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Integrating a Story-Driven Approach into Creating Concept Art and Character Model Sheets for Visual Intellectual Property

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ABSTRACT

Concept art is a prime phase in game development, especially to support the animation production process by artists. This study focuses on character concept design in a game project titled Aventala, which aims to produce concept art and model sheets as accurate visual guidelines for creating animation models. This process not only emphasizes visual aesthetics, but also the clarity and function of the design as a technical guide. The evaluation of concept art quality was supported through two methods: (1) feedback from players through a questionnaire, (2) expert review from professional character designers and illustrators. The results of the questionnaire showed that the character concept indicating a positive response from users. Based on the results of the review, design iterations were carried out to improve visual quality, especially for the main character. This research shows that a story-driven approach in creating concept art can increase the effectiveness of visual communication and clarify the direction of design in game production to produce visual intellectual property.

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1. INTRODUCTION

Story-driven games became one of the popular genres in the gaming industry, especially because of their ability to present a strong narrative experience and immersive visuals. Examples of games with a similar approach include Genshin Impact (Siliute, U., & Westberg, A., 2023), (A Space for the Unbound Utomo, P. R., 2025), and Detention. Although different in theme and setting, these games have similarities in the presentation of stylized and attractive graphics. Behind the visual quality, there is an important role of the pre-production stage, especially in the development of concept art, which is the visual foundation for the entire game (Mayr, H. C., & Thalheim, B, 2021).

The game Aventala: Adventure of the Mahitala is a story-driven game project in the fantasy genre that raises the richness of Indonesian culture as the main inspiration in the world, and its characters. To realize an immersive and authentic vision of the world, a process of creating concept art and model sheets is needed that is not only aesthetic, but also functional as technical guidelines for the development team, especially 3D artists. According to (Suwasono, Arief Agung, 2017), concept art functions to visualize creative visions in a form that is easy to understand and can be translated into further production. The procedure of creating concept art in Aventala requires several stages, starting from collecting references and compiling moodboards, exploring initial sketches, to refining the final concept, which is poured into a model sheet. The task of a concept artist in this project is very important because they are responsible for creating cohesive character and environmental designs, ensuring consistency of visual style, and bridging the narrative vision with visual execution. Other tasks also have to collaborate closely with the game design team and programmers to ensure that each visual element supports the desired gaming experience.

This study aims to evaluate the effectiveness of the concept art and model sheet design process in the Aventala game. The evaluation was carried out using two approaches: (1) collecting feedback from players through questionnaires, and (2) expert review from professional character designers and illustrators. Input from experts also showed appreciation for the quality of the design, with the main note regarding the aspect of colour selection, which was considered to need to be improved. In response to this, design iterations were carried out, especially on the main character, to achieve a more optimal visual quality. The results of this research confirm that a narrative-based approach to creating concept art is able to increase visual communication and support clarity of design direction in game product development, especially in the context of creating distinctive and valuable visual intellectual property.

This research is limited to disputing the overall concept art creation process in the Aventala game project. The essential focus is on character sketches, model sheets, and illustrations as the final products of the design process. In this context, the concept artist is tasked with interpreting the ideas of the narrative designer into a visual form that can be used by the production team. An appropriate concept is acceptable to the audience and ready to be visualized into an animation model accurately and consistently.

The purpose of this research is to explore in depth the role of the concept artist in producing concept art and model sheets that are in agreement with the previously designed character concepts and character designs. This research aims to help 3D artists translate 2D visuals into 3D models efficiently as well. In addition, this study is a place to train and develop concept artist skills in implementing character design theory and practice, starting from the

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visual exploration stage to final validation through a Likert-based survey used to obtain feedback and refine the design.

The results of the research are expected to be accepted by the art community and the creative industry and are mostly relevant to applicable visual and aesthetic norms. In addition, efficiency in creating visual concepts is an added value that allows artists to produce high-quality work in a more optimal time to produce intellectual property.

