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THE RELATIONSHIP OF SHAPE LANGUAGE IN CHARACTER AND ENVIRONMENT DESIGN

Bachelor's thesis

Bachelor of Culture and Arts

Degree programme in Game Design

South-Eastern Finland
University of Applied Sciences

Author (authors)	Degree title	Time
Maija Mehtälä	Bachelor of Culture & Arts	2020

Thesis title	
The relationship of shape language in character and environment design	48 pages 9 pages of appendices

Commissioned by

South-Eastern Finland University of Applied Sciences

Supervisor

Sarah-Jane Leavey

Abstract

The objective of this thesis was to take a look into shape language in character and environment design in video games, and how they communicate with each other when thinking of the shape language. Aside other aspects in design such as colour, shape language is an important part when it comes to telling the story of a place or a personality of a character. This all was done in the form of a personal project, in which a set of characters and environments were created in order to get a first-hand experience in the design work that needs to be considered, followed by a conclusion.

The research methods chosen for this thesis were qualitative interview research and comparative research, as it was considered to both analyze already existing material found on the internet as well as ask other people, both from and outside the game design field for opinions and views. The interview was implemented as a questionnaire which was shared around social media and instant messaging platforms.

The study achieved its goals in analyzing and comparing shape language in character and environment designs in different video games. The studies were successful and straightforward, especially the questionnaire about the author's designs.

Keywords

character design, environment design, shape language

CONTENTS

GLOSSARY OF TERMS

FPS: First person shooter, a genre of shooting games where the player sees everything from first person point of view.

Replay value: A way of thinking of a game's successfulness by thinking whether the game can be replayed without it being the exact same experience.

RPG: Role-playing game, originating from tabletop role-playing games.

Visual novel: An interactive video game genre originating from Japan, typically text-based with visuals to accompany it.

1 INTRODUCTION

This thesis examines shape language in video game character design and environment design and how those two go hand in hand and complement each other. Each shape will be studied independently to find out why certain emotions and moods are associated with certain shapes. After some research and analysis, this information will be utilized in an independent project that aims to prepare artwork for a potential visual novel-type of video game. The main focus lies in character and environment design, and the full process will be presented with figures.

The most important sources for the research will be pre-existing articles and theses on these subjects as well as mostly stylized video games. By analysing pre-existing content, it will be easy to put that knowledge to use when starting a fresh project.

The research question for this thesis is how the shape language in character design is reflected in the environment. Two side questions were then derived from the main one. The first was what different shapes can tell about the location, and the second was are there any common associations with different shapes. These questions aim to look at the stereotypical uses of shape language and find out how crucial it is to follow these 'rules' to keep everything easy to read for the customer or player.

The study is quantitative, meaning that a wider selection of sources will be examined with averages rather than focusing on just a few sources with deeper analysis. The methods used are comparative analysis for comparing the research results (Walk 1998) and interview analysis, which will be implemented in the form of a questionnaire. A questionnaire is a good way of doing a quantitative research, as it is easy to reach large crowds and then compare the results by age, gender, occupation, and other factors.

2 SHAPE LANGUAGE – WHAT DOES IT MEAN?

Shape language – in short – is a way of communicating a character's or environment's personality, mood and purpose via the common shapes everyone is familiar with (Walt Disney family museum no date). The use of shape language can either be straightforward and strong, in which one can easily see the shapes that were used to design a certain object or character, or it can be more vague, in which it might not necessarily be as easily noticed until closer observation. Often when people are presented with the three main shapes, circle, square and triangle, they can instantly associate a certain shape with certain emotion, feeling or meaning. The reason behind this is that these shapes are constantly seen in the environment as well as even in people, and so they get caught in our subconscious. Then when a person encounters a certain shape in a game, a triangle for example, they will instantly make an assumption of what that could mean and whether it has a positive or a negative effect on them.

2.2 General idea of shape language

Shape language exists to make characters, environments, objects and other elements in media easier to read for the viewer with pre-existing associations related to them. It aims to communicate so that when the viewer encounters, for example, an object that is certain shaped, it is immediately easy to tell what this object does or means, since similar to certain colours, certain shapes can also represent certain objects or ideas. When focusing on video games, this is extremely important in simpler, graphically limited games, where the developer wants to make it clear to the player that what can be expected when interacting with a certain object. Then when talking of games with more resources and those that have more complex graphics, shapes can be mixed together, as it will quickly look bland if the shapes are too literal (a character based on circles being entirely full or circles) (Walt Disney family museum no date).

2.3 Psychology

As mentioned previously, certain shapes indicate certain associations or feelings, and this is especially prominent in character design. People may not always even notice it, but they are constantly influenced by the shapes that are everywhere around them and thus associations happen. There is even a science that studies this, which is called the psychology of shapes, and it claims that shapes influence our actions constantly and are also a good element in defining personalities or mental conditions. There have been years and years of research on this, and it has thus become rather clear that what what each shape stands for, what emotions they awaken in people how to communicate via them. (Arhipova no date.)

2.4 Common uses and associations

Shape language is one of the best ways to convey the wanted personality traits and other features of a character as well as tell a story about a location. By looking at each shape on an individual level and going back to their very roots, aka researching why this trait is associated with this shape, it will be easy to take advantage of that knowledge when creating successful designs.
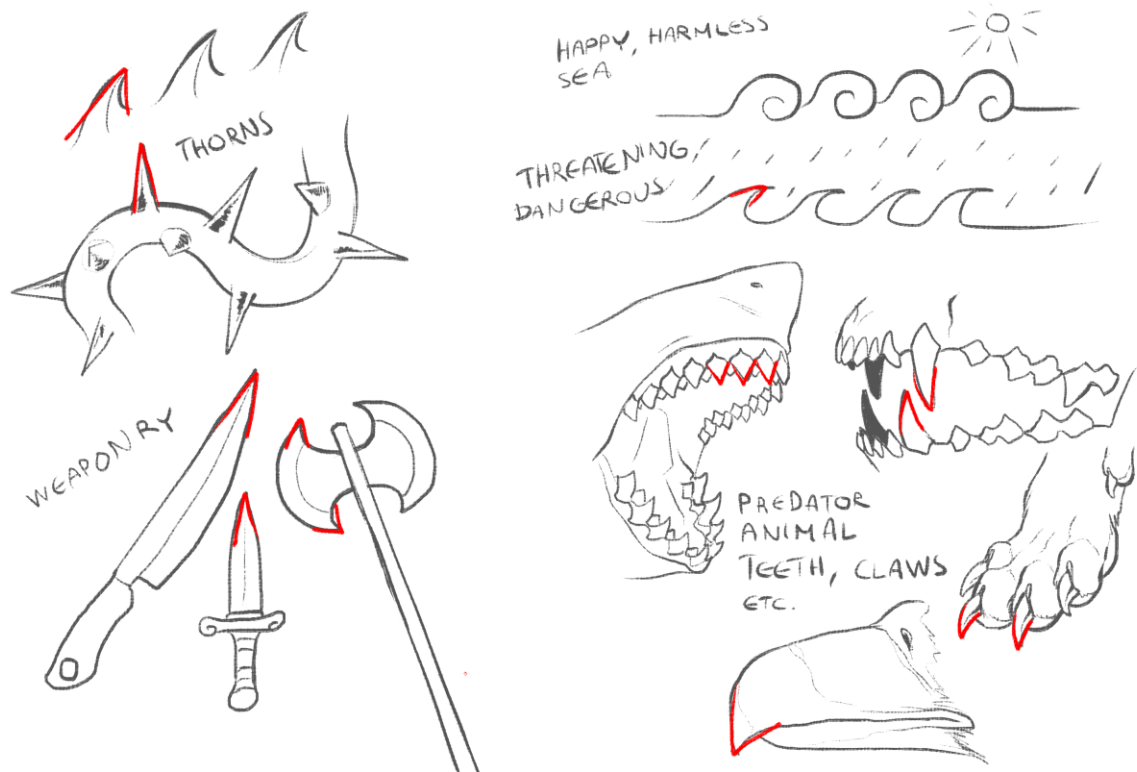
Figure 1. Examples of triangles in nature and man-made objects (Mehtälä 2020).

