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Character Design and Customization in MOBA Games

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Tiivistelmä

Tämän opinnäytetyön aihe on hahmosuunnittelu ja kustomisaatio MOBA -peleissä. Syvällisemmän näkökulman saavuttamisen takia käyn myös läpi videopeli hahmosuunnittelua yleisesti kuten myös yleisiä käytänteitä mitä hahmosuunnittelussa käytetään. Vaikka hahmosuunnitteluun kuuluu monia erilaista osaamisalueita, keskityn pääasiassa hahmosuunnittelun graafiseen ja visuaaliseen puoleen, vaikka käyn lyhyesti läpi myös muita osa-alueita. MOBA -pelit ovat pelejä jotka pyörivät pääasiassa pelattavien hahmojen ympärillä, mikä asettaa tiettyjä rajoituksia hahmosuunnitteluun. Pelien hahmokeskeisyyden takia, MOBA -pelien kehittäjät saavat suurimman osan tuloistaan myymällä pelaajille "skinejä" ja muita kustomisaatio vaihtoehtoja hahmoille ja muille muokattaville osioille peleissä.

Hahmosuunnittelulla on usein sama työnkulku pelistä ja sen kehittäneestä yrityksestä huolimatta, vaikka siinä saattaa olla pieniä muutoksia jotka sopivat hahmosuunnitelman parissa työstäville artisteille. Hahmosuunnittelu alkaa yleensä hahmon luonnostelusta ja "thumbnailien" tekemisestä. Jotkut artistit tekevät hahmolle "mood boardin" tai jotain samantapaista, mikä auttaa hahmosuunnittelun kanssa, varsinkin jos siihen osallistuu monia ihmisiä. Kun hahmolla on valmis suunnittelu artisti voi alkaa työstää hahmon värejä ja muuta vaadittavaa konseptia, kuten animaatio ja liike arkkeja auttaakseen animaattoria hahmottamaan hahmon teema ja luonne. Konseptoinnin ollessa valmista ja kun 3D mallintajalla on referenssi hahmosta, hahmo voidaan mallintaa, "rigata" ja animoida samalla kun äänisuunnittelijat luovat hahmolle ääniä ja selostusta. "Skinien" tekemisen prosessi ja työnkulku ovat suurimmaksi osaksi sama kuin hahmosuunnittelun tekeminen.

Vaikka eri tekniikat, säännöt ja ohjeet voivat auttaa hahmosuunnittelussa, loppujen lopuksi hahmon tekeminen hyvännäköiseksi ja toimivaksi on artistista kiinni.

Abstract

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This thesis is about character design and customization in MOBA games. For a more in-depth view on the subject, I will also go over character design in video games generally as well as the most common practices used for character design. Although character design involves many different areas of expertise, I will focus mostly on the graphics and visual side of character design, although I will briefly cover some of the other aspects as well. MOBA games are games that revolve around the playable characters which sets certain limitations regarding the character design. Due to the focus on the characters MOBA games' developers get most of their income from selling the players skins and other customization options for their characters and other customizable aspect of games.

Character design usually has the same workflow regardless of the game and company making it, although it may have some alterations that fit the artists working on the design. Character design usually starts from concepting and thumbnailing the character. Some artists prefer to make a mood board or something similar for the character to help with the design process, especially if multiple people take part in the process. Once the character has a design, the artist can start working on the character's colors and making all the rest of the concept required, such as animation or a movement sheet to help the animator to capture the character's theme and personality. Once the conceding part is done and the 3D modeler has a reference sheet of the character, the character can be modeled, rigged and animated while the sound designers create the sounds and voice overs for the character. The process and workflow of making a skin for a character is mostly the same.

While the different techniques, rules and guidelines can help with the character design, it is always up to the artist to make the character look visually appealing and functional.

Content

Definition of Terms

NPC = Non-Playable Character, a character controlled by the computer

MMORPG = Massively Multiplayer Online Role-Playing Game

RPG = Role-Playing Game

Farming = Killing computer controlled minions to get gold and experience points.

Mod = A "modification" made by player community to add to the original content/game.

Lore = A story or background made for characters and games.

Peeling = Using incapacitating skills to keep enemies away from the team's carry.

Area-of-effect = Attack or a spell that affects the area around it rather than a single target.

1   Introduction

The subject for this thesis is character design and customization in MOBA games. Character design is a wide and popular subject since the process to producing a character for a video game involves so many different areas of expertise. Creating a complete, finished video game character includes concepting, modeling, rigging and animating the character as well as creating VFX, sound effects and voice overs. This thesis will cover most of it to some extent, but the focus will be on the graphics and more specifically, concepting the character design.

For more comprehensive understanding of character design I will go through character design and customization in video games generally as well as doing it for a MOBA game specifically, since the process of making a video game character is much the same regardless of the genre. The differences to the process of the character design are usually due to different platforms, genre and theme of the games, and to a point also the size of the company that develops the game.

Alongside this thesis, I will be using my character design as a reference. The character design was made by making use of the techniques that I will be going over in this thesis. Its purpose is to be a mockup of a character for a MOBA game, or more specifically, for Riot Games' League of Legends. The style and background of the character imitates League of Legends' style. The techniques and practices I made use of in the character design and in this thesis are mostly from materials and sources provided by Riot Games and Valve since they are seemingly most open with their character creation process. Their games: League of Legends and Dota 2 are also two of the most popular online MOBA games.

2   Character Design

2.1   Phases and Techniques

Character design is a popular subject when talking about video games and it largely follows the same pattern regardless of genre and platform. Some of the steps can be listed more specifically than others. Since my thesis is more about the visual side of character design, I will not be going through all the phases of designing the character's personality and background, nor the techniques and workflow behind sound design and gameplay. The subject of character design and what is needed for it is wide and not all of it is relevant for this thesis, even when focusing on the visual design, so instead of going through everything here, I will write about the most popular techniques used in visual character design.

Something that should be kept in mind when talking about character design is that each artist has their own preferred workflow, usually more specific and unique the more the artist has experience. It should be also accounted for that a professional character artist also has comprehensive knowledge of anatomy, perspective, layout and composition. They should also have the necessary skills for making video game art, such as digital painting, understanding of lighting and materials and how to draw expressions and movement.

Usually character design begins with an idea. The idea may come from a nice visual effect the artist or character designer saw or thought of, from the need of certain mechanics in the game or from the game's background story. In every aspect of character design, it's important to remember that "form follows function". For video games, you need functional characters and if forced to choose, should always go for a functional solution rather than the "pretty" one. However, functional character doesn't need to be "ugly" and it is up to the artist to reach both goals.

With an idea, the character artist can start sketching out the character. Usually it is advisable to make some sort of mood board for the character before starting with the design. While making the mood board, the artist should already have an idea of what the character is going to be and preferably have some notes on it. Mood board should include images, not drawings, of things, people and places that inspired the character and fits the theme. This is so the artist won't get influenced by other artists' works and can make their own unique work, unless the intention is to make a character heavily influenced by a specific style. Usually mood board also includes the needed references for the character and the

materials, but reference or reference board can be sought from elsewhere as well, but should also be ready for the next phase. The mood board and reference are meant only for the artist, or at most, for the team working on the character design and though it may consist of pictures taken by the artist themselves, often it also has images and designs not intended to be spread for public, which is also the reason I will not be sharing the mood board I made for my character design.

Before starting with the sketching and thumbnailing, some artists prefer to make early concept of the character. The point of the concept is to give out the idea of the character and the mood. It's more often used if there are multiple artists working on the same character to make sure their vision stays the same. In some cases, the same can be achieved with the mood board.

Once the artist has something coherent down of the character, the firsts steps of character creation is rough sketching or "thumbnailing". As stated in Concept Art Empire's post: Introduction to Thumbnailing and Quick sketching, the point of thumbnailing is to try out different ideas and concepts quickly. The techniques for making thumbnails vary from one artist to another, but generally, thumbnails are supposed to be simple and quick sketches. For character design, this usually means making "silhouette thumbnails". The artists limit themselves to using one or two different tones and keep the amount of details to minimum so the focus is more on the silhouette and shape. In the Concept Art Empire's post, the writer advices the reader to limit themselves to spend 3 to 10 minutes on a thumbnail. The number of thumbnails can go from 3 to 30 or even up to 50, depending on the artist.

Attachment 1: Silhouette thumbnails that I made, trying to figure out the design for my character.

Limiting the time spent on thumbnailing prevents the artist from overthinking the design, as the purpose is to try out different ideas, not to create one polished and multiple rushed ones. Thumbnailing makes the artist think of the design and to try out different solutions and hopefully, as intended, to scrap out the solutions that don't work. By doing it while working on thumbnailing makes it more unlikely to have to fall back to fix the design later.

When the artist is satisfied with their thumbnails, they can pick out the ones they like most or which work best and scrap out the rest. Usually this is followed by some more rough sketching of exploring the thumbnail ideas further until the artist will choose the final design for further development. It should also be noted that thumbnails are meant only for the artists themselves and sometimes might not make sense for other viewers.

Keeping the thumbnails simple helps with making out the character's form and shape and these parts often go together: by doing the thumbnails, the artist creates the silhouette. Usually, it goes through some polishing before it's finished, but the general shape doesn't change much. Silhouette is often the most important part of the character's appearance. It can define whether the character seems friendly and kind or stern and mean. The silhouette should reflect the character's background and personality as well as their role in the game. For determined soldier characters the silhouette should also seem strong. This can be achieved by making use of different shapes and poses.

People have a habit of connecting some shapes to different personality traits. Squares usually give out a feeling of strength, round shapes convey friendliness and trustworthiness while sharp shapes like triangles give out the feeling of danger or make the character seem suspicious. To make a silhouette fit the personality of the character, the shapes should be used accordingly or, in some cases, they can be used to contrast the character's personality to create more depth, as stated in an article: How to Convey Character's Personality Through Shape, Variance and Size, written by Bilyana.

The silhouette also defines the character, sets it apart from the environment, other creatures and characters in the video game and makes each unique character recognizable even from distance. For most cases it should also be distinguishable enough so the player can tell what the character is doing and which way it's facing, just from the silhouette.

Once the character has a silhouette and general design, the artist may spend time on finalizing the design by exploring different design ideas and solutions for details. This is the part where the artist thinks about whether the moustache gives out bad vibes or makes the character seem friendlier. As this phase progresses, the artist should end up with a final concept of the character. The goal is to have a reference sheet of the character as

well as a concept piece which shows the character's personality and all the details and materials in the character's design, usually in a style that imitates the game's style. The reference sheet the artist makes is often used for modeling the character.

When the style and design are finished, it's usually expected that the artist explores the character's movements and expressions more to help with animating the character. The results are usually sketchy, but if they convey the idea and the personality of the character, the character is good to go.

Along with making the final concept, the artist should spend a moment on considering and trying out colors for the character. Choosing a palette for a character can be challenging and demand lot of trial and errors. To start off, he artist needs to have at least basic knowledge of color theory. To create an interesting character, artists usually make use of contrast and complimentary colors. If the character is mostly colored with shades of brown and orange, the highlight parts and points of interest are usually colored with blue or similar colors to draw the player's eye. It should also be noted that, as the player's attention should usually be on the character's upper body and head, that is where most of the contrast and lighter colors are located. Lower body and feet are usually darker hue than the torso. To achieve this, the character concept is colored in greyscale first to make it easier to define the highlights and values. The same theory goes for the amount of details and their placement in the design. Plain areas on the character contrast areas with more details and draw the player's attention. The plain areas also give the player a chance to rest their eyes.