2. RESULTS AND DISCUSSION

In the expansion of this research, a process of creating area concepts and character sheet models was developed in the Aventala game. The concept workflow runs linearly and has a part where the director's intervention is needed to ensure the direction and direction of the Aventala world concept. The workflow in Figure 1, Bernaers, J. (2023) Impact of Concept Art on the Character Creation Pipeline, is made to enable the process of creating concept art for several different things, such as creating character concepts and their environments. This method also helps in shortening the efficiency of the time used in creating concepts, especially for character concepts that require several different directions. While for the environment, this method helps to facilitate the worldbuilding that has been created by the director, narrative designer, and story writer.

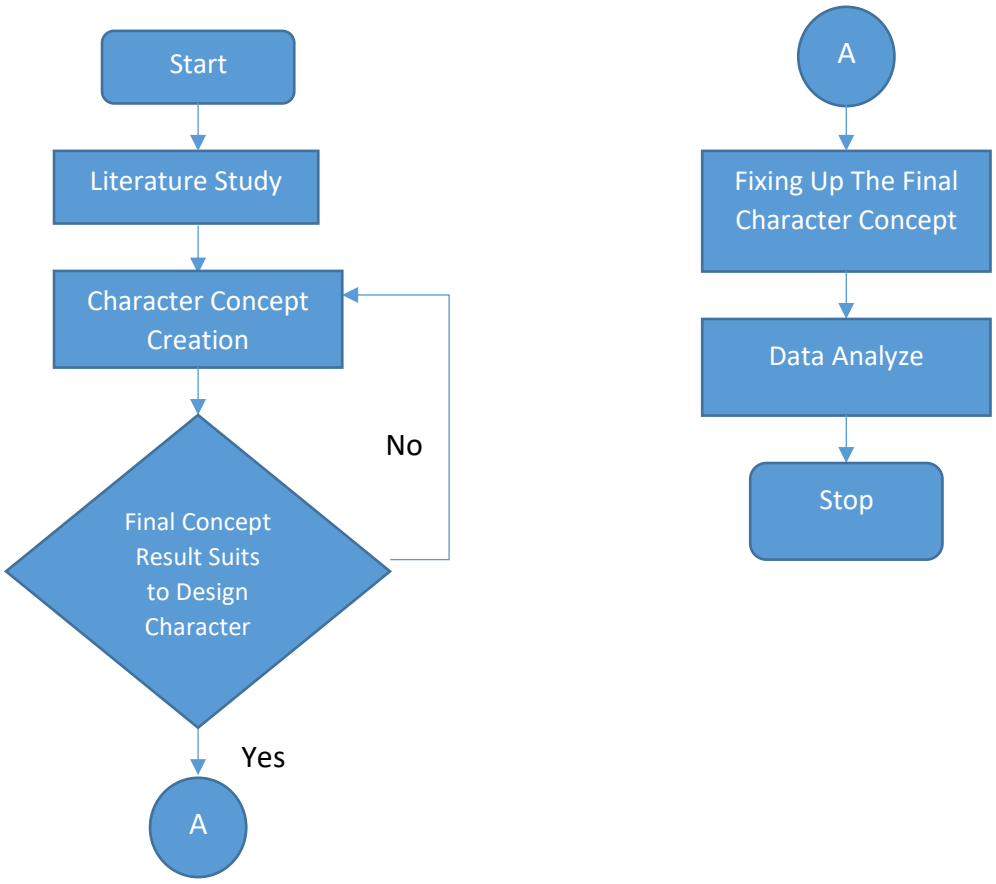

Figure 1. Concept Artist Workflow

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The present research focuses on the role of a concept artist in the development of the Aventala game. As a concept artist, this task includes creating and designing characters that are in accordance with the narrative that has been set by the designer. This involves discussions to determine clothing references based on real-world customs and traditions, as well as choosing colours so that characters are easily recognizable and have unique characteristics that reflect the background and character of each character. Character designs must show their identity and connection to the world around them.

World or landscape concept art: The concept of the environment follows the design and concept of the director and narrative designer, beginning from the environmental conditions and biomes of the area. Concept art takes references from the real world, especially for the colour of the world, to make it look attractive and keep the characters visible using acceptable colour contrast and brightness. The designed environment must also be able to provide a good background story and have a progressive effect that shows the player's journey in the world of Aventala, which continues.