Triangles in shape language are commonly associated with sharpness, danger, speed, aggressiveness, and confidence (Batchelor 2018). It is rather easy to track these traits back to the surrounding nature, for example thorns in plants or sharp rocks on the ground. Various carnivorous animals also have dangerous sharp teeth, and like most have noticed sharp teeth are a very widely used way of caricaturing anger in cartoon and comic characters, even if they normally had regular, square-shaped teeth. Sharp, triangular shapes are also met in the everyday tools people either use themselves or encounter in the media they consume, such as knives and swords. And what is one of the first assumptions with all the examples mentioned? That they are sharp and therefore they can potentially inflict damage if touched or used irresponsibly. People greet the triangle shape with certain cautiousness, since most instantly think of these associations even if they did not necessarily even acknowledge it. Figure 1 shows some examples of triangles that appear in nature and man-made objects.

With all the points above it is easy to take advantage of triangles when designing characters and locations. It is not surprising that triangles are often used in

creating villainous, evil characters with narrow, sharp faces and body structures or big, dangerous spikes covering their form. When designing areas, it's easy to convey the feeling of danger with thorns, sharp rocks or architecture that has sharp shapes such as spikes as part of its core design.

Aside the associations mentioned above, triangles are also used to express speed and agility. One symbol to look at as an example is the arrow symbol and the many occasions it is used, for example all sorts of racing games where a multiple arrow pattern often indicates a major speeding boost.

When talking about circles in shape language, many most likely think of the following character types: young, innocent, kind, soft, good. Locations with circle shapes tend to be the types to include round foliage, clouds, huts, and other sorts of circular architecture, generally areas that look welcoming and kind. This is because the circle shape is commonly associated with friendliness and warmth as well as organic matters (Naghdi 2020) and therefore can be played around when coming up with the typical good guys or friendly sidekicks and their environments. These associations like with other shapes, come directly from the environment, the best probably being examples like baby humans and animals. There is nothing as pure and soft as a newborn creature, innocent from anything considered bad or evil, round from all shapes, and this brings us to the common associations with the circle.

Many are familiar with the saying of 'social circles', 'circle of life' and such concepts. Those do not come out of nowhere, since circles are also connected to even more positive associations like unity, community, infinity, and harmony. Aside this, circles also appear rarer than other shapes, so it's a good way to attract attention with a circular design amongst other shapes (ConceptStart no date).

Square features then again tend to be given to characters that are strong, big, serious, calm, and trustworthy, unchangeable. The most common character type based on squares is the big, masculine, all muscle-type of personality who has

brawl over brains, but that does not limit its purpose to just that. The square is a solid and stable shape, and therefore it can also be used to represent such personality, even stubbornness (Nikolaeva 2016). Whereas circles and triangles, especially the former are often seen as natural, more organic shapes, squares are artificial and rarely seen around people in other form than man-made objects, like buildings and other structures. Therefore, locations that are heavy on square shapes often indicate a somewhat advanced civilization, no matter if it was an ancient city in the middle of a desert of a futuristic sci-fi metropolis. Squares, however, are still easy to associate with big and strong animals such as bulls, elephants, lions, and other larger animals that's body shape creates a kind of solid, stable square or a rectangle. That kind of animals are slower of speed, but stronger of raw power. Some examples are presented on Figure 2.

Figure 2. Squares appear around people in various ways (Mehtälä 2020).

When considering the shapes in character or environment design it is important to not to get stuck in a single shape. A design is at a risk of appearing dull or static if everything on it is based on a single shape, and aside that it might get difficult to try to base everything on a square for example. This might work on

more simplistic designs, and in some cases the clearer the shapes the better but mixing shapes together to create a design easily gives it much more depth and backstory. A character based on round shapes can be given sharp, triangle accents to indicate possible sharpness of mind or danger, and in contrast a circular object stands out really well as a point of interest in an environment that consists of triangular shapes.

2.5 Breaking the norms

It is definitely the easiest and safest to go with shape language that is clear and communicates the intention of a character or an environment the moment the player encounters it, but to make everything more interesting the design can also be meant to mislead the player into thinking something else, only to be surprised later on. An intimidating character that is based on sharp edges and strong squares might be the hero the player needs, or the brightest area with lots of round and soft surfaces may hide a darker secret beneath. Therefore, in some occasions it might be useful to break the stereotypes by coming up with designs that intentionally trick the viewer into expecting a certain outcome, only to be surprised with something entirely different. A good example is Flowey from video game developer Toby Fox's game *Undertale,* who first appears as the friendliest looking round flower but is in fact the main antagonist with a malicious mind. Another good way of misleading or out of the ordinary shape language is to emphasize such features as weak or strong physicality in contrary to a genius or less sharp mind, and this is a great way to keep characters interesting by giving them strengths and weaknesses.

In general, it does not have to be set in stone which shape represents what, all antagonists do not have to be based on the typical triangles and not all strong characters have to be squares and the same logic goes to environment designs. Those shapes are mainly the common guidelines to make the character or place easy to distinguish and read and to fit the purpose it was created for, but it is always up to the concept of a game whether it is better to follow the stereotype or not.

3 CHARACTER AND ENVIRONMENT DESIGN

Shape language in character and environment design is a good way to give an impression at the very first glance. When looking at a cast of characters, one might instantly be able to tell which character is the protagonist, which character has this and that personality, and who is the potential antagonist or at least designed to look that way. With locations one can tell right away what kind of area this is, what kind of people live here and there and what could possibly be the villain's world. In short, it is to help differentiate different characters from each other and give them some personality, and the same goes for environments.

3.1 Shape Language in Character Design

As mentioned briefly in the prior introduction, shape language exists to tell a character's story, personality and potentially even its background at one glance. By looking at the face, default expression, posture and body type it will already reveal whether the character seems approachable or not, outgoing or shy and quick or slow. Aside looking at this character on an individual level, it can also be analyzed next to other possible characters. A cast of characters is good to look at when there are distinguishable, varying silhouettes that have a clear role and purpose, so therefore even the vaguest shape language aids in creating that. As it was explained, misleading appearances on characters do work as an effective way depending of the context, but there must often be at least some kind of logic in the design.

Figure 3. The main cast from Spyro: Year of The Dragon, of which all sport a different shape language (Insomniac Games no date).

Figure 3 the main character cast of Spyro: Year of The Dragon, a platformer-type of game developed by Insomniac Games and the third game of the Spyro The Dragon-series. The main character, Spyro, which is the first character in the figure, has an all in all memorable character design with shape language that communicates his personality and intent well. Spyro consists of two main shapes: circles and triangles. By analyzing the meaning behind these shapes, it is easy to get the image of a character who is young, small, has good motives yet is fierce and capable of inflicting damage to his opponents. This is Spyro's intention as a character, so the shapes have been carefully chosen to communicate this through.

