Psychological Colour of the Bathroom in a Low Vision World

The last environment that would be captured in Broken Faith hybrid animated film is the bathroom where the character tries to use the eye drops while looking at the mirror to see her reflection as she pities herself. In this scene, the character pities herself that looks pathetic because of what she just experienced, however at the same time she feels a little relief as she has achieved her goal to get the eye drop on her hand.

Lighter shade of blue will be used for this environment to portray her relief which illustrates in Figure 5. This value and the brightness of lighter blue symbolises the most comfortable atmosphere in the film as the story reaches a resolution of the conflict of losing sights. In the scene, there still will be a white stores in the environment to remark the style of Broken Faith.

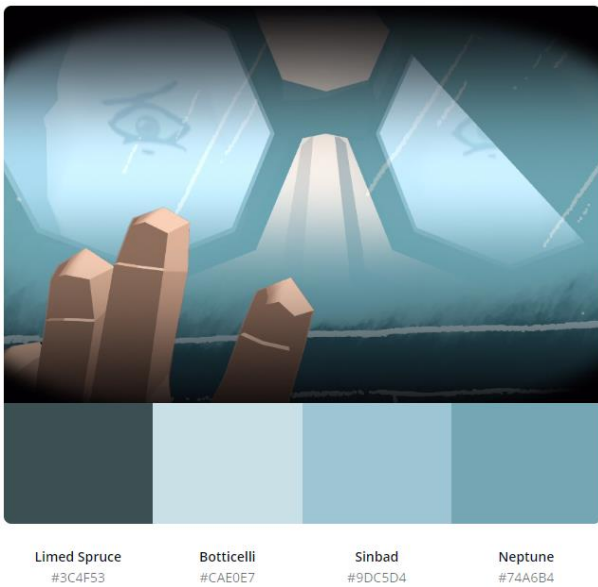






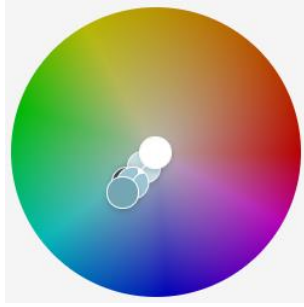
Figure 5 Colour palette of the bathroom in Broken Faith.

The dominant colours in the bathroom scene are limed spruce (#3C4F53), botticelli (#CAE0E7), sinbad (#9DC5D4) and neptune (#74A6B4) which illustrates the world of character’s relief and pain. The HSB and RGB spectrum of lighter shade of blue in this scene are elaborated in Table 4.

Table 4. Colour coordination of the bathroom

No.	Colour	Name	HSB	RGB
1.		Limed Spruce #3C4F53	H: 217% S: 40% B: 24%	R: 36 G: 45 B: 60
2.		Botticelli #CAE0E7	H: 210% S: 12% B: 56%	R: 126 G: 135 B: 144
3.		Sinbad #9DC5D4	H: 225% S: 10% B: 485%	R: 110 G: 113 B: 122
4.		Neptune #74A6B4	H: 192% S: 20% B: 48%	R: 97 G: 117 B: 122

The most perfect line of blue shown in the colour wheel in Figure 6 is applied for the bathroom scene which gives a perfect example of the monochromatic colour. In her world, the relief, pity and pathetic feeling express in the bathroom to display a dramatic image psychological state.



**Figure 6** Colour harmony for street colorization

## 7. CONCLUSION

Colouring the world of visually impaired person is a challenging progress that demands both time and resources. In order to show character's psychological traits which are quite temperament, introvert, pessimist, fearful and fragile to the uncomfortable environment, the art director of Broken Faith uses a variant shade of blue and green to show horror and terror of a person who suffers from an eye condition.

To find the right colour to express character state emotionally and psychologically, it is better to look at the hue, saturation and brightness percentage and a spectrum of RGB of each colour that will be using in every scene. The research's result of hue, saturation and brightness usage to display a psychological condition in depression and uncomfortableness, the colours seem to match well in a darker shade of blue and green whereas to colour to express relief tends to lean on a brighter shade of blue.

These colours should be present as a colour palate. The bedroom, street and bathroom colorization utilized a monochromatic colour harmony to present a dramatic character's psychological state in colour. He colouring process is designed through the literature study and observation study by considering the concept of colouring animation.

The strength of the study is to use a colouring technique with a palette, name and number code of colour while looking at its HSB and RGB. The researcher also shows the colours displayed in colour wheel to present the colour harmony. Significantly, these colours are used to present psychological state of a visually impaired person's world in environment design for the animation. However the limitation of this study is the lack of uses variant of hue and contrast of hue in the. Researcher aims to explore different colour scheme to express both an impaired vision character and a non-impaired vision character as a comparison on a future study.

## REFERENCES

- [1] Bainat, The Power of Color in Animation, 2020, DOI: <https://www.baianat.com/articles/the-power-of-color-in-animation>
- [2] Lukmanto, C. M., Shot Visualization Illustrating the Characteristic Behavior of Low Visually Impaired Hybrid Documentary, ADADA Journal, 2019.
- [3] Brunick, K. L., and Cutting, J.E., Coloring the Animated World: Exploring Human Color Perception and Preference through the Animated Film. Cognitive Media Theory, Oxford University Press, 2014.
- [4] Holtzschue, L., Understanding Color: An Introduction for Designers, John Wiley & Sons, Inc., New Jersey, 2011.
- [5] Weingerl, P., Javorsek., D. Theory of Colour Harmony and Its Application, 2018, DOI: <https://doi.org/10.17559/TV-20170316092852>
- [6] Hanada, M., Correspondence Analysis of Color-emotion Associations, 2017, DOI: <https://doi.org/10.1002/col.22171>
- [7] Tavaragil, M. S., and Sushma, Colors and It's Significance, The International Journal of Indian Psychology, Vol. 3, Issue 2, No. 7, 2016.
- [8] Gifford, R., Steg, L. and Reser, J. P., Environmental Psychology, Blackwell Publishing Ltd., 2011.
- [9] Jalil, N., Ab., Yunus, R., M. and Said, N, S., Enviromental Colour Impact upon Human Behaviour: A Review, Procedia - Social and Behavioral Sciences 35 54 – 62, 2011.
- [10] Moghadam, Z. M., and Mirzaei.,R., The Effect and Role of Colors and Environmental Psychology in Designing Nursing Home Cares, IJCSNS International Journal of Computer Science and Network Security, Vol. 17, No. 7, 2017.
- [11] Michaelis, J. R., The Restorative Effects of Color and Environment Type on Cognitive Functioning, B.S. University of Centrak Florida, Orlando, 2012.