Similarly, to the habit of connecting personality traits with shapes, people have a habit of connecting colors to traits as well. We view blue as a cold color, suited for suspicious or evil characters, while brown, orange and yellow are warm and make the character seem friendly and trustworthy.

Once the character has a ready design, colors and materials, it can be modelled and rigged by a 3D artist. Depending on budget and the purpose of the character, character design may include making a 3D sculpt of the character and other additional material to give out the feel of the character and to bring out more subtle details.

Along with the visual design, the character also needs a background and personality as well as 3D model, animations, sounds and, in most games, visual effects. These are rarely done by the same artist, especially in big companies, which makes the earlier phases

even more important. The concept art and reference sheets usually include a sheet depicting the way the character moves and if there's need for it, the visual effects that go along with the character and movement.

The movement sheet usually has multiple poses that try to capture and convey the character's personality. Do they move with light skipping steps, or do they drag their feet lazily? While details and design of the character doesn't have to be very polished, it is more important to emphasize the important aspects of the character's movement so the animator can animate the character accordingly.

2.2 Customization

Customization has always had a big part in video games. Some game genres give the players more variation regarding the customization than others. RPG and MMORPG games are usually the games with most customization option. In those games the player can define the character's appearance from the shape of their eyes to the color of their clothes. Games that barely offer any or minimal amount of customization, like most FPS games, limit the options to changing the color of your weapon.


Picture 1: Skyrim (by Bethesda) is an RPG game that lets the player create their character by modifying them from few base model variants.

Customization and visual enhancements are a good way for game companies to make profit as there will always be players willing to pay for making the game and their character

fit their tastes better. In MMORPG games this may mean buying custom appearances or paying to keep the appearance you've made for the character despite changing gear afterwards. In other game genres where the character's appearance is not up to the player, customization means skins, hats and optional weapons. In some games, like Valve's Counter Strike: Global Offensive (or CS:GO for short), the community has formed their own economy around the weapon skins and their values, as Emily Richardson explains in their article How Counter-Strike: Global Offensive's Economy Works.

Skins are complete optional appearances made for a specific character or object. They do not give the character nor object any bonus stats nor make them stronger in-game. Usually skins are a way to present the character as an alternative version of themselves. In single player games skins may be different versions of the character, who keeps growing up or travelling during the game and thus changing appearance and skins are a way for the gamer to pick the version they liked best.
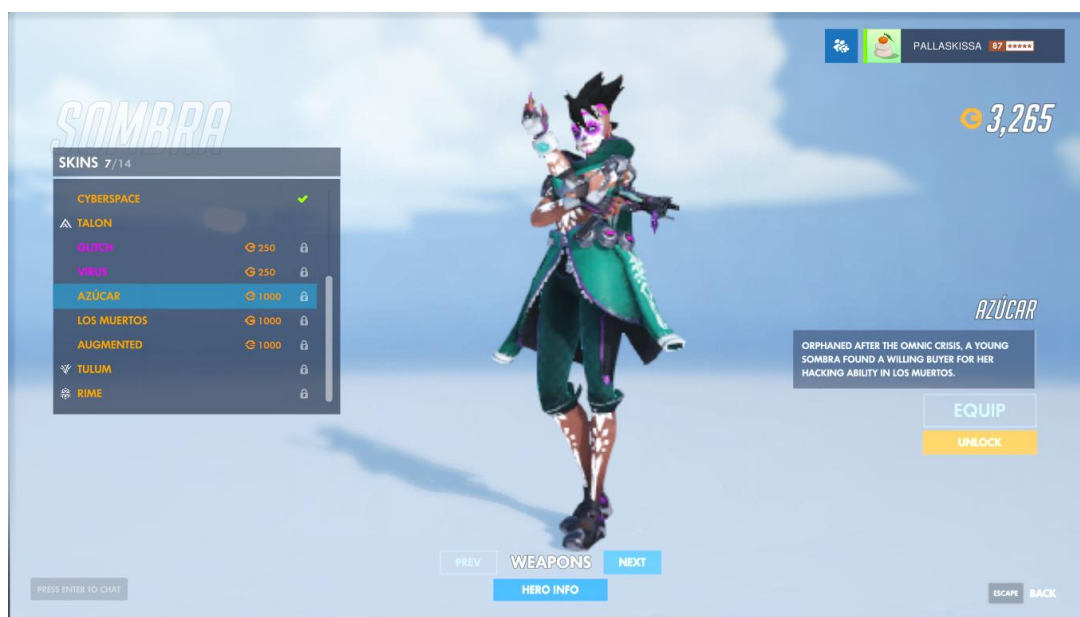
Picture 2: Overwatch is an FPS by Blizzard Entertainment that offers the players many different skins to choose from for the characters they play.

In multiplayer games skins reel towards presenting an alternative version of the character more. An icy mage may become a mystical princess of the desert or a sci-fi detective from far future. For the players skins are enhancements to the character's appearance. If the player doesn't like the original character design, they can simply buy an alternative appearance for the character. The point of the skins is to introduce something new and appealing to the players, usually to make money by selling the skins with real money. Sometimes companies put more effort in the skin than in the original character design and even

give it special visual effects and more complex textures or even a model and a new set of animations. These skins are also more expensive. Another tactic to make more money off of skins is to rate them and make some skins rarer and more expensive than others.

Unlike skins, "hats" don't change the whole appearance of the character. "Hats" is a term picked up by Team Fortress 2 (by Valve) community. Later the term was replaced by simply referring to cosmetics, as stated in the wiki page the community upkeeps. Instead of changing the whole appearance of the character, "hats" or cosmetics can be objects the player can equip to the characters. In Team Fortress 2, "hats" or cosmetics refer to all kinds of objects you can "equip" for your character, but that offer no additional bonuses aside from the updated visuals. Some of the hats and cosmetic items are usually obtainable with in-game currencies or through achievements as well as with real money.

Many FPS games offer the player skins for their weapons rather than the character itself. Since the player will probably never see their character from third person, the customization is limited to the view the player has most of the time: the character's hands and weapon. In CS:GO the player can buy skins that give their weapons different appearance, such as a different color, unique patterns or something similar. In Blizzard Entertainment's popular FPS Overwatch, the skins alter the whole character's appearance rather than just the weapon's. Like in most FPS games, the player can only see the character's hands and weapons for most of the match, so the character's appearance is mostly just visible to the other players. The reason this works for Overwatch is most likely because the game is mostly marketed through the various unique characters it has instead of simple classes like most FPS games do.

To make customization successful, the artists and the designers should be aware of why players would want to use or pay for them. For some players skins are visual enhancements for characters they love, but don't like the original appearance of. Skins and weapon customization offer the player a chance to customize the character or weapon to better reflect their tastes and make the experience more enjoyable. Although skins are not supposed to affect gameplay, there are also some skins that make the character's visuals and effects clearer or un-clearer, which can also be a reason the player uses that skin. In League of Legends (by Riot Games), some skins are banned from use in competitive games because of this. In Seranya's post at surrenderat20, a popular unofficial League of Legends news site, Seranya quotes a Riot worker Janoot on their skin bans: "Typically, we ban out skins that are particularly "noisy", or very different from the base model."

It is often joked in gaming communities that "skin equals skill", meaning that if the player has a skin for the character they play, they play it better than someone who does not have a skin. As skins usually don't give the character any bonus stats or attributes, the only way this reflects reality is that the player has played and liked playing with the character for long enough that they decided to buy a skin for it and are better through a lot of practice. Since there are a lot of ways to obtain skins in games, you may sometimes pick up a skin for a character you don't particularly like playing, but like the appearance of and play it because of it. In her article "How Counter-Strike: Global Offensive's Economy Works" Emily Richardson goes through multiple reasons why people like certain skins and why they would get them. According to the article, getting a skin in a game can give you the same feeling of satisfaction as getting something nice in real life would. Through some trials and errors, the developers and marketing of CS: GO also learnt that players seem to prefer colorful and extravagant skins over the military styled designs, which they believe reflects to how people who are into sports have and prefer colorful equipment and no one rises an eyebrow over a paintball player spending enormous amounts of money on fancy equipment.

The article also goes over another factor in what makes some skins more appealing to the players: rarity. Most games classify skins and cosmetics according to their "rarity". Sometimes rarity of an item reflects its quality: the higher the quality of the skin, the rarer it is. This isn't the same with all skins however and even so, some players might still prefer a lower quality skin over a higher quality one. Rarer skins are usually more expensive and harder to get through other means. Some players might prefer rare skins over other skins as well, as obtaining a rare skin acts as a kind of "status symbol" that they want to show off. The same goes when a player obtains a skin that they do not particularly like, but use it anyway either to show off or because it would feel like a waste not to use it.

There are multiple reasons players would get skins and cosmetics that the artists and developers should understand to make their products successful. The developers will also have to understand their audience well enough so they can tell what kind of customization options would work best for their games. Completely customizable characters work well for MMORPG and RPG games, but technical requirements for the characters would make implementing the system to FPS and MOBA games difficult. It is also not what the players for these games are usually expecting. Skins and other cosmetics make the development of the character more controllable for the developers while still offering a lot of variety for the players, which is suitable choice of customization for MOBA games.

3   Character Design in MOBA Games

3.1   MOBA Games

MOBA games have been on top of the Most Played Online Games -lists since 2014 according to statistics from Statista and Newzoo. The term "MOBA" comes from "Multiplayer Online Battle Arena" and even though there is still some debating over what games define as MOBA games, the term is usually used for online games with strategic aspects and take place in a limited "arena". According to this definition, games like Epic Games' Fortnite and Blizzard's Overwatch could be counted as MOBA Games as well, but they are not the kind of games I will be using as reference for this thesis. I will be limiting the use of MOBA to more traditional MOBA games such as League of Legends (abbreviation LoL) from Riot Games, Heroes of the Storm (abbreviation HotS) from Blizzard Entertainment and Dota 2 from Valve.

These three games will be my main reference games unless I mention otherwise during my thesis since they are the best known MOBA games along with Frostburn Studios' Heroes of Newereth. League of Legends has been the most played online game at least since 2014, according to Statista and Newzoo. In 2017 LoL had 100 million monthly players according to Phil Kollar's article on Polygon: The Past Present and Future of League of Legends Studio Riot Games. For comparison, Dota 2 had around 800 thousand players in December 2017.

All these four games: LoL, HotS, Dota 2 and Heroes of Newereth share similar mechanics. The idea is to defend your base with your team of five against the opposing team of five players with the exact same goal. The arena is a map usually divided to three roads, called lanes, and "jungle", the area between the lanes, although this may differ slightly from game to game. For example, HotS has multiple maps with slightly different layout and the jungle doesn't exist in the same scale as it does in LoL and Dota 2. The players are usually divided to each three lanes and one player is sent to the jungle. Periodically minions, AI controlled NPCs, are spawned from each base and they march through each lane, until they collide with the enemy minions. The goal, as stated by Andrew Groen in their post: "Ask GR anything: What's a MOBA" on GamesRadar is "to push back the enemy and lead your allies into their base to destroy it."