The other characters from left to right are Hunter, Spyro's cheetah friend who sports triangles for speed and his quirky nature, and squares for loyalty. Then there is Moneybags, who is a minor antagonist and aside the bear-like roundness has a slightly triangle-shaped head as well as sharp, noticeable eyebrows that indicate his not-so-friendly nature. Bianca is a small, feminine rabbit who consists of rounded shapes to represent her good nature and friendliness and is accented by some sharper shapes to give her tendency for strong will some credit. The last character is The Sorceress, who is the main antagonist of the game, and she also is a balanced mix of triangles and circles. The circular, big body type could give a motherly image of the evil mistress, but thanks to the slightly triangular head and the sharp eyes, lips, crown and the neck accessory, her malicious nature speaks through.

The examples described above show how even the smallest details in certain shape can tell more than an overly detailed description about a character's nature and motives. It may not always be easy to notice, but once one is educated to the idea of shape language, they will start to see the shapes behind each design they encounter and therefore learn some important and useful fundamentals for their own possible design work. Even the smallest contrasting shape in the design might be the key feature in it, like in Figure 4 the bear-character Moneybags had only the slightest sharp features in the otherwise round and soft appearance.

3.2   Shape language in environment design

Shape language extends well in environment designs, too, even if it is mostly mentioned when talking about characters. It might not always be as clear and revealing as with characters, but even then, the shapes of an environment tell a good deal about its purpose, what kind of people or creatures may populate it or is there any at all. Stylized fantasy games often tend to have a stronger shape language going on when compared to a more realistic art style as stylization allows the designer to play around with the shapes more freely, but even those that sport a more realistic style have plenty of thought in the shapes.

Figure 4. Concept sketches from Sly 2: Band of Thieves (Dev Madan no date).

One game series that stands out with its creative environment design is Sucker Punch's (2002-2005) 3 *Sly Cooper*-games. Sly is a platform stealth game with a notable art style when it comes to characters and environments, but especially the latter. The stylization in the surrounding nature and cities imitate a similar

exaggeration than it does with the characters, and that gives the art style of Sly a very distinct, unique feeling. Geometric, linear shapes of buildings have been distorted in a way that makes them look just as dynamic as if they had a nature and life in them as presented in Figure 4. Dev Madan, the Art Director at Sucker Punch, used to be a comic book artist at DC Comics and there he learned the tactic of multi-person process in comic book production. That allowed everyone in the artist team to give their own touch to the final style, and Madan's personal idea and thought behind the style was to make the player feel as if they were interacting with a cartoon. (Turner 2004.)

Figure 5. City of Glass from Mirror's Edge Catalyst (Leavy 2016).

The art style of Sly is a good example of some of the most exaggerated uses of shape language there is. But even in games that are not as stylized as that, shape language does play an important part in giving first impressions and feelings. A good example of such game is Mirror's Edge and Mirror's Edge Catalyst, developed by DICE and published by Electronic Arts. The idea in the first person action-adventure games is that you play as courier, or a Runner as they're called in the game, whose mission is to fight against a dystopian, highly surveilled society that is being ruled by a totalitarian government (Moby Games

No Date). The futuristic and elegant City of Glass, as presented in Figure 5, serves as the environment for both games, and thanks to the tall, simplistic yet high-tech architecture of the entire city it gives off a clean, even overly sterile feeling. This and the fact that there is absolutely no living vegetation in there tells of an entirely man-made imperium, and by looking at the shape language it can easily be broken into a variety of squares and rectangles.

4   THE RELATIONSHIP BETWEEN THE TWO

In most media, especially fictional, the environment always tells something about itself at the first glance. The people of it, the way of life of it or the history of it. It can either be very straightforward or then something that requires a bit of inspecting, but in most cases it is there. Video games have taken advantage of this and, especially in games whose graphics reside on the more stylized side, this can be played around with quite a lot when compared to realism.

The relationship between the shape language of character and environment design is usually best visible in fantasy games with little to no limitations to how the world works. Characters can have horns, tails, wings, and other bodily features to tell about their personality or species, accompanied by possible apparel to go with it. Environments then can have land formations such as floating islands, curved rocks, magical structures, and other features that would probably be impossible in realism. This offers a great opportunity when it comes to connecting an environment to a character and it communicates well to the viewer as well and helps them to prepare for what might be coming.

4.1   Comparative research

Comparative research was chosen for the first research method, since it allows the analyzing and comparing of a variety of video games and their character and environment designs and what solutions each game has come up with. By analyzing pre-existing content, it is easy to get an understanding of the choices others have made in the past and whether it's worked well or not, and it will be easier to use that knowledge for future design works.

Figure 6. The Dragon Temple from The Legend of Spyro: A New Beginning (Pullen 2005).

The game chosen for this research was *The Legend of Spyro: A New Beginning*, developed by Krome Studios and published by Vivendi Universal Games in 2008. The Legend of Spyro has several levels for several different characters of various personalities and backgrounds, so it was a good choice for comparing the relationship between the character and environment designs in different levels.

Figure 7. Concept art of Spyro, the main character (Pullen 2005).

Figure 7 presents the main character of the game, Spyro. His design consists mostly of circles and triangles, but the roundness is still present even in the sharper shapes. His palette of colours is warm, even the purple which leans more to pink than blue. This design treatment gives him an appearance of a friendly, good hearted yet fierce personality which he is meant to be.

The Dragon Temple (Figures 6 and 8) serves as the first main area of the starting level as well as the home of the dragons. The Dragon Temple is in this swamp-like area, filled with large tree-like mushrooms and other vegetation aside the temple building. The mushrooms, as the most notable feature, offer a good opportunity for the use of round shapes on an area that is supposed to serve as a safe home area.

Figure 8. Another view of the Dragon Temple (Marc 2005).

Circles have also been noted on the buildings. The walls are curved and the entrances circular, and even most of the engravings on the walls and floors have swirling, round lines. All this and the entire warm colour palette of the area go well with the design of the dragons that reside in that area, especially Spyro himself whose main shapes consist mostly of circles.

Figure 9. The main antagonist of the game, Cynder (Rime 2005)

The art style and use of shape language in The Legend of Spyro: A New Beginning is very prominent and clear, so it is easy to compare another character and its respective home world within the same game. Figure 9 presents Cynder, the main antagonist of the game. The difference to Spyro, who is seen on the figure as a silhouette, is quite drastic, as Cynder's design is mostly sharp and sleek shapes, making her design base on triangles the most. Long, sharp horns, wings and tail indicate danger, and her cold colour palette emphasizes her evil nature, making the design speak for itself pretty well. The roundness in her body parts make her seem feminine and fast, which she is rather than being physically strong.

Figure 10. Cynder's home area in the game, Concurrent Skies (Marc 2005).

The sharpness and danger of Cynder has been noted in her home area, Concurrent Skies which is presented in Figure 10. A dark world filled with ominous looking rock formations with sharp, large crystals growing from them and lightnings flashing in the sky constantly give off a good sense of what is to come in this area. It has a very strong contrast when compared to Spyro's homeland, the Dragon Temple, with all the sharp and rough shapes as well as the mostly cold, blue tones that also go well with Cynder's design. This compared to the familiar and earthy starting level looks very alien and unpredictable.

Spyro and Cynder as characters have thus been designed so that one could associate the environment to each character, from shape language to colours but most importantly the shapes. Spyro is easy to associate to his homeland due to the fact that he is the main character and his level is the first playable level of the game, but even with Cynder – who the player has seen some implications of during the gameplay – once reaching her level it is easy to assume who might live there. Therefore, the shape language in character and environment design in The Legend of Spyro: A New Beginning is very straightforward and speaks for itself.