Making a 3D model requires a guide that helps make the 3D model more efficient. Hence, the concept artist has to create a character model sheet that can help the 3D artist visualize the 3D shape of the character and the surrounding landscape. A model sheet is a drawing that explains how a character looks from the front, side, and back. This model sheet provides a clear and detailed reference to ensure that every detail of the character is represented correctly. This not only speeds up the 3D modelling process but also improves the consistency and accuracy of character design from various perspectives. The accepted character design will be received from the character designer in the form of a neat moodboard and will have been given notes on the character's race, ethnicity, stature, and physical appearance. However, the design in the moodboard cannot be used just like that. Therefore, the concept artist has the task of developing the design to make it more attractive. A total of 13 characters were created in this study. 4 characters have normal human forms. Iona as the main character, Maro as the evil panjarwala character, Dewi as a small fairy, and Mr. Indra as Iona's father.

Figure 2. Concept Character of Iona

From Figure 2, Iona's design was developed by adding details to the concept design. Small improvements will help deepen the character's characterization. Details will also help make the character appear more interactive and have a life outside the story. Iona is described as a fashionable character.

The variety of details that can be added to Iona's character can be seen in the design of the pants and top have slight changes but still maintain the silhouette shape of the character

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so that the focus of the character does not disappear. Details are also added to the hips and waist of the character. Headwear is also important to add so that Iona has an attractive and expressive profile.

In the previous technique, character colouring only reached the base colour section, but for the revision, Iona's character will be coloured up to the render section. Rendering requires the character design to be given details that give it volume information on an object. Some of the stages carried out are colouring the base colour, giving shadows to the character to show general and not too bright lighting, and in the last stage, providing highlights and gradations on the edges of the character. Highlights are given to give the impression of parts of the character's body that are exposed to light, and also parts that are covered. On the other hand, the gradation on the edges of the character gives the impression that the character is more voluminous, and curved parts such as legs and clothes can appear more cylindrical and rounder.

With this, the depiction of the Iona character concept has been revised following the suggestions and input from the relevant experts. Iona's character design has also become more unique and has its own characteristics. This helps in making Iona's concept different from other character concepts, making Iona have the impression of being the main character.

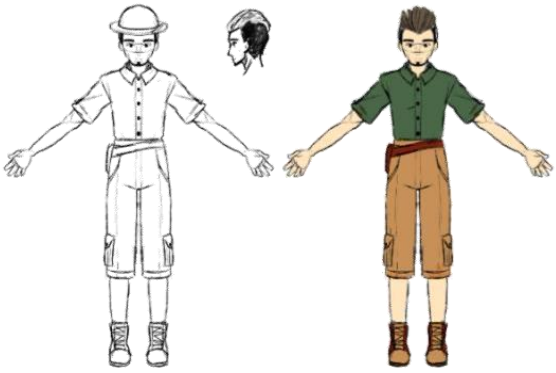

Figure 3. Concept Character and Final Concept of Mr. Indra

Iona's father is an experienced archaeologist. He does not dress fashionably like Iona. The clothes that Mr. Indra wears are simpler and have more down-to-earth colours to give a wiser impression. Mr. Indra's initial concept in Figure 3 is very simple, but it does not show that he is a father, so there needs to be a few changes, such as body shape, expression, and other parts of his clothes. The final concept of Mr. Indra's design. shows that older, navigating the excavation site is quite difficult for him, so he needs the help of a stick. His stomach is also a little bloated, showing his aging and less-maintained physique. His face is made older by adding some wrinkles and narrowing his eyes. Also added a hat because archaeologists often wear them to avoid exposure to the hot sun at the excavation site.