Picture 3: The map of the arena most games take place in, in League of Legends, called Summoner's Rift in-game, is a typical example of a MOBA map.

Before the match begins, each player chooses a character they want to play. Each character has a unique set of skills fitting their role in the game. Players on the same team can't choose the same character. The player's character starts the match at level one, with only one out of the character's four skills available. By "farming" the enemy minions, the players' characters will be able to gain gold and experience and thus, become stronger by unlocking new skills, leveling up said skills and buying items that boost their character's stats. Gold and experience can also be gained from the "jungle", by killing the neutral jungle creatures. The player can also gain experience and gold by killing the enemy characters and towers that are located on each lane, that, according to Groar, act as a checkpoint, making it easier for the player's team to advance through that lane once the enemy turrets are destroyed.

Each character in the games are unique, by visual design as well as by mechanics. The visual design is usually heavily influenced by the role the character has in the game. Due to this, MOBA games usually have a class system for their characters and although they differ in each game they usually follow the same guidelines.

Even though each game is unique due to the different set of players and characters in play, they usually follow the same pattern: the game begins with a "laning phase" in which the players mostly stick to their own lanes and try to farm their team gold and experience and to prevent the enemy from doing the same. The laning phase usually ends either after the other team manages to take down the first tower or the characters have reached the level when they gain their fourth and, usually, last skill: their "ultimate" skill that is significantly more powerful than the rest of their skills.

After this ability is unlocked, players can roam between lanes more freely to help their team. The same goes once the first tower is down in even one of the lanes. After the laning phase ends, the teams may group up or rotate their members and try to focus down other lanes' turrets or jungle objectives. This is called mid-game, and depending on what kind of characters each team has, they may focus on trying to force team fights and then force down turrets, or to split their team to push down turrets in lanes the enemies can't guard as well due to the other members in their team pressuring the other lanes. Either way, the focus is on taking down objectives.

The last phase of the game is "late-game", which is mostly team fights over jungle objectives and the remaining towers with the goal being on ending the game. Usually most players from each team has finished their "build", meaning that their inventory is full with the items they have bought and the characters have reached their final levels. Not all games progress this far, as some characters are significantly weaker at this phase, while some only grow stronger. The game ends when one team manages to take down the other team's base objective, called Nexus in LoL and Ancient in Dota 2.

3.2 Technical Requirements

Much like every game genre has specific requirements regarding the game's graphics, MOBA games have their own requirements as well. MOBA games can nowadays be played on most gaming platforms, including mobiles, each which sets its own set of limitations and requirements regarding the graphics. DOTA 2, HotS and LoL are each for PC and since they are my main reference games, I will be focusing on the limitations and technical requirements the genre and PC as a platform set for the game graphics and character design.

Something that should be noted when discussing character design in MOBA games, is that in big studios like Riot Games, Valve and Blizzard it's never specifically one person

that is responsible for the whole creation of the character. The character is created together by concept artists, engineers, VFX artists, modelers, animators and writers, as Riot explains in their The Art of League of Legends -book.

MOBAs are online games with constant patches and updates being developed. This makes it possible to work on characters for longer periods of time that what would be possible for games that need to be finished and ready to ship due to a specific date. Kendall, a producer working for Riot explains in Emily Gera's article that some characters for LoL are developed in couple of months, while some take over a year or more. Riot also goes back occasionally to completely re-work old characters, when it's deemed necessary.

Due to many people working on the same character, all the concept and references made of the character must be comprehensible to others. The animation and expression sheets the concept artist makes must be clear to the modeler, rigger and animator. The model should be clean so the rigger can rig it properly and the rig should be simple enough to understand so the animator can use it. Not to mention the sound designers and VFX artists both need comprehensive concept art of the character to convey the theme and personality through the sounds and visual effects as well.

MOBA games are traditionally viewed from top-down perspective, with fixed camera that can only be moved in one dimension. This means that the characters must be designed, modeled and animated so they work from that perspective and remain recognizable to the player. Due to MOBAs usually dividing the players to teams of five, there can be ten characters on the screen simultaneously, not including the NPC creatures and VFX nor the characters' skills that may multiply the amount of characters. All these characters should be unique enough to stand out and still simple enough to not overly burden the computer.

For the 3D artist, this means modeling a simple character model that still has the shape and details needed to make the character recognizable and stylish. Artists often talk about "poly counts" which refers to how many triangles a 3D model has. Nowadays, computers can run games with huge number of triangles, but due to the large amount of characters and visual effects on the screen, the poly count should still be kept manageable. Since the characters are fairly small, the player doesn't usually notice a few odd edges on the model, especially from the top-down perspective, if done right. Due to this, models in MOBA games are low-poly models, meaning that their poly count is very low and if looked closer, have very few details modeled in.

The requirements are similar for the animator. The animations should match with the character's personality and role as well as seem unique and recognizable. In MOBA games the characters have multiple animations: animation for each of their skills, auto-attacks, walk cycles, idle and other more interactive animations. Sometimes they even have specific animations for a specific skill of some character. Each animation set should be recognizable for the players.

MOBA games revolve around the characters and their skills. When laning and farming, the player's performance can depend on how clear their character's auto-attack animation is. On pro-player level, the player can tell the exact fraction of second they can stop the auto-attack the animation and move the character, or the exact moment they can use a skill to reset the auto-attack, being able to attack faster than what the animation and their current attack speed allows. An example of this is Riven, a character in League of Legends that is popular due to the high skill curve it has, that leans on the player's ability to use the character's skills, auto-attacks and movement commands to cancel the animations just in the right moment to deal the maximum amount of damage as fast as possible.

For some characters the auto-attack animations are purposefully longer than for others and the timing when the attack happens during the animation is different for each character. It can sometimes be bothersome for the player to learn, but making the animations clear and smooth helps.

Some characters may have skills that require channeling it for a moment. In-game, this means that while channeling, the character is stuck in a specific state of the animation, unable to use other skills or to auto-attack. Sometimes the character is even unable to move or is slowed while they channel. Usually, this means that the following attack is more powerful the longer it is channeled. For the animator, this means making at least three or four phases for the animation. When the character starts to channel, while it is channeling and when it finishes channeling and either attacks with it or cancels it.
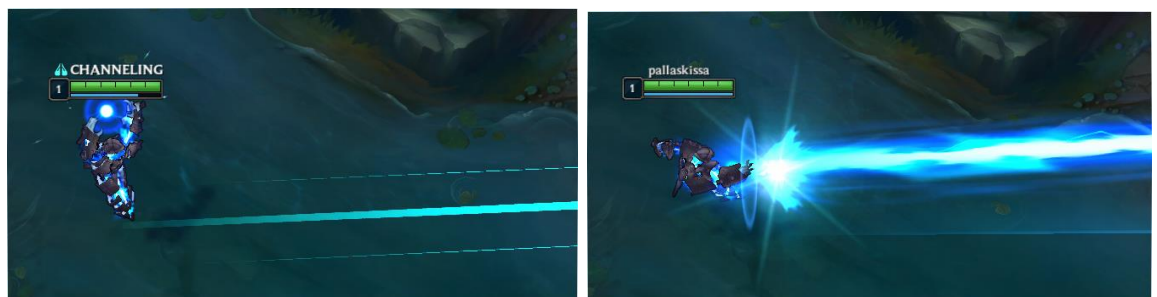
Pictures 4 & 5: Xerath is a champion from league of Legends with a skill that requires a few seconds of charging up before it can used. The animations, pose and visual effects change drastically from the charging up to casting the skill.

For better game feel, the animations should not only be clear and recognizable, but also feel smooth to the player. Achieving this is largely up to the artists' skills. A great example for this is how Riot has updated their animation sets over the years. Some of their old characters had only one running cycle, no matter their movement speed or if they were slowed down. Over the years, Riot has started making different walk animations and once the character has high enough movement speed due to buying items that grant movement speed or getting a buff, the walk cycle would shift to a run cycle and when slowed down, the character would shift to yet another animation cycle. These features don't play a large part regarding the game mechanics, but they make the characters and animations feel better for the player.

Picture 6: Rakan is a character in LoL with very distinguishable animations for different movement speeds.

Visual effects in games are usually the most likely thing to burden the computer. Plenty of players who don't play with top notch gaming PCs have experienced the lag spikes and frame drops that follow when there are simply too many visual effects flashing at the screen while playing. For MOBAs, when there are ten characters on the screen with at least four skills each with their own visual effects, not to mention the additional skills they may gain from the items their bought and the special effects when the skills interact with other characters or effects.

The purpose of visual effects is to communicate gameplay clearly and effectively to the players and to look cool while minimalizing the visual clutter, as Riot Jino explains in their blog post "/dev: League's VFX Style Guide". Visual effects should also reflect the character's personality and theme and the power of the attack. Basic attacks from characters

with weak base attack damage look light and not very effective, while big high damage skills look threatening, usually with an explosive effect.

Picture 7: Invoker is a character from Dota 2 with a harmless base auto-attacks and the visual effects and animations reflect that.

Picture 8: Instead of dealing damage with auto-attacks, Invoker's high damage skills have very clear explosive effects to indicate the high amount of damage they deal.

For projectiles and auto-attacks and other skills that need to collide with the player, the visual effect should also give out a clear vision of the collider. Each MOBA has characters that require the player to learn exactly how far the skill expands to. For some characters this may mean that the damage goes a bit father than what the visual effect indicates, which often leaves the players confused as to what attack drained them of that last bit of health as they could be sure they had been out of reach of the visual effect.

Picture 9: Jaina is a character from HotS who has a few AoE skills that may sometimes seem a bit unclear to the players how far it reaches, especially if the background color matches the color of the visual effect.

For textures and colors, the requirements are similar as to any game genre: to keep from burdening the PC the texture size should be reasonable, while keeping the level of detail to make the characters seem clear and detailed. For MOBA games, the size can be rather small, since the characters are small, and the player sees them from a very specific angle. MOBA games usually offer a setting for the players to set down the game's resolution or to hide additional VFX and assets, which usually muddles up the textures along with clearing up some visual effects, but keeps them recognizable. Changing the game's resolution

or setting the graphics settings lower should not affect the gameplay in anyway, aside from having the game run smoother.

3.3   Customization in MOBA Games

Most MOBA games are Free-to-Play and get their revenue from selling different enhancements in-game in exchange for real money. Some MOBAs like HotS and LoL offer the player a choice to spend money to unlock more playable characters quickly, while otherwise they have to spend a lot of time playing the game to earn enough in-game currency to unlock them. Often there are also other kinds of enhancements that can be bought with real money, but not with in-game currency. These enhancements can be experiment boosts, different announcer voice sets or something similar. HotS is probably the MOBA game that offers the most customization options for different aspects of the game, but in most MOBAs these customization options are limited to player icons and, more importantly, skins for the playable characters.

MOBA games revolve around their unique characters and for the player it's very important to be able to make out the characters from each other as well as each character's animations. In most MOBAs, skins do not give the character new abilities nor do they change the in-game experience other than visually. One character can have various skins, but the character must be recognizable as the same character through each skin.