5   INTERVIEW RESEARCH (QUESTIONNAIRE)

The second research method, interview research, was implemented in form of a Google Forms questionnaire that was shared around on instant messaging platforms. The questionnaire was constructed so that there were first the silhouettes of the three main characters of the project, followed by quick thumbnails of their respective environments. The idea behind these was to ask people for short answers regarding their first impressions of the silhouettes and thumbnails and compare them next to each other to analyze how many similarities occurred. The people answering the questionnaire were asked to specify their age, gender, the types of games they play and their familiarity with game design and shape language. Some of the participants had seen the characters prior to answering, some had not. In general, there were 37 individual responses.

Summarized, the ages of the participants divided quite evenly between those that were 15-25 and 25-35. The most, being 51.4%, were 15-25 years old. Majority of the respondents were female, 45.9% which makes it almost half of them. The remaining 35.1% were male and 18.9% other than the two.

When asked what types of games people play, an individual response was allowed to make it easier for those not so familiar with game genres to respond. RPGs, also known as roleplaying games, were ultimately the most replied with 16 individual responses with some even explaining further the types of RPGs they liked (such as action, MMO, turn-based). The rest were divided between first-person shooters, adventure, platformers, boardgames and action to mention a few that appeared the most.

45.9% of the people answering were either game design students or have studied game design independently at some point, which makes it the majority when asked about their familiarity with designing games. The rest had either only played video games with no other experience or were game developers.

One last question before the silhouettes was that how familiar people were with the concept of shape language, and the majority knew what it was about. Only 21.6% out of 78.4% had no prior experience with shape language, and it was rather easy to see from the following responses since most seemed to have an idea of how to describe characters or characteristics.

Figure 11. The first character based on circles (Mehtälä 2020).

The first silhouette in the questionnaire was the circle-based character, and the respondents were asked to describe it with 1 to 5 words. The silhouette in question is presented on Figure 11. Out of the total of 37 individual text responses, soft and friendly were the most answered features, soft being mentioned 15 times and friendly 13 times. Most of the other responses implied that the character can be seen as a round, kind, warm-hearted and mellow personality, even a gentle giant-type personality. Some others that were not seen as much as the former ones were lazy, dumb, helpful, energetic and caring, and some even implied that the horns could imply something evil and mysterious or that the legs seemed sneaky even if the general appearance gave off a clumsy feeling.

It can thus be judged from the replies that most of the people would approach such character as a soft and a friendly guy, which both gives a great opportunity for clear use of shape language or then room for purposefully misleading the viewer with its appearance.

Figure 12. The second character based on triangles (Mehtälä 2020).

Next was the triangle character's turn, and once again the respondents were asked for a few words to describe it with. Out of all the responses, which were a little more varying than those of the circle character's, evil or similar words such as villainous or "the bad guy" was the most mentioned word with 11 entries. About 9 replies implied that the character is a mastermind of some sort, cunning and intelligent, even backstabbing. The other most seen words were sharp, fast, aggressive, menacing or threatening, and some that were not as common were cold, energetic, competitive, goal oriented, proud, agile, and radical. Some even claimed that the character is most likely either an enemy or the antagonist, and looking back at all of the responses it is clear that a character based on triangles offers a good, easy to read design for either a villain or an aggressive yet clever good guy. Figure 12 presents the silhouette of the triangle character.

Figure 13. The last character based on squares (2020).

And the last character, on Figure 13, was the square-based one, also asked for descriptions regarding what kind of feeling they send off. Strong was ultimately the most answered trait with 18 entries, with no other standing out as much. Most still agreed that such silhouette could imply a big, calm, secure and quiet character with a few guesses of going as far as a mafia person or a henchman of some sort. Some also implied that this kind of silhouette could imply a leader character or a high rank person, and very few suggested that it could be evil or even a main boss. One mention about the legs was that they could imply that under the bulky surface lies a character that's more of a wimp.

In conclusion, the responses to each character were rather solid except for the triangle-shaped character which had a bit more variation in the replies. The circle was seen as the friendly and soft type, the triangle as a potential evil or just a generally aggressive character, and the square was the strong and calm type. All in all, the questionnaire results for the characters were highly successful.

Next up were the environment thumbnails that were sketched for the questionnaire, and they had a similar arrangement than the characters meaning each had a short comment slot for the responders' replies.

Figure 14. The square character's environment as a brief thumbnail (Mehtälä 2020).

The first environment for the responders to comment on was a loose sketch of a city, which is the square character's home environment (Figure 14). The most responded words were boring, calm and quiet, and the feeling of a generic city seemed to come through. Some guessed it to be an abandoned city or fortress, some described it as a hollow or empty place, and some thought it looked normal and safe. Judging from the replies it was realized that the thumbnail could have been a little more detailed to deliver the correct message, since the looseness and roughness clearly gave a much hollower atmosphere than was intended. But for learning purposes it was very helpful as it just shows what should have been done differently and what to improve on it.
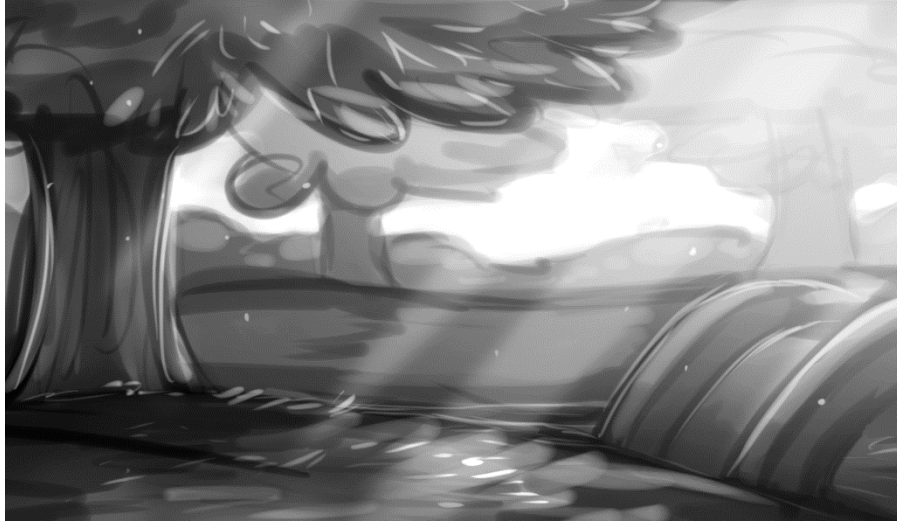
Figure 15. The sketch thumbnail for the circle character's environment (Mehtälä 2020).

Next up was the environment that belongs to the circle character, which is a lush and bright forest full of big trees and streams with small, round bridges as presented on Figure 15. Out of the responses calm and peaceful were the most answered with the total of 15 responses. Other words that the responders described the image with was serene, gentle, familiar, safe, and warm, making the environment design successful as it serves perfectly as the circle character's homeland. A few people described the place as open and quiet, which means some more details could serve the environment better as the coziness and full of life-feeling is something to be emphasized.

Figure 16. A thumbnail sketch of the triangle character's home environment (Mehtälä 2020).

The last of the thumbnails was an environment belonging to the triangle-shaped character, a dark cave lit with torches (Figure 16). Mysterious was the most mentioned word with 13 entries, and the next most replied words were dangerous, scary, unsafe yet inviting and cold. The results were highly expected, as the environment was designed with sharp, threatening looking rocks and caves in mind, allowing the viewer to get the impression of potential danger or at least not feel quite as welcomed as to the other locations. This also serves as a good opportunity to mislead the viewer by revealing that the environment is less hostile or scary than it gives off by its looks. Something that implies a somewhat regular life in the area could be added, though, to soften the atmosphere.