The environment in the game is very important to pay attention to. Starting from the atmosphere, plants, and other objects such as buildings. For the world to have a stylized style like the style of the world that is liked by the target audience, it is necessary to depict objects with a simpler style and colours that match the world as a whole, so that objects can be integrated well with the surrounding world. The environment must remain unique and can also be a good background support for the characters in it. By using the game of colour structure and environmental interaction with the characters as a whole, an environmental

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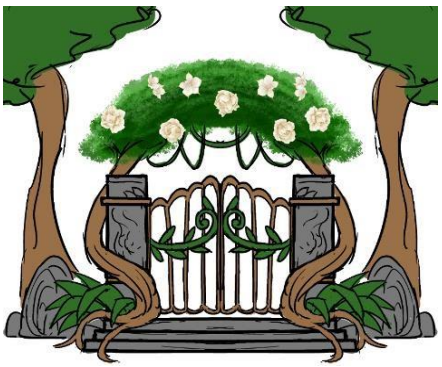
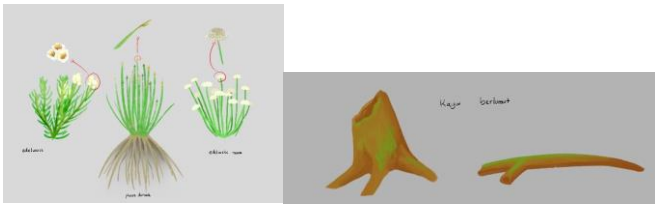
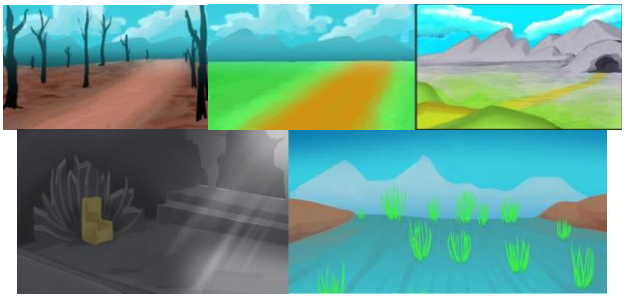
area is created which is divided into 4, namely the tutorial area with a beautiful gate, the chapter 1 area which is a steppe, the chapter 2 area which has various unique vegetation and varied areas, and chapter 3 which is in the sea.

Table 1. The Environment view for Aventala

No.	Environment View	Information
1		Tutorial Area Gate
2		Steppe in Chapter 1
3		Vegetative in Chapter 2
4		Concept in chapter 2

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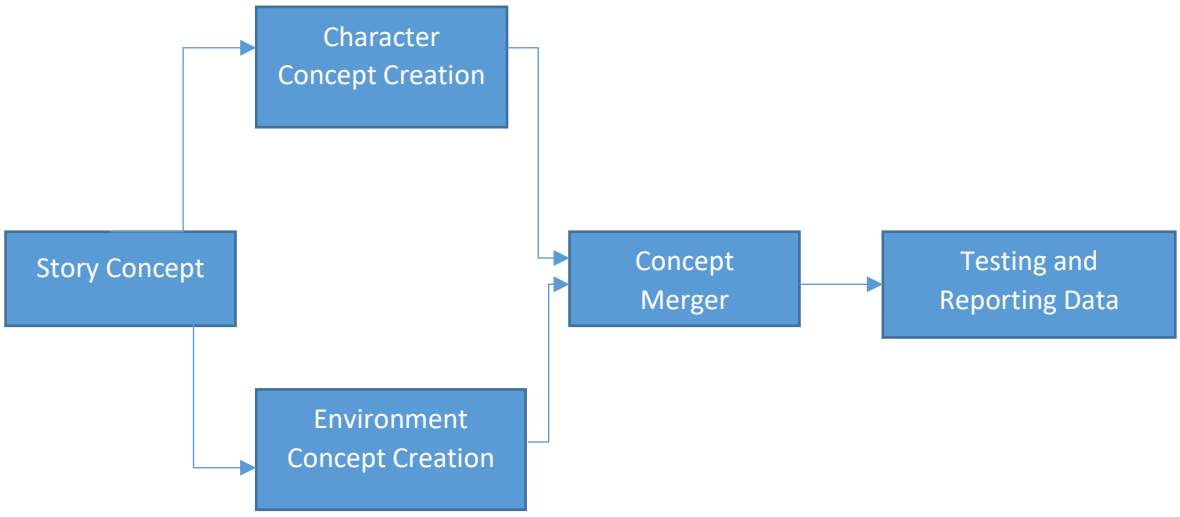

Figure 4. Testing Flow

In Figure 4, testing is carried out to assess whether the concept created can be accepted and understood by the target audience. Starting from the character design, whether the character can be accepted according to norms, and whether the stature has been conveyed well. For the environmental concept, it is tested whether the environment can convey the conditions and circumstances of the world when the story takes place.