The player's ability to perform well in the game can depend on how well they can make out the character's attack animations and their ability to learn just the right moment they can stop the animation and command the character to do something else while not cancelling the attack. This makes it even more important to be able to recognize each character and their animations. In some cases, the skins change the character's animations as well, which usually forces the player either to not use the skin or to learn all the animations and timings again.

Along with experience boosts and other similar enhancements and character unlocks, MOBAs make most of their money by selling skins. For most MOBAs, there exist few different tiers of skins: common, rare, epic and legendary, or something similar to those. Common skins are usually either very old skins, or change the character model or design only little while keeping visual effects and sounds the same. The same goes largely for rare skins as well, although they tend to have more changes to the model. Still, both these skin tiers are fairly cheap. Epic skins are usually where the model may go through some

bigger changes and the character's visual effects get re-worked to something fancier. Legendary skins usually offer completely re-worked fancy appearance for the character, complete with plenty of new visual effects as well as new voice lines to go with the theme.

Picture 10: Jaina is a character from HotS with multiple skins the player can get for her. Starting from the original appearance, re-color to a common and even a legendary skin.

LoL also has four "Ultimate Skins", that not only completely re-work the character's appearance with new model and visual effects, but also give the character a completely new theme and unique voice lines to fit. Some of the skins also include options that change the skin's appearance during a match, either by switching colors or by making minor changes to the model.

Picture 11: Lux is a character from LoL with an Ultimate skin that lets the player change the character's visual appearance, which in this case means it's model and VFX, during the game.

Another common customization option that I will go though in this thesis is re-color options made for skins. In LoL these are called chromas and it's the term I will be using as well. Chromas are not really skins, since all they change are the colors of a specific skin or the character's original appearance. Usually, the color values and contrast stays the same, even if the hue is changed.

Dota 2 also offers the players a chance to pick just parts of the "skins" they like. Skins for the characters in Dota 2 are done from pieces of appearance that the player can get and

equip however they choose. This includes different skins for weapons that the player can get separately. In MOBA games the characters' weapons often have a huge impact on the character's recognizability so making skins for weapons can get very tricky. Usually the weapons' "weight" stay the same, keeping the contrast between the character and weapon similar to what it was in the character's original appearance.

3.4   Story and Theme

Each game has a story and background which the game is based on. In some genres the story is being told as the game proceeds and the background can be made out from the elements in the environment or from the characters' interactions. MOBA games focus more on gameplay than on the story, which makes it harder to convey the world and characters' backgrounds to the player. Just like in any other game genre the form should always follow the function which, in this case, means that the story and theme should not decide on the game's major mechanics and gameplay. The mechanics and gameplay come first, then the story and theme. Still, video games with good stories and consistent themes are always more interesting than games without a story. Stories offer the player something to relate to and make it easier to get attached to the game.

MOBA games tend to have similar settings to each other: LoL, DOTA 2 and HotS all are set to happen in a fantasy world which is reflected by the characters as well as the environment and NPC creatures in the map. LoL and DOTA 2 convey the story through the characters' designs and their voice lines reflect their personalities, often dropping little hints about their background and history.

LoL has a whole website dedicated to stories, comics and videos of the game's characters, which are referred to as "champions" in-game, and the world the game takes place in. Almost none of the content can be accessed through the game. DOTA 2 has small biographies made of its characters and little lore is revealed through special events that take place over a year and such. HotS is a bit unique with its approach to the "lore": each character is from Blizzard's other games and they keep their original stories even as the characters are transported to a completely new content with completely different context. Blizzard conveys with cinematics that the world HotS takes place in is like a crossroads between all of Blizzard's games' universes. Some maps are made in a sci-fi style similar to Starcraft, some are made to fit the world of Overwatch or World of Warcraft.

Due to this, HotS has a much wider range of characters with different themes, while LoL and DOTA 2 characters are somewhat limited by their fantasy like theme. Each LoL character is designed to fit the fantasy world the game takes place in, much like DOTA 2. But while DOTA 2 characters tend to be a bit more like a generalization of a certain theme for the character, LoL focuses more on creating the characters unique personalities and stories. As Eron Rauch writes as a part of his essay "Bridging Worlds": a great example of this is the way DOTA 2 and LoL name their characters: DOTA 2 prefers title-like names, like Dragon Knight, while a similar character in LoL is named Shyvana and titled "The Half-Dragon". The characters' names in LoL are usually well thought to reflect their personalities and the culture that they come from in the fantasy world of Valoran.

The character's appearance usually hints at their origins in the fantasy world as well. A character with cold coloring and fur linings in their armors come from cold areas and often their stories overlap. This is often reflected in-game with the characters having voice lines that are triggered when they cross each other during the game. For example, in DOTA 2, two of the character's in the game, Crystal Maiden and Lina, are sisters and both have a few voice lines referring to each other when they cross each other during a match. The voice lines differ depending on which side each of them is and they have voice lines for when either of them kills the other and so on. LoL has similar approach to characters and during the last few character releases the amount of voice lines reacting to different characters and situations has increased, especially when compared to the few of the original characters that haven't gone through any major re-works. Voice lines usually reveal bits of the characters' personalities and hint on their relationships with different characters that may or may not have been stated elsewhere in their lore. Sometimes they even refer to the state of the world and happenings in some parts of the fantasy worlds they live in.

Although all characters have unique and interesting stories, some characters are still more popular than others. In his essay, Rauch also states that "players connect with and hence prefer to buy humanoid characters over non-humanoid (such as blob or insect) characters by a statistically significant margin, even if the non-human characters are better."

Picture 12: Taliyah is a character in League of Legends, who originates from the deserts of Shurima. Her design conveys a theme fitting for a nomad from a desert.

Picture 13: Kog'Maw is a character from LoL that originates from the Void, an ominous and sinister place, as reflected in the creature's design.

Although it's important that the character fits the fantasy like world, it's equally, if not more, important that the character's theme and style fit the game. The story and background behind the game also has major effect on the game's theme and style. LoL's art style hints

slightly at anime and manga like style with soft hand-painted textures. DOTA 2 has a similar style, although the characters are more unique and cartoony. In HotS, Blizzard keeps the character's style similar to what it is in the character's original game, but often makes it a bit cartoony, if it's not already, and fits the textures and palette to fit the game's general art style.

S2 studio' another founder says in Emily Gera's article that "Inspiration comes from three separate areas. It comes from game lore, the game designers and the art team. I'd say it's split pretty evenly between those three." Sometimes the character design process can get started from cool visual effects the designers think of, sometimes from a good story idea. The story is not always thought out until later in the character design process, but sometimes it may already be ready by the time the concepting for the character is done.

All the same rules regarding the story and theme of the character go for skins and customization as well. The point of skins is to introduce a new theme to the player and in LoL, this usually means giving the character a skin of the character's alternative appearance and theme. Even though the game takes place in a fantasy world, skins reflecting a sci-fi or modern world are not rare in MOBA games. By keeping the style consistent, even the oddest sci-fi themed skins can look natural in the fantasy themed map. Even the skins usually follow the character's original theme to some extent and keep their personality even if the story for is altered to fit the new appearance.

4   Process of Character Design

4.1   Concept

All character designs start with concept. Whether the inspiration comes from a mechanic or a cool visual effect, the next step is to concept it. Early concept is meant purely for the artists and designers and not intended to be viewed by the players. It should also be kept in mind that different artists have different ways of concepting. Some may enjoy making full on paintings about the character and their environment, others prefer portraits and sketches, both of which are needed for the character creation process.

Riot's Art of League of Legends book reveals a bit of the process behind their character creation and concepting. Some of their characters have very little concept art at all "while some champions are shaped and honed over time and iteration". As the point of concept art is to give out the feeling and personality of the character, it is up to the artists and designers to decide how much concept art is needed.

Concept art can mean a lot of different kinds of art. When starting off the design process of a character the artists usually start by making somewhat sketchy drawings and/or paintings of the character, trying to capture and convey their view on the character and its personality. The drawing or painting doesn't have to be in any specific style nor does it have much other restrictions as long as it describes the character. This may mean making multiple paintings that barely show the character at all, instead showing off a theme and feeling and describing the environment the character would be most comfortable in. These concept pieces are even more important if there is more than one artist working on the character.

When the idea and theme for the character is decided, the artists can start working on the detailed design. Sometimes this goes together with thumbnailing as the artists sketch the character multiple times, trying out different styles and designs.

Attachment 2: Sketches of the thumbnails that I felt reflected more the character I was trying to bring to life.

When the thumbnailing and the silhouette for the character is clear, the character needs a clear definition of its personality. Usually at this point the character already has something planned out for its background on which the artists can base their sketches on. While doing my character design, I mapped out the character's background and mechanics while working on the thumbnails. I was aiming to make a character give off a feeling of a nature spirit intent on healing and protecting the nature with gentle touches, but willing to go to any lengths to protect it. All the thumbnails are attempts to explore the idea from different angles.

The preferred way to convey a character's personality is often by making sketches of their expressions and reactions to different things. The face is always the place people focus on most. Along with expressions, the artists should also consider how different facial hair, scars or even eyebrows may affect how the character is viewed. Sharp shapes often make the character seem meaner or smarter while soft and round shapes make them seem friendlier and trustworthy.
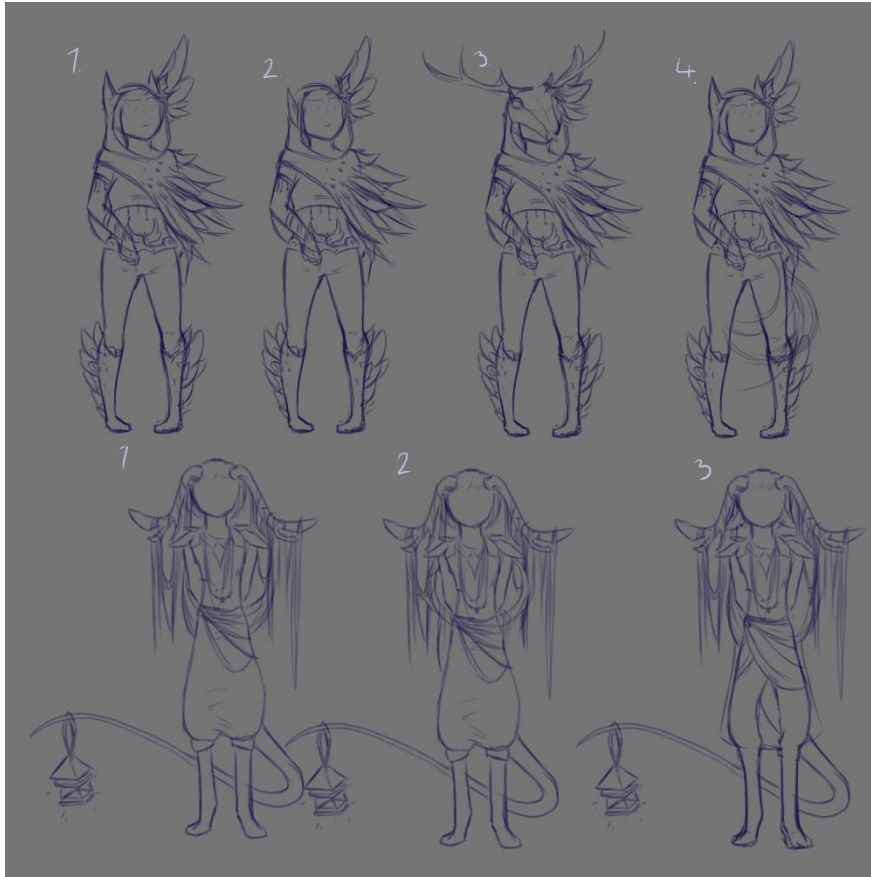
Attachment 3: I tried out and edited many minor details in the character designs I liked, trying to see which details affected the character's personality and figure most, before settling to soft and round shapes.