In conclusion, the questionnaire was highly informational and had a good balance of responses that were expected and responses that offered new and unexpected views, making it easier to alter the existing designs even further. It turned out to be a good way to allow for the responders to answer freely to the images instead of giving them limited choices to choose from, since this way it was good to see how many of the responders got the same idea from the sketches without affecting them in any way.

6   IMPLEMENTATION IN A PROJECT

The studies shown prior to this part were implemented in a personal project, which's goal was to design a set of characters and their home world with shape language in mind. The project is supposed to be done as if it was going to become an actual game and thus a storyline and a little bit of the mechanics was thought of, but the main focus is still in the designing and how what has been learned can be utilized in the process.

6.1   Starting off

The project was started off by thinking what type of game the project could be should it one day become a finished game. A visual novel was decided to be the best genre for this purpose since it is heavy on the artistic design and not so on

the programming and mechanics, allowing a better focus on the characters, environment and story.

The main idea with the characters and their shape language was to keep the character designs relatively stereotypical and clear when it comes to the usage of shapes, but still something that makes then unique and interesting. This is due to the subject of the thesis being experimented and studied along the way and wanting to keep it simple and nothing too complex to get a hang of.

Three main characters representing each shape ended up being the set of character designs in the project, and each character got a hometown that emphasizes their occupation, personality, and general feeling on an island which they live on.

6.2   Designing the characters

The thought process began with thinking of what the shapes could stand for. Most often when basing a character on one key shape, it is supposed to reflect their personality traits, and therefore each character would have two main personality traits – one that could be considered their strength and one that works as their weakness. The character personalities were wanted to keep as simple and "black and white" as possible to allow a smooth and easy workflow when it comes to planning the story and to avoid it becoming too complex.

The first shape that got under work was the triangle due to it being the easiest shape to start with and it being the most interesting personality for the thesis writer to work on. When starting, there was no other idea regarding the species of the characters than that they were going to be animals, so several fast silhouettes were made to aid in that and to see which would look the best. Animals, or humanoid/anthropomorphic animals were chosen as the type to allow more room for playing around with the shapes.
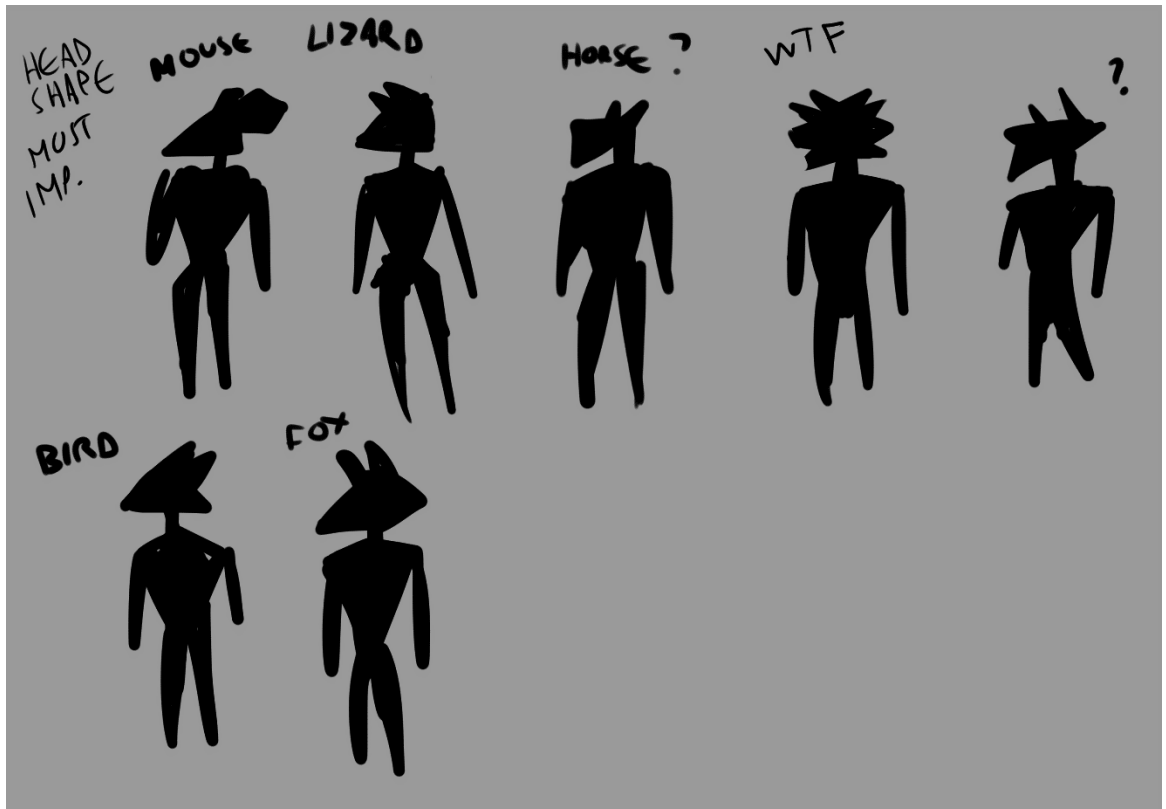
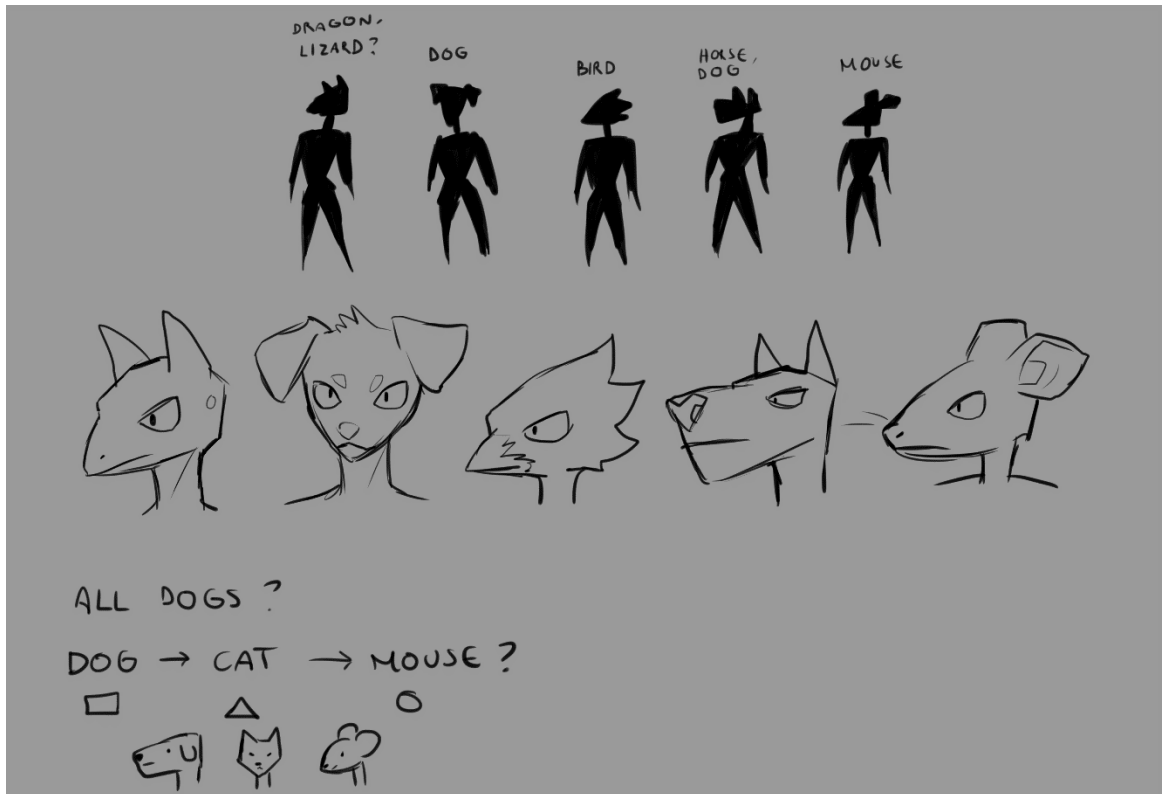Figure 17. Some of the first silhouettes for the triangle character (Mehtälä 2020).