The testing begins by looking at the simple initial idea concept as a benchmark for comparing the finalized concept design. Aspects tested include colour compatibility, character style consistency after being made 3D, and others. The method used is a questionnaire and expert review, where the concept art is assessed by Aventala game players and reviewed by professionals who are experienced in concept art. The following is an explanation of the questionnaire method.

The questionnaire given will assess the concept results objectively and subjectively, including player satisfaction with the concept results and their opinions on whether the concept has been able to convey the character's characteristics or not, and whether the concept art is easy for respondents to understand. The following is an explanation of the character design that will be included in the questionnaire. The concepts that will be included in the questionnaire will be divided into 3 categories. Dewi, Maro, Ranangloka, and Aji Daghda are included as important characters, Ki Baning, Ki Brantos, and I'ingku as NPCs. Meanwhile, the concept of the environmental area included is the concept of chapters 1 and 2. Players will assess these characters using a Likert scale from 1 (disagree) to 5 (strongly agree). The statements that will be assessed regarding the 4 important characters are the goddess and the 3 panjarwala:

- The concept (character name) is interesting and easy to recognize.
- The concept (character name) is by the character description.
- The model sheet (character name) helps clarify the character design.

After assessing the goddess and panjarwala, players will assess 3 NPCs, namely Ki Baning, Ki Brantos, and I'ingku. These NPCs have not been included in the game, so players can provide objective assessments. The NPCs in this game are simple and easy to understand, with short descriptions that show their unique characteristics. Similarly, after introducing the

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characters to the player, the statements and scales that have to be filled in will be presented. Here are the statements for NPC characters that are more or less the same as the panjarwala.

- The concept (character name) has an attractive and easily recognizable design.
- The model sheet (character name) helps clarify the character design.

After showing the concept of the environment, in a similar way, the player is given a statement and a scale of 1 to 5. Here are the statements.

- The concept of the chapter area (number) follows the theme.
- The concept of the chapter area (number) already has a colour that is pleasing to the eye.

For the results, each question will be given a graph before being combined, and the average (mean) of each character is calculated so that each character will have its own value. All values will be combined to get the overall value of the concept created.

From some indicators described, several equations were developed to calculate the results of the statements and each concept using the Likert Scale. Character evaluation will follow the data processing method, where each character and question will have an average value. Here is how to process data using a Likert scale. The Likert scale is a technique used in surveys to accumulate numerical data regarding the attitudes, opinions, or perceptions of people who answer. The following is an explanation of the structure and components of the Likert scale (An), as follows;

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly agree
z = related statement (example: The concept of character y has met the criteria)

y = name of the related character/environment (example: Dewi Dhita Naraya, Adhiraja Nahita Rananggloka, and others who were tested)

Tn = number of questionnaire participants

Score Equation for each question

An = number of people who rated the "n" answer
bz = average score of "z" question

$$bz = \frac{(a1\ x\ A1) + \ (a2\ x\ A2) + \cdots \ldots . + (an\ x\ An)}{\mathrm{T}n}$$

Score Equation for each concept

bz = average value of question "z" on "y" concept
By = number of questions on the "y" concept
Cy = average value of the "y" concept

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$$Cy = \frac{b1 \ + \ b2 + \cdots \ldots . + bn}{\text{By}}$$

Score Equation for all concepts

p = aspects, namely attractiveness, suitability, and clarity
bz = average value of "z" question
Bp = number of concepts using "p" statement
Cp = average value of "p" aspect

$$Cp = \frac{b1 \ + \ b2 + \cdots \ldots . + bz}{\text{Bp}}$$

Complete Score

Cy = average value of the "y" concept
E = total number of concepts
K = total average value

$$K = \frac{C1 \ + \ C2 + C3 + . . + Cy}{\text{E}}$$

The afterwards step is to enter all the values into the system usability scale in Table 2. This table shows how good and easy to understand the concept that has been created is.