Along with sketching out the character's expressions the artists are required to sketch out the character's movements as well. This is to help with making out the character's personality as much as it is to help the animators with their job as well. The artists should focus on poses that are likely to be seen in the game, such as running or how the attacking would look like. The sketches can be heavily stylized and not very detailed as their point is to convey the personality and mood as well as movement. Often these concept pieces also involve sketches of the visual effects that are going to accompany the character and make up a huge part of the theme and mood.
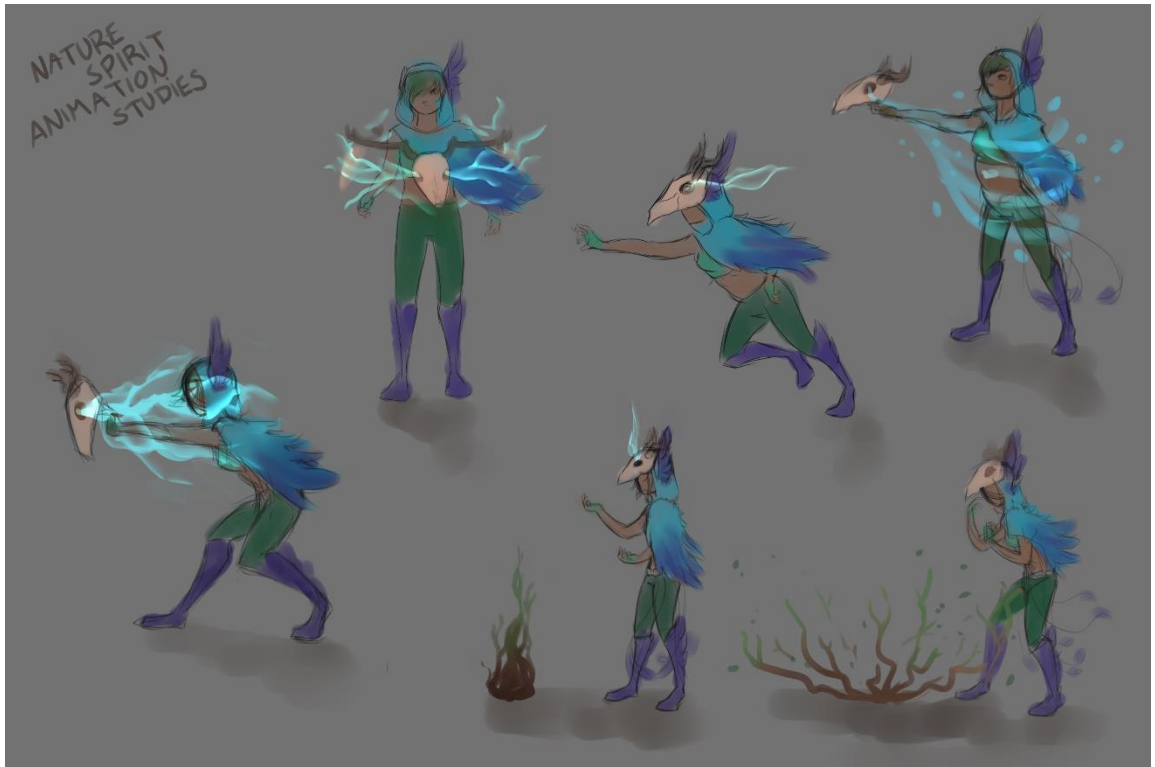
Attachment 4: The animation studies of the character and quick sketches of their skills and what kind of visual effects they would include.

Since some characters inspire and need more concept art so they can be properly presented to others working on the character, there isn't any specific amount of concept that should be made for a character. There are some concept pieces that must be made always and some that are only necessary for some characters. For Dota 2 it's hard to find other than concept that might as well be a reference sheet for the characters with how detailed they are. For LoL though, there exists plenty of heavily stylized concept made just to convey a specific aspect of the character. This emphasizes Riot's need to make relatable and interesting characters to hook players in.

Along with expression and movement sheets, some "must-have" concept is a reference sheet. The reference sheet should show off all the little details in the character's design and the anatomical proportions of the character in the game's general art style. This means making a turn-around of the character as well to show off the details on its back and sides. If the character has some trinkets or other props, they are usually drawn up close on the reference sheet as well to make the modeling easier for the 3D artist. Sometimes the reference sheet acts as the final concept piece as well, showing off all the materials and the personality of the character, but sometimes they are made separately.

Attachment 5: Reference sheet I made of my character.

Riot also has a habit of making splash art of their characters that are shown on the loading screens for a match or when picking a champion before a match. Splash art is made in similar mind set as concept art: it shows off the character's design and personality and often the background hints on the character's background and culture as well. Unlike concept art though, splash art is made in specific style and meant specifically for the players and it's usually the last art piece to be made of the characters once their design has been finished.

4.2   Shape and Recognizability

4.2.1   Silhouette and Weapon Design

Silhouette is one of the most important aspects of character design and should be one of the first things artists consider when starting with concepting. Silhouette usually plays the biggest part in making the character recognizable to the players.

In MOBA games the view the player has of the character is from top-down so the character and silhouette should be designed to be viewed from that perspective. The characters are fairly small on the screen, which makes unique and recognizable shapes even more important. Due to most MOBA games being fantasy themed, they usually make full use of general fantasy like themes and characterizations to convey the right feeling of the character.

There are many things to consider when making a silhouette along with the point of view and unique shapes. To make the silhouette and character seem interesting, the silhouette should reflect the character's personality either through shapes or by posing it so it fits the character's role in the game and reflects its personality. The players should be able to tell the characters apart from each other, which way the characters are facing and preferably they would also be able to point out the character's class just from the silhouette.

The silhouette is usually designed with a pose in mind that reflects the character's personality. Even though the unique personality makes the character more interesting to the players, it's not the only thing to keep in mind while doing character design, or even silhouettes. Silhouette is important for the game mechanics as well and good silhouettes make the game seem more player friendly. The player must be able to tell the silhouettes apart from each other and which way the characters are facing, as stated in the Dota 2 Workshop - Character Art Guide, written by Valve. Ideally, the player would also be able to tell the character's role and what they can expect from the character, how fast it is and how long it's attack range is.

Weapons are often a huge factor in making the silhouette unique and to clarify which way the character is facing. They also help the player define which class the character is and what they do, even if they're not very familiar with the character. Weapons are usually designed alongside the character since most MOBAs don't give players options to change

weapons. Still, the weapons may have to go through some design processes separate from the character design to figure out what kind of effects and details it has.

The weapons are usually designed to complement the character design and to clarify the character's class. Mages often have staffs, marksmen have bows and brawlers have big axes or swords. Weapons can make a simple silhouette of a heavily armored brawler more detailed and unique. Heavy and strong looking silhouette can be made more balanced by contrasting it with a light weapon.

Most MOBAs have their characters fill roles meant specifically for them and each character has their own set of attacks and more importantly, attack range. A character equipped with a short sword can't have a range as big as a character with a bow can. The weapon should reflect the character's attack range to make the game more player-friendly. In LoL characters with bows and guns have longer range than most other characters while mages with staffs or without any weapons being the close second. Melee characters have the smallest range, which also makes the difference in their range more obvious. A character with a spear has a longer range than a character with a sword and a character with a sword has a longer range than a character without a weapon at all.

Some characters also have skills that require them to be able to throw their weapons, which should also be reflected in the weapon design. Weapon design has the same priority as any design work does: the form should always follow function. A character throwing their sword away would look odd, but throwing small axes or knives looks more natural.

4.2.2   Classes

MOBA champions are made for specific roles in the game, so each of them can be divided to classes and, often, subclasses as well. Easiest way to divide the characters by their roles would be to divide them to fill the map that most MOBAs us

 Top laners, Mid laners, Junglers, Bot laners and Supports, but many champions could fill multiple of these roles and some even all of these, so dividing them by class makes their roles clearer even though there are a lot of different classes that tend to change from game to game.

Class	Subclass
Tanks	Vanguard, Wardens
Fighters	Juggernauts, Divers
Slayers	Assassins, Skirmishers
Mages	Burst Mages, Battle Mages, Artillery
Controllers	Enchanters, Catchers
Marksmen	Marksmen

Usually LoL's player community only speaks of Tanks, Fighters, Assassins, Mages, Marksmen and Supports, although Support may refer to enchanters, mages or tanks depending on their playstyle. Terms like AD Carry or AP Carry are also often used in LoL, when referring to a high damage mage or marksman that is expected to carry the game for the team with their high damage input.

Dota 2 uses the following class system:

Class	Class
Carry	Support
Disabler	Durable
Lane Support	Nuker
Initiator	Pusher
Jungler	Escape

Dota 2 community also uses terms Hard Carry, Semi-Carry, Ganker, Roamer and Offlaner as additional classes.

For HotS the main classes are:

Class	Class
Assassin	Support
Warrior	Specialist

HotS community has also divided the heroes into unofficial subclasses: Tank, Bruiser, Healer, Support, Ambusher, Burst Damage, Sustained Damage Siege and Utility.

Due to there being such a wide variety of different classes and terms for them, it would be impractical go through them all individually, so instead I picked up the most common ones that appear in each game and can be used to define classes for all the characters, even if they aren't as specific for all of them.

Tanks are most often melee characters equipped with skills that slow and incapacitate enemy champions and often have abilities that negate some of the damage they take or give them immunity to slows or other incapacitating abilities. Tanks act as a frontline for their team and their sub-classes usually define whether they are more oriented to protecting their own team mates and "peeling" or to dealing damage to enemies as well as being durable. Tanks are most often played as Junglers, Supports for their team's carries or Initiators for team fights. Tanks are designed to convey their role as a durable front liner that can take huge amounts of damage and keep their team safe. Their silhouettes are usually big, focusing on wide shoulders and square shapes that create a strong and reliable feel to the character. Depending on their role, they might be equipped with a big shield that gives shape to them, or with a massive weapon that seems threatening to the enemies.

Picture 14: Johanna is a Tank character from HotS equipped like a typical tank with heavy armor and a large shield and weapon.

Fighters are durable melee or short ranged characters, much like tanks. Unlike tanks, fighters don't usually have as much disruptive or incapacitating abilities like tanks, but are more focused on putting out high amounts of damage. Fighters are often played as Sustained Damage dealers, Burst Damage dealers and Pushers, meaning that they may have abilities that allow them to take down towers and waves of minions quickly. Usually this also makes them good duelists. Fighters often have strong and heavy silhouettes, but not necessarily emphasizing around the shoulders like with most tanks. Instead the focus is on their threatening poses and big, dangerous looking weapons.