Figure 18: More playing around and some better sketches of the triangle character

While the body of the character stayed mostly the same for now, the head played an important part in deciding what to end up with as shown on Figures 17 and 18. One or more triangles were placed as the head and rotated and flipped around, and this would quickly create a variety of silhouettes that resemble different animals. Different animals were also thought of and compared, which animal would be the best when it comes to varying shapes and sizes, and at this point the silhouette that resembled a bird was chosen as the candidate. The dragon-resembling silhouette was the second best due to dragons being an entirely fantasy-based species with common and notable features that left a lot of room for playing with the shapes, and therefore the bird species was turned into an entirely different, some kind of a dragon-bird hybrid. Some possible dragon examples were sketched in Figure 19.
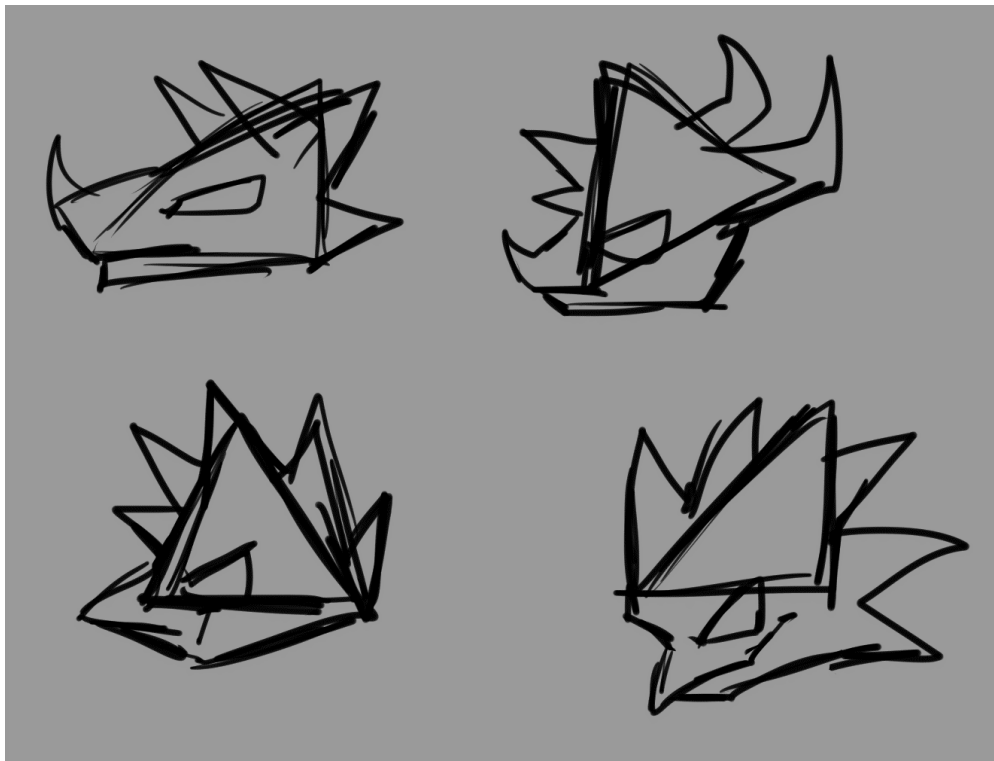

Figure 19. Different possible head shapes for the triangle (Mehtälä 2020).

Figure 20. More planning, this time including the other two shapes (Mehtälä 2020).

Once the species was set, a few rough head sketches were made just to get a feeling of the basic fundamentals that all of the characters would more or less follow. The easiest way was to simply draw the wanted shape and then fill in the features – eyes, beaks, hairs, or feather and lastly horns. Horns were added to give some more distinguishable features, and to give more room for shape play. As it appears on Figure 20, each character's eyes play one of the biggest part in expressing their personalities which are the following: triangle for passion, strictness, aggression and overall sharpness, circle for softness, concern, approachability and general flexibility, and lastly the square who is serious, stable, calm and trustworthy, probably the neutral between the two which contrast each other the most. The three sketches shown on the left were the first drafts of the then final designs but were quickly scrapped due to them lacking anything that relates them to each other even a little. They are distinct from each other, which can be good, but still lack something that makes them related to each other as the subspecies of the same race. Therefore, the sketches on the right were made as the final versions. They have all got a shorter, somewhat more human face with smaller beaks that are based on their respective shape. The feathers

and horns were then sketched there, the latter being good features when it comes to reflecting their personalities: the triangle character's horns face forward and look more threatening, the square characters are big yet blunt and facing backwards, and the circle one's horns are small and harmless to emphasize the roundness of its head.
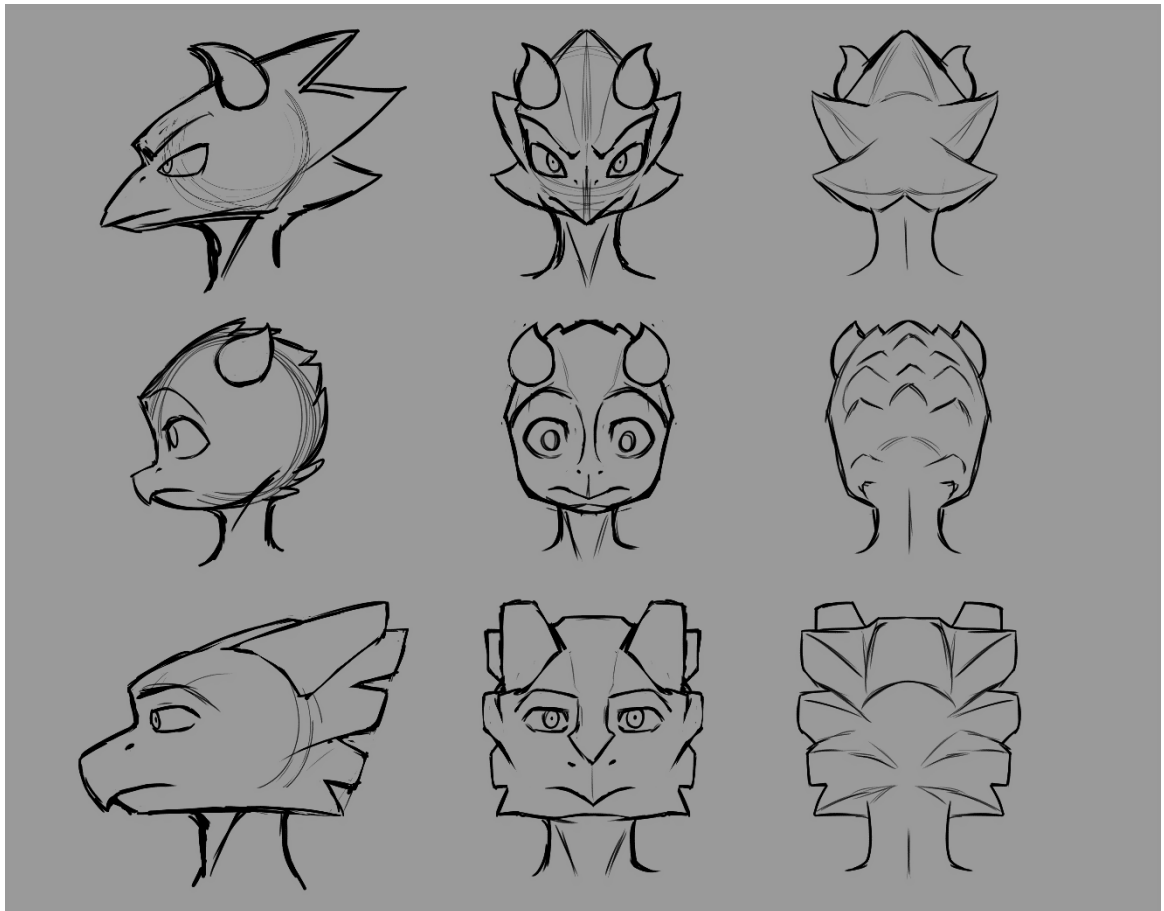

Figure 21: Turnaround from each character's heads for better figuring out their anatomy and establishing a reference (Mehtälä 2020).