Table 2. System Usability Scale

Score	Criteria
4,200 – 5	Very good
3,400- 4,199	Good
2,600 – 3,399	Neutral
1,800 – 2,599	Not good
0 – 1,799	Very bad

From the results of data processing and average results, 50 respondents have filled out all questions following the testing method that has been created, and here are the demographics of the respondents. The number of respondents received during the test consisted of 64% male respondents and 36% female respondents. Respondents have analyzed that most of the respondents are not concept artists, so the answers received are not completely objective. Here are the results for each character:

Table 3. Assessment results from respondents

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Character	Overall Score	Uniqueness Value	Ease of Understanding Model Sheet
Goddes	4.406667	4,400	4.440
Ranangloka	4.360	4,320	4,400
Aji Daghda	4.406667	4,460	4.460
Maro	4.333333	4,340	4.280
Ki Baning	4.470	4,560	4.380
Ki Brantos	4.310	4,560	4.300
I'ingku	4.370	4,420	4.320

The next step is testing with expert review. The following is a series of questions that have been created and taken from several journals and books about creating art concepts and player feelings in playing games.

Table 4. Expert Review Question Lists

No	Questions
1	Assessment of the use of composition, contrast, and colors in the game concept, has it been well implemented?
2	Do visual elements such as characters and backgrounds successfully depict the desired atmosphere?
3	How far does the concept art support the overall theme? (Is there anything that feels strange and inappropriate?)
4	Opinions on visual consistency between various concepts? (and visuals in the game)
5	Does the world concept help players understand the setting of the place or time in the game?
6	Are there any concept elements that are distracting?
7	Does the concept art have a unique factor?
8	What are your opinions on the use of color and artistic style?
9	Initial impressions of the concept art that has been shown?
10	Are there things that need to be improved to improve the concept art and also the player's experience?

In general, the concept developed in this study has a number of prominent advantages. Each character designs are considered interesting and has its uniqueness, with the application of colours that consider the aspects of contrast and saturation carefully. The visual style developed provides an artistic uniqueness that distinguishes this study from other game character designs. In addition, the overall concept is considered neat and easy to understand. The model sheet is also considered clear and informative, making it easier for the production team to understand the character design. However, experts also give an analysis of a number of shortcomings that need attention in the next development. The main character is considered to have a good visual design, but the choice of colours is considered too bland and

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less striking than other characters. Several other characters are also considered less unique because they are not optimal in using colours. The concept of the environment still looks quite empty, so it is unable to convey in-depth information about the background story and does not support player exploration. In summary, the model sheet has not been able to fully convey the character's personality, and the background of the world in the game has not been strongly depicted.

As a recommendation, experts suggest improvements in the character and environment aspects. Character designs need to highlight their uniqueness and personality through more expressive exploration of poses and dynamics, and can be complemented with additional illustrations. For the environment, it is necessary to add detailed elements that reflect the conditions and circumstances of the world in the game, in order to build stronger immersion for players. In addition, the anime-style approach used is recommended to be applied consistently, not only to characters but also to environmental elements, to create an attractive visual.

4. CONCLUSION

Based on the results of the questionnaire, which obtained an average score of 4.345 and validation from expert review, it can be concluded that the concept art creation method in the Aventala game project is completely effective. The art style shows consistency and is considered quite easy to adapt to 3D. The arrangement uses a neat and informative model sheet, which also facilitates visual communication between the design team and 3D artists. The character design in general has succeeded in representing the Indonesian fantasy theme carried by Aventala, despite the fact that there are still important notes regarding the way the visuals are conveyed and the choice of colours for several characters that are considered less attractive. From the environment design, the use of colour is quite good, further development is needed in the environment aspect so that Aventala feels more immersive and supports player exploration. Some suggestions for further development include the addition of splash art or rough sketches, emphasizing important elements in the design, reviewing the colour palette, and increasing the detail in the environmental concept so that it can create an attractive visual appearance for intellectual property.

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