Picture 15: Sonya is a Fighter character from HotS. Her pose and large weapons are typical to Fighter and Bruiser classes.

Assassins are mostly melee or short ranged characters capable of bursting high amounts of damage and usually have skills emphasizing their mobility and ability to dive in to a fight, burst a target within a second and escape the fight before the more durable champions catch them. Assassins aren't very durable themselves and they are usually played as Junglers, Divers (as they can "dive" into the enemy team to burst a target), Burst Damage dealers, Gankers (can flank enemies efficiently from unexpected places) and at some level, Initiators for team fights, since they can simply dive into the enemy team and eliminate one of them within couple of seconds. Assassin's main role is to dive into the enemy team, pick off one of their damage dealers or carries and get out. If they get caught or incapacitated, they die easily. Their silhouettes and designs usually focus on trying to

convey their mobility with a slim figure and crouched pose. Their weapons are often also slim, matching with their figure.

Picture 16: Katarina is a character from LoL with a slim build and armed with daggers, much like any typical Assassin character in MOBA games.

Mages can be either melee or ranged and what they lack in durability, they make up in the high amounts of damage they can deal out. Mages might be equipped with skills that enable them to burst targets immediately, or to keep up a barrage of continuous damage for a long time. They often possess utility skills that can help their team as well, such as creating additional terrain on the map, buffing or healing allies or incapacitating enemies. Mages are most often played as Burst Damage, Sustained Damage, Pusher, Support and Carry. Their silhouettes usually convey their lack of durability with slim and small figures. Typical mages are equipped with staffs, but some have no weapons at all. Their poses are usually simple and non-threatening.

Picture 17: Crystal Maiden is a character from Dota 2 equipped with a staff and posed to stand and move with their back straight like typical mage characters to implicate that they aren't very mobile.

Marksmen are ranged characters with very low durability but high damage input. Marksmen are usually played simply due to their range allowing them to remain at a safe distance while dealing out high amounts of damage that brings down even the enemy tanks if the marksmen are left alone. Marksmen are usually played as Sustained Damage dealers and Carries, although sometimes they might have skills that enable them to initiate team fights as well. They don't usually have the mobility other classes have, nor powerful incapacitating abilities, so they often rely on their team to "peel" for them while they deal damage. Their silhouettes usually focus on slim shapes as with mages and the poses make them similarly seem immobile. Their weapons usually give away their range, as they are most often equipped with bows, crossbows or guns.

Picture 18: Ashe is a character from LoL with her silhouette made recognizable mostly due to her bow and cloak and static pose like a typical marksman.

Due to there being so many classes and different roles in the games, it's even more important for the player to be able to tell what each character is capable of just from the character's design. If a character equipped with a simple staff, standing still with their back straight suddenly starts vaulting over walls in-game, the player is no doubt left confused. Meanwhile, if a character crouched down and armed with daggers does the same, the action seems more logical.

When doing character design for a MOBA, the artist should know from the very early phases what role the character is going to have in the game and do the design accordingly. A mage equipped with a big axe doesn't really convey the correct message and thus, is not very player friendly.

4.3   Colors and Contrast

Setting correct values and hues when deciding the color palette for a character is an important part of the character design and production. Usually each game has color palettes decided for them from the very early phases and it goes through very few changes through-out the development. Depending on the theme video games may have very vibrant and wide variety of colors or it may have a palette limited to only two or three colors. To be more consistent with the palette and colors, sometimes it's more important to pay

attention to the technical aspects of the colors rather than simply looking at different colors and pick out those you like.

Each color can be defined by three values: hue, saturation and brightness (HSB). An easy trick to make a palette seem more coherent is to use these values, as explained by Tyler Seitz in his article "Picking a Color Palette for Your Game's Artwork". After picking a color you will need, you pick the following colors by changing only the hue of the color and keep the saturation and brightness of the color same. And should you have the need of changing the color's saturation instead, you should keep the hue and brightness unchanged. Of course, mechanical knowledge and tricks and tips will only take you so far and in the end, it is up to the artist to decide what works and what doesn't.

In LoL and DOTA 2 the palette for the environment is very limited: green, blue and brown are the most dominant colors and they tend to be very de-saturated, especially in DOTA 2. HotS has a more wider variety of different maps, so their palettes are harder to pin down, but depending on map, the palettes tend to be desaturated or very dark. Using limited and desaturated palettes for the environment is a good tactic to make the colorful and more heavily saturated characters to stick out. Of course, the games have other ways to bring the character's out more, like with highlighting their figures and the big health bars above their heads. Still, the shape of the character along with the colors are very important in making the gameplay more player friendly.

Once the artist is aware of the limitations the game's environments palette sets, they can focus on the limitations the game's other mechanics set. When viewing humanoid characters or even creatures they can recognize certain features of the viewer will always focus mostly on the character's face, head and upper body. Consequently, this is where the artists want the viewer to focus on as well. Value plays an important part in achieving this. When doing the grayscale version of the character concept, the artist should pay attention to where they place the darkest and lightest tones. Usually the character's form is filled much like a gradient, darkest shade at the feet and lightening towards the torso and head.

Attachment 6: Grayscale of my character design.

Light colors by themselves aren't enough to create an interesting character, so the artist should also have knowledge about how to use contrast and where to place details. Contrast is an effective way of drawing the viewer's attention to where the artist wants it to be. In grayscale, this merely means placing darker shades on the design to the character's torso or lighter spots to its feet depending on where the artist wants the viewer's attention to be drawn.

When the grayscale version is done the artist can finally move on to deciding the palette for the character. The palette can come from anywhere. The artist may already have an idea for it, or they may just play around with colors until they find one they like. In one of LoL's newest character's case, the colors were picked from other characters who shared the same background culture.
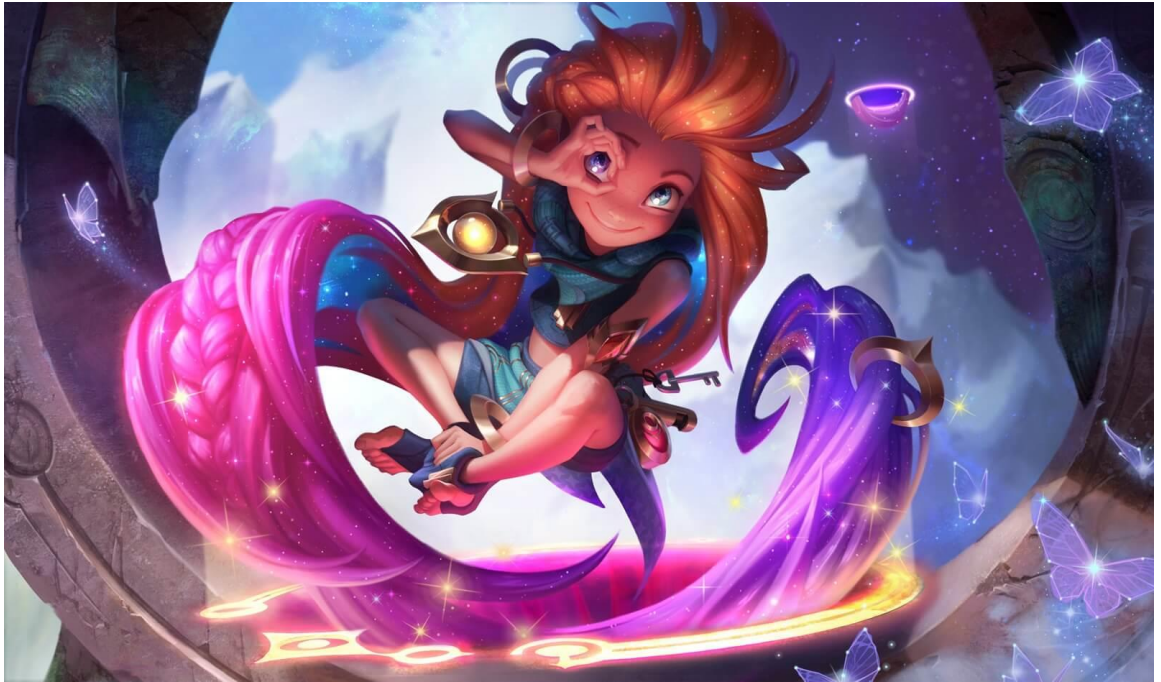
Picture 19: In their Champion Insights blog post about Zoe, BananaBand1t reveals that Zoe's palette originated from colors picked from other characters' palettes who share the same origin with Zoe.

The artist picking the palette should have a comprehensive understanding of color theory and how to use complementary colors. Colors behave differently when placed next to other colors. Light colors obviously make darker colors seems darker, and some colors may make the colors next to them look like different hues of the color, but some color combinations may create some optic illusions that can make the result look very bizarre, if the artist doesn't know what they are doing. By setting a specific value to use for the saturation and brightness of the colors the artist uses, they can usually avoid creating these illusions on accident.

Usually artists pick three colors to use on the character, as explained in Valve's "Dota 2 Workshop - Character Art Guide". To create contrast to make the character more interesting, the first two colors are usually picked from opposing sides of the color wheel and the complementary colors are used to highlight certain areas and details. The primary color is picked first and as its name suggests, it will be the color that mostly defines the character. The secondary color is often the complementary color and the third color, to which Dota 2 developers and community refer to as tertiary color, is often a color somewhere near the primary or secondary color.
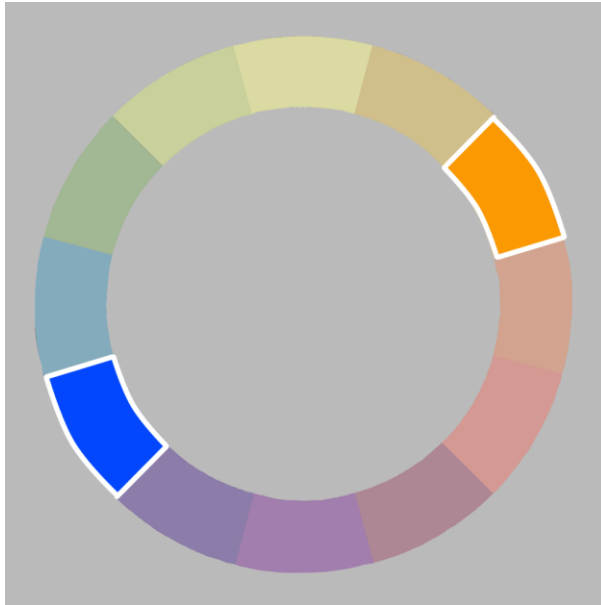
Attachment 7: Complementary colors.

Another technique explained in the Dota 2 Character Art Guide is to use split complementary colors. This means that after picking the primary color, the secondary and tertiary colors are picked from the hues "next to" the complementary color in the color wheel. Triad color scheme, also explained in the guide, is similar to using split complementary colors: the artist picks the primary color and the secondary and tertiary color are picked from similar distances from each other from the color wheel. For some designs, the artist may also use analogous color scheme, which refers to picking three colors next to each other on the color wheel, but this is seen much less than the other three since it's harder to create contrast and details with this technique. When the three colors are picked the artist can finish the palette by mixing and blending the colors to create more tones to use at the design.
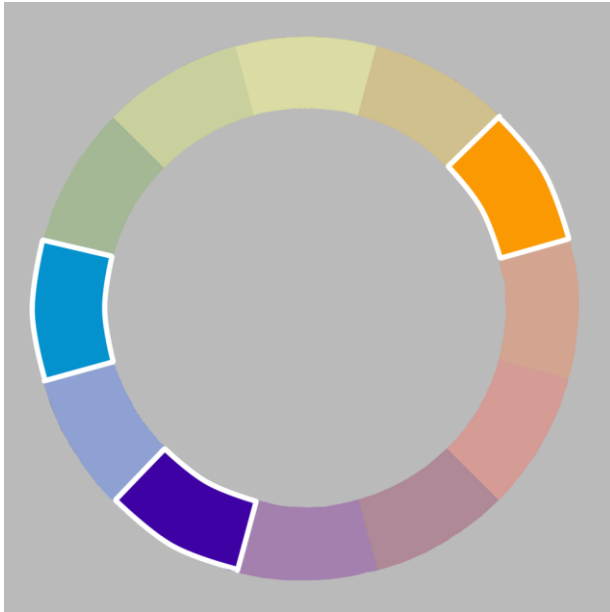
Attachment 8: Split complementary colors.
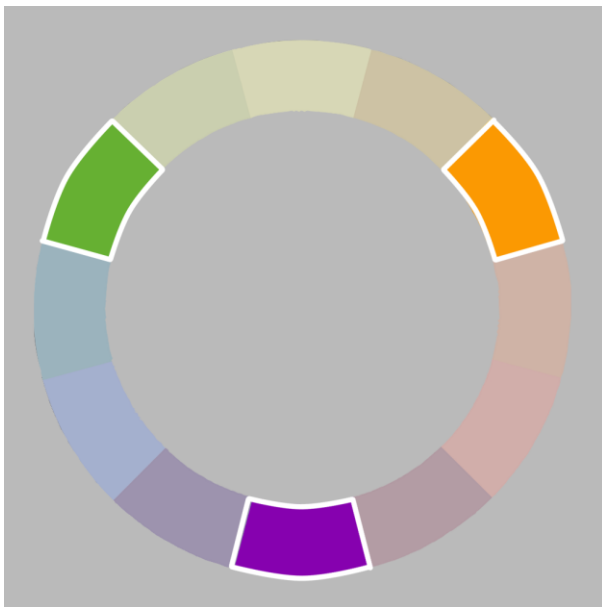
Attachment 9: Triad colors.
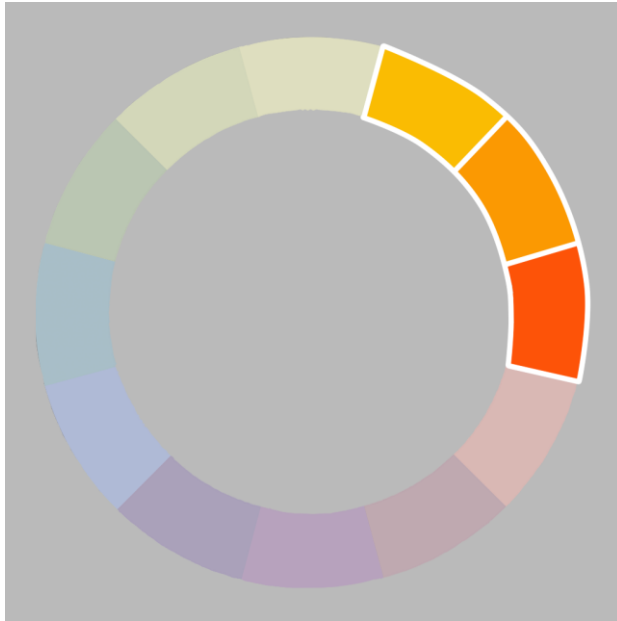
Attachment 10: Analogous colors.

When considering colors for the character the artist should think of the character's personality and theme, before picking out the palette. Many MOBA characters lean on fantasy like themes: LoL has a wind spirit who controls winds and gales to fight and protect. Dota 2 has two characters made to be siblings with the other mastering ice magic and the other fire. Considering these backgrounds, it would be odd to make an ice mage's palette consist of warm tones like red, orange and brown. Blue, purple and light tones fit the purpose much better. Sometimes the decisions are easy: the wind spirit's palette consists of light shades of blue and white with some light orange and yellow shades as a contrast as see in picture 20. But in some design the connection from the background doesn't come so easily. Dota 2 has many characters without an easy connection to any color theme. For example, a character that has mastered powerful ancient magic that takes form through ice, storm and fire could have palette referring to each of these elements or none and it could still reflect on the character's background.
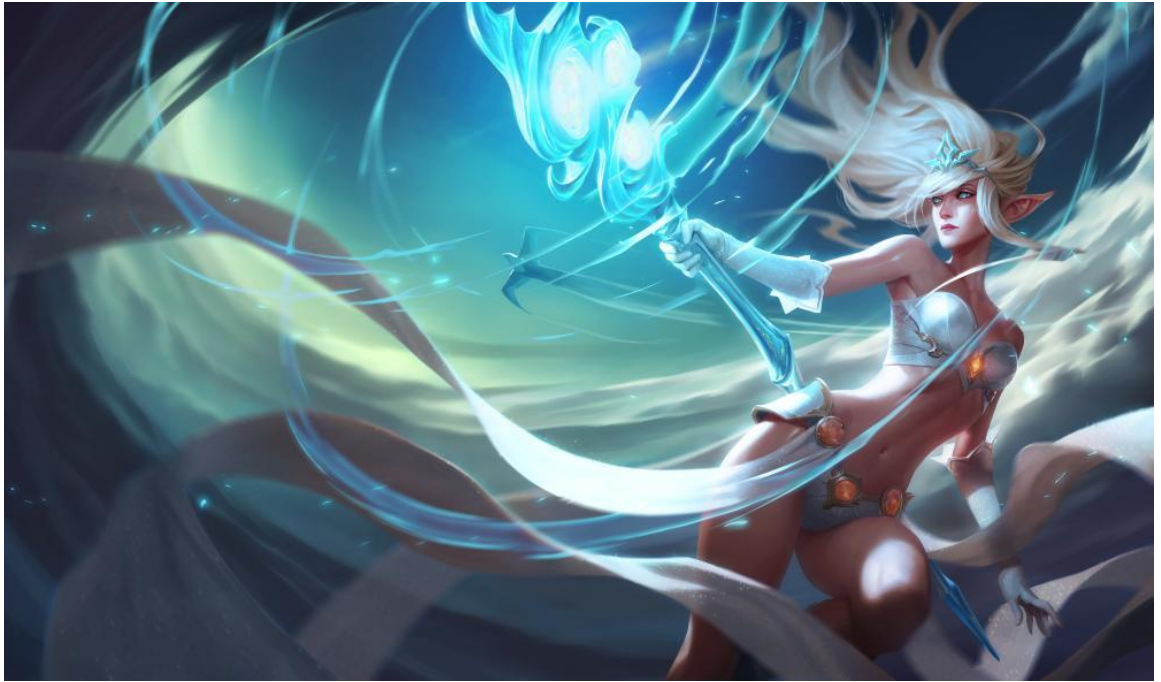
Picture 20: Janna's palette consisting only of light tones supports her background as a wind spirit and protector. It also supports her role as a support.

People have a habit of connecting certain colors to specific traits or attributes, which is something the artist should make full use of when making the palette. Warm colors ranging from red to yellow reflect warmth, enthusiasm and soft tones of brown and orange may make the character seem happy and content, perhaps a loyal and trustworthy companion. Cold tones ranging from blue to green instead reflect cold and seemingly suspicious or malicious characters. The meaning of a color may also change depending on how it is used. Bright red may be associated with anger and blood and warfare and darker shade of blue may give out the feeling of loneliness and sadness.

Typically, artists can affect the feeling the color conveys by changing its values, as Cameron Chapman states in her article Color theory for Designer, Part1: The Meaning of Colors. Colors with low saturation and hue often seem softer and fit well for friendly characters. Dark colors work well for malicious characters. A good artist can also use these colors to contrast the character's personality. Giving a friendly and naïve character a palette consisting of cold shades of blue with yellow highlights might sound contradicting, but with the correct tones, low saturation and brightness, it might be just what the character needed to seem more relatable and interesting.

Attachment 11: I designed the palette for my character making use of Split Complementary Color theory.

Colors play a big part when making details. Contrast always works to draw the viewers' eyes and details make the character more interesting. When designing the character's palette, the artist should consider carefully where they want the attention to be drawn and make sure that are has enough details to draw the attention. This can be achieved by placing dark and light areas next to each other, or by making use of complementary colors. Too much detail will exhaust the viewer and if the whole character is covered by detailed patterns and shapes, the viewer won't know what to focus on. Areas with little contrast and detail not only act as a place for the player to rest their eyes, but also make the detailed areas stand out more.

4.4   Animations and Movement

During the concepting phase the artist is expected to do sketches of the character's movements and poses. The movement and poses drawn should be something that the character will be doing in-game, such as running and attacking. In MOBAs, the sketches usually feature poses for each of the character's skills, especially if that the skill has a big impact on the gameplay. In MOBAs, the movement itself is not always the aspect that makes the skill recognizable, so usually the visual effects to go along with the movements and attacks are usually sketched as well.

The point of making a movement sheet is to give the animator an idea of what the character's animations should look like so it would convey the right theme and personality. Aside from that, the concept doesn't have much limitations. The sketches can be very simple and feature little details as long as the viewer can make out the character's main shapes and what the movement is supposed to be. Often, it can even be better if the characters are stylized since it may help conveying the theme and personality to the animator.

Even though there are very few limitations to making the movement sheet there are a few things the artist should keep in mind when making concept art. Since MOBA games are viewed from top-down perspective, all the movements and animations should be recognizable from that view as well. MOBAs also have a lot of different characters with different skillsets so the animations should be distinguishable from others. Each character also has different skill sets and their effect to the gameplay varies. More powerful skills should have clear and more "dramatic" animations and poses, while skills with less effect on the gameplay should have milder animations.

The more people play the game, the better they get. Getting better at a MOBA game also means that the player will grow used to watching the characters and animations. Often the player's ability to deal the maximum amount of damage depends on how well the player can read the character's animations. This is often vital to playing marksmen characters. Due to having low durability they get killed easily unless they know how to make full use of their range. Obviously, their targets aren't simply going to stay still for that, so the players will have to learn to "stutter-step". "Stutter-step" refers to a technique to move and attack with a character while losing minimal amount of time to the animations. Most characters have an auto-attack animation that takes longer than what the auto-attack needs to deal damage. Basically, this means that the player learns the exact moment when the auto-attack animation is far enough that it can be cancelled without cancelling

the attack itself. In-game, it means simply clicking a target to attack, wait out the animation to the specific spot, then clicking to move the character to interrupt the animation and then attacking again, as explained in Lagforce Productions' video "Heroes Stutter-Step Tutorial – Getting the Most Out of Your Basic Attacks. Stutter-stepping should usually be learnt for each character specifically since the animations are different for each. Due to these small but important mechanics, it is important for the animator to make the animations clear and recognizable.

The same mechanics go for the characters' skills as well. Some skills the characters have a point where the animation can be cancelled while not cancelling the effect.

The animations should reflect the strength of the skill used. Skills like healing and shielding usually have small, almost unnoticeable animations, since they pose no danger to the enemies. Still, it's useful information for the character casting the shields and heals to know their animation, as well as the one receiving the buffs. Skills that deal large amounts of damage usually have very noticeable and "dramatic" animations, since they need to convey the message "you will die if you don't dodge this".
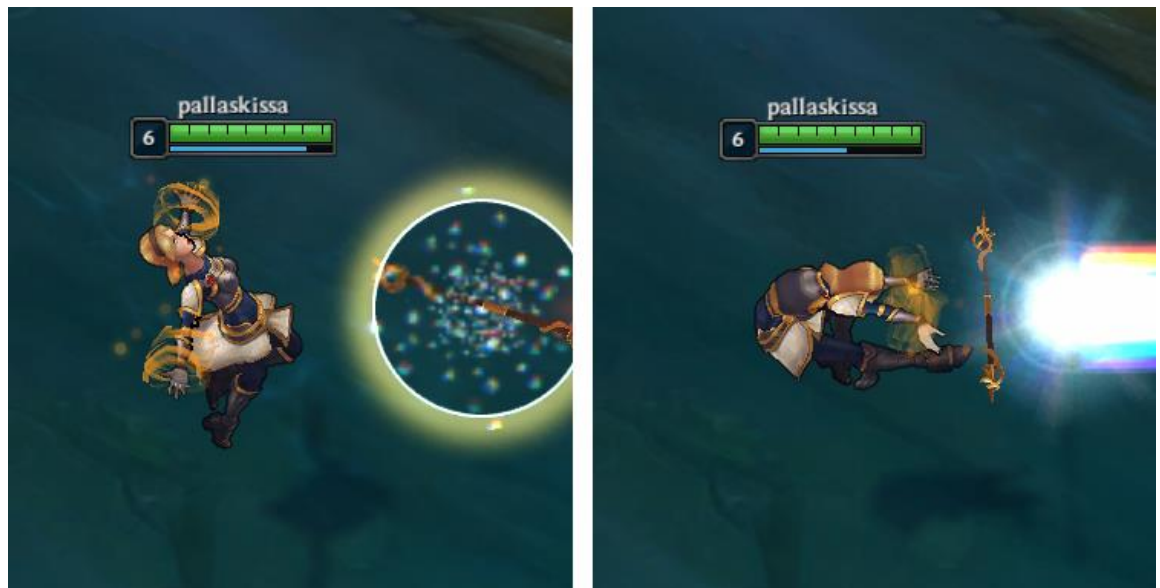
Picture 21: Lux is a character from LoL with an ultimate skill that deals high amounts of damage if not dodged, reflected the by the exaggerated and dramatic poses in the animation.

Some characters also possess skills that need to be channeled. The character's animation or pose should make it clear that they're channeling a spell, especially if the spell deals damage or should be interrupted. Of course, all of this can't be achieved with animations

alone and they are usually completed with adding visual effects to support the animations and poses.

Picture 22: Janna is a character from LoL with a channeled ultimate skill that will be cancelled if she moves or is stunned or pushed.

In LoL, the art style and characters are constantly evolving and so are the animations. The amount of animations that the characters have has multiplied over the years and now most characters have many unique animations to clarify status effects and movement speed for example. The characters start with their basic movement speed and most champions now have their own walking animation to clarify their movement speed. When they get items or buffs that increase their movement speed, the characters start their running animation cycle to signal to the player that they're moving faster now as seen in picture 6. Similarly, when the characters get slowed by some effect, they have an animation signaling the de-buff. Characters often have a specific pose for when they get stunned as well.

Up to this date (15.2.2018) LoL has 141 characters, Dota 2 has 115 and HotS has 76 that the player can choose from. These characters have somewhat unique skill sets and some skills have very unique way of interacting with the environment and, more importantly, the other characters. Some of these skills are strong enough to warrant making specific animations exclusively as a reaction to that particular skill. All animations are made with the purpose of clarifying what is happening on the screen to the player, making the animation look pretty comes only after this goal is achieved. Adding animations for specific events and skills is simply a matter of making the game more player friendly.

Animations for emotes, like taunt, joke, laugh and dance instead are simply there for the player's amusement. They serve no purpose regarding the game mechanics, so usually they don't have the same technical requirements as the other animations. Same goes to re-call animations in LoL: the visual effect is made clear enough that the character's animation for it can be as dramatic and full of flair as the animator wants to make it.

4.5 Visual Effects and Sounds

Visual effects (VFX) is a large game graphics area and would require a lot of technical knowledge that isn't relevant regarding to the subject of this thesis, so I will simply go through the non-technical practices and limitations and leave the technical requirements to minimum.

Just like every other aspect in game development, visual effects' main purpose is to make the mechanics of the game play out with clarity. Visual effects should be clear and not clutter the screen. Too much heavy visual effects can also cause lag and frame rate drops if the player's computer isn't made for gaming. Since there can be multiple characters on screen at the same time, each with their own set of visual effects, it's even more important that they are optimized correctly.

In Riot Jino's blog post /dev: League's VFX Style Guide Jino explains that their goals when making VFX are to "Provide visual clarity for gameplay", "minimize visual clutter", "promote a champion's theme and surprise" and "delight players", in that importance order. Visual effects are designed for a specific purpose: to clarify and bring out a character's skills, while minimalizing visual clutter. Some effects are supposed to be loud: skills that deal high amounts of damage or majorly affect the gameplay in other ways for example. Meanwhile some skills, or for example, auto-attacks from certain characters have very little impact on the game play and deal very little damage, so there is no need to emphasize them the same way some other effects.
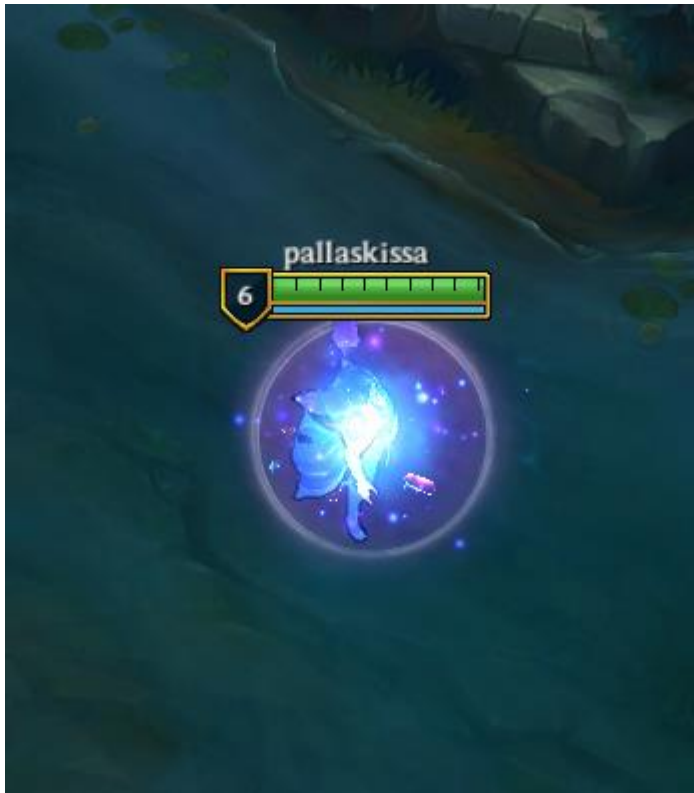
Picture 23: Taric is a character from LoL. His ultimate skill is an AoE that makes all the characters it reaches in time invulnerable to all damage for a short duration, warranting a very loud VFX.

VFX artists aren't limited to following the concept art made of the character, but rather, the concept art acts as a guide to the character's theme and how impactful the effect should be. Although the concept artist may have sketched/painted multiple effects for the character, the actual effects aren't always exactly like the concept art, even if they do have the same theme and idea. When concepting and making VFX for specific skills, there are a few things to keep in mind as stated in Riot Jino's blog post: the focal point of the effect, the skill's main purpose and how the effect fits the gameplay.

MOBAs have a variety of different kinds of skills and effects and the VFX should reflect the purpose of each of these. Some visual effects are made to the character models as an "enhancement", but most are made for specific area-of-effect skills or projectiles. The priority for these effects is to make them clear and stand out from the background and other visual effects and characters, while avoiding cluttering the screen. Similarly to how colors should be used while doing character design and environment, the primary elements of the effect have higher value range while secondary elements have lower value range and often low opacity as well, as opposed to the high opacity of the primary element.

The primary element should also have a clear silhouette and strong shape, while the secondary effect may have blurry outlines and simple shapes. If the effect is animated, like they usually are, the primary effect should have intense and clear movement and secondary elements more subtle animating.

These rules apply to all effects and need to be considered when doing effects for different purposes. For AoE effects it's important to make it clear to the viewer where the area is located, where it's focal point is and how wide it is. Some AoE skills are stronger in the middle of the skill and weaker on the edges. In these cases, the primary element of the effect is in the middle of the area and it should have clear shape and higher value colors to emphasize it. The area around it is the secondary element with lower values and blurrier shapes. The secondary element still needs to stand out enough to make it clear where the area ends. If the AoE skill has the same effect no matter whether the player is in the middle of it or barely touches its edges, the primary element is often the edges of the area or merely the elements and shapes the artist wants to bring out.

Picture 24: Jaina is a character from HotS with many high damage and slowing AoE skills. The damage the skills deal stays the same whether the target barely touches the edge of the AoE or stands inside it. The VFX gets louder when a target is affected by the effect while otherwise the player's attention is on the glowing edges of the effect.

For projectiles, it's important to clarify the projectile's hitbox to avoid situations where the visual effect might hit a character in the game, but not apply the effect the skill should

have. Clear shapes and lines are usually used to achieve this. The player should also be able to tell where the projectile is coming from, so the trail of the projectile is usually treated as a secondary element for the effect, even though it doesn't deal damage or immobilize the character's in any way. This also prevents the projectile from getting lost in the background, as some projectiles tend to be rather small.

Picture 25: Windranger is a marksman character from Dota 2. Her auto-attack projectile is an arrow that can easily be lost to the background due to its small size and coloring, but a trail effect makes it clear to the player where the projectile is.

Most MOBAs also have some effects shared by all the characters, such as recall in LoL and HotS that transports the player character back to base after a few seconds of channeling. There are also a few subtler effects with the simple purpose of bringing the characters out more and separating them from the background or allied team mates from enemies. Most common VFX used for this is colored outlines: red for enemies and blue for teammates.

Along with clarifying the mechanics and gameplay for the players, VFX add a flavor to the game and characters that make the game more attractive to the players. The same goes for the sounds and voice lines. Sounds have the same purpose in MOBAs as VFX does: they are there to bring clarity and to add to the feel and theme of the game. Most skills

have a sound effect accompanying them. Same as