Since this project was made with the attempt to create something that could potentially become an actual game, a turnaround sheet for each of the characters' complex-shaped heads was made (Figure 21). Another idea was to come up with simple 3D-models for each character so that it could be rotated in any necessary angle and looked at for reference, but that idea was scrapped as being too time consuming due to lack of enough experience.

As soon as their designs had been refined with a head turnaround sheet, a proper coloured artwork was made to get a better feeling of each of them as well as plan their colouration. This was followed by a simple full body reference sheet for each of the characters.
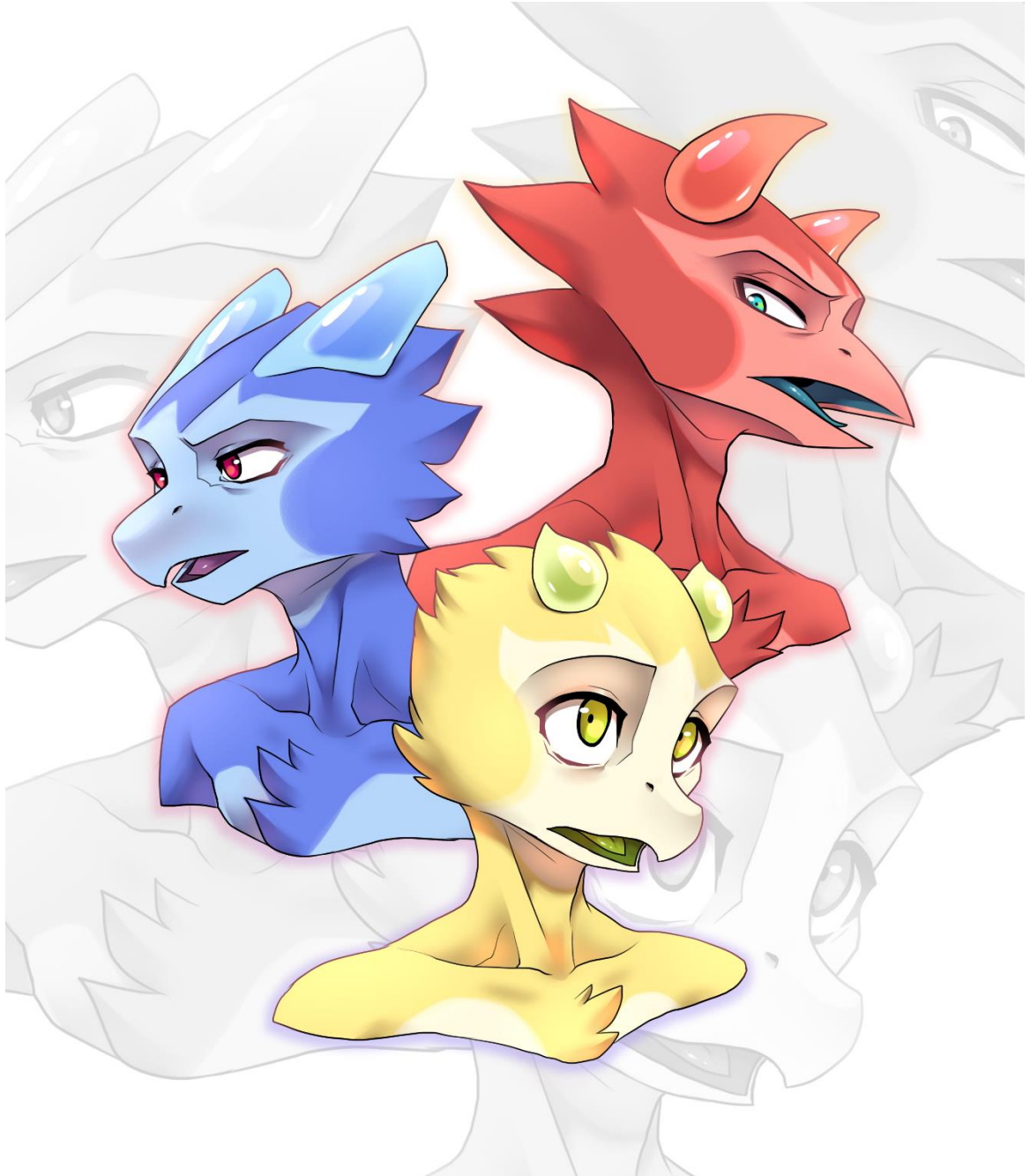

Figure 22: A coloured group artwork of the three (Mehtälä 2020).

As seen on Figure 22, which was drawn with the thought of it serving as a "promotional poster" for the project, as soon as the characters got colours and expressions a lot more can be read from their designs. After some thinking, minor

colour adjustments were made to each of them and the designs were finalized in a fullbody reference sheet (Figure 23).

Figure 23. Completed reference sheet for the bird-hybrid trio (Mehtälä 2020).

Once the bird characters were completed, a holiday break took place, allowing for a good pause from looking at the designs and to see whether anything would have to be done otherwise. After returning to them, it was decided that the bird-hybrids, as unique and interesting as they were, would be scrapped and a completely new set of characters were designed. This was simply due to the fact that the designs felt too forced for the sake of standing out and being unique as well as trying something entirely new, and something that fit the author's comfort zone would be the solution for this.

Figure 24: The first sketches and the first designs of the canine characters (Mehtälä 2021).

The new set of characters ended up being canines. The designs allowed for even more and better play with the shapes thanks to their fur coat, so they were seen as a more suitable solution for the project. The horns were something that were kept on the characters as a unique touch that also works as a good fantasy indicator.

The first colour designs were applied on the refined head sketches (Figure 24), and this was quickly followed by proper full body designs where the colours were tested out even further. At first the designs were made to be a bit more complex with three tones of the respective colour, but for the sake of simplicity that idea was quickly scrapped and the characters' designs were turned to what can be seen on Figure 25.

Figure 25: The finalized designs of the new characters (Mehtälä 2021).

The choices of colours have been the same for each character since the first phase: red for triangle to emphasize intimidation, sharpness and speed, yellow for the circle to underline cheerfulness, softness and approachability, and blue for the square for security, seriousness and calmness.

6.3   Designing the environments

The environment designing began with the thought of where and in what kind of world the characters would live in. At first there were ideas of a planet complex somewhere in an alternate universe, where small planets close to each other would interact and live in harmony, with their own people and environments. This however was soon scrapped as too complex for its purpose, so having multiple areas was changed into one floating island that most likely either is its own planet somewhere in space or a part of a bigger island complex.

Figure 26. A very minimalized and stylized first concept of the floating island that serves as the world of the characters (Mehtälä 2021).

As shown on figure 26, the island is divided into three continents for each shape-based race. A lush green forest area for the circle people, a dull and structured city area for the square people and lastly a mountain village for the triangles. Each area has its own economy, and the three prefectures work and trade together for supplies and other services, such as building material, traveling services, agriculture, and education. For a game where the player gets to choose one of the characters at a time to complete their journey it offers good replay value as the life with each character could be very different.

Figure 27. A thumbnail sketch of the circle character's home environment (Mehtälä 2021).

Sketches of each character's homeworld were done in order to show the general feeling and colour palette of them as well as how to connect the world to its respective character. A lowland with small hills here and there was the most suitable when it comes to the terrain of the circle area. The trees have large, rounded leaves as well as the bushes that cover most of the land. Bridges crossing the curving river offer a good opportunity to include smooth and round shapes in man-made structures as well. The circle area is filled with lush greens, warm tones of brown and some blue to make it work well as the mainland for agriculture, hunting grounds and fishing. It is also probably the most welcoming area on the island as it reflects the peoples' general attitude and personality. Figure 27 presents the coloured thumbnail sketch of the environment, and Figure 28 shows the main colour palette of it.

Figure 28. The circle area's main colour palette based on the colours present in Figure 22 (Mehtälä 2021).

The blooming nature full of round and organic shapes also serves as a good place for the circle peoples' houses, of which some have been built in hills as slightly shown in Figure 26.

Figure 29. Another early sketch of what the city area in the circle area could look like (Mehtälä 2021).

The more advanced buildings and structures also follow along the same lines, avoiding too many sharp edges and linear shapes. Figure 29. presents an early concept of what the more built city area of the circle peoples' land could look like. The areas that have been built with bricks could also be more rounded, with materials like cobblestone for example.

Figure 30. The triangle peoples' area, the main entrance to their city inside a large mountain (Mehtälä 2021).

Next up was the triangle character's homeland, which was decided to be a city inside a mountain, with some living areas outside as well. A high, sharp mountain offers a good opportunity for adding a plenty of rough edges and shapes to the

environment, in this case the sharp rock formations present in Figure 30. Having the area lack such vegetation the circle area has emphasizes a colder climate suitable for the not-so-friendly and bubbly triangle people. The palette was chosen to consist mostly of cooler tones like violets and lilacs, contrasted by some warmer reds to soften the possible dangerous atmosphere coming from the sharp rocks and dark caves (Figure 31).

Figure 31. The main palette of the triangle area (Mehtälä 2021).

Since the triangle area's main business is traveling services, it is suitable for it to be at a lengthy distance from the other areas. And since the area itself focuses on the mountain, it most likely requires special vehicles or mount to be able to move there safely.
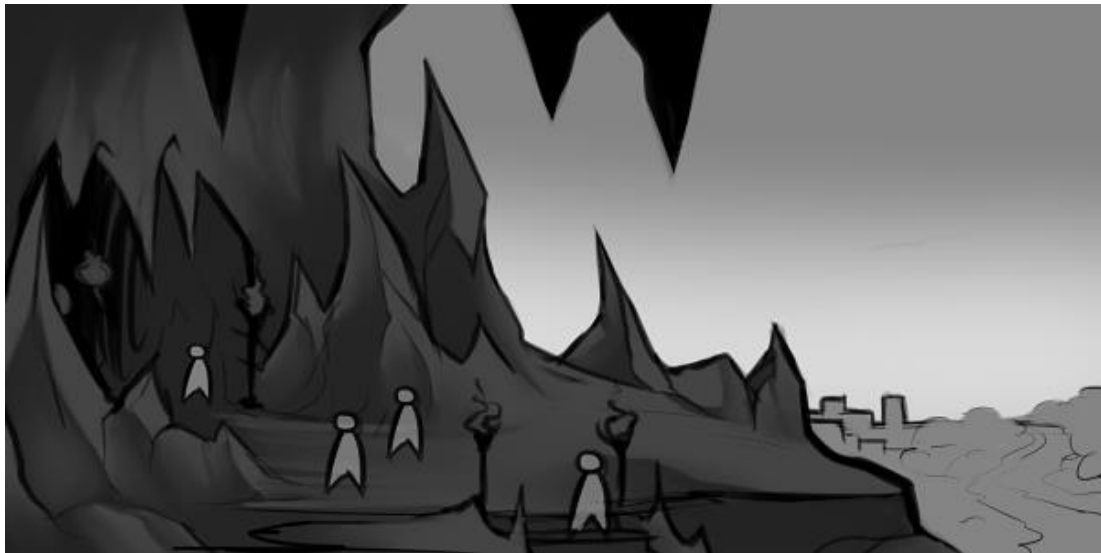

Figure 32. The main entrance of the triangle area's mountain city, with stairs coming from lower levels (Mehtälä 2021).

The sharp appearance and the difficulty in reachability gives the triangle peoples' home area an unwelcoming atmosphere (Figure 32). The triangle people are much more work and business oriented, and therefore appear much colder and perhaps even scary to some.

Figure 33. The first thumbnail sketch of the square peoples' town (Mehtälä 2021).

The last environment presented on Figure 33 was the square people's area, which was designed to be a very regular looking, average-sized town with mostly rectangular apartments and buildings. The linear shapes give off an ordinary, mundane everyday atmosphere which reflects the calm and temperate personality of the square people. The large and mostly rock-based buildings also speak for the strength of the people who, when it comes to the general occupation, focus on building and architecture. All this was chosen to have as much similarity to the square-based character's design as possible.

Figure 34. The main palette of the square town (Mehtälä 2021).

The colour palette of the square town consists of warm tones of reddish brown against some blues and purples (Figure 34). The red-coloured stone, which is the main building material as well as the terrain colour in the square area, gives off a somewhat warm feeling to avoid making the otherwise linear and angular city too cold and dull. Some blues are a good contrast to highlight some details.

Figure 35. An aerial view of a possible harbour area of the square peoples' city (Mehtälä 2021).

The city is lively and busy yet serene at the same time, crowded but not suffocating. People are constantly out and going yet it's not noisy at all, and it's rather easy to blend into the crowds. It attracts people who are after a calm yet eventful life surrounded by people. It is rare to see any independent houses in this area, except for very small single apartments somewhere a little further away from the very center of the city. Figure 35 illustrates an example of a possible harbour area of the city.

6.4 The visual feeling

After all of the characters and environments had been designed and drawn, a mockup screenshot was made of one of the characters in order to show what the game could possibly look like for the most part and to show how the environment design works with the respective character design.

Figure 36. A mockup screenshot with the triangle character and the triangle area's thumbnail as the backdrop (Mehtälä 2021).

As seen on Figure 36, the triangle-based character fits well to the environment designed for it. The entrance visible behind the character could be less round, but other than that most elements, the flames, rocks, and the character itself for example, form a triangle.

7   CONCLUSION

In conclusion, this project worked as a good and easy way to get to work on character and environment design and keep the main focus on the shape language without having too much other topics to pay attention to. Visual novel was a suitable genre for a game project, since most of the appeal lay on the graphics, allowing the author to focus solely on the visual design. There could have been more sources to the topic of the thesis. The problem with academic writings regarding anything to do with a specific part of video game design can be the difficulty of finding source material. Many professionals on the field have come up with educative articles and blog posts regarding the topic, so those could be utilized in this project. The author's own experience with art, character

design and gaming industry also helped with the writing, allowing the including of what has been learned in the past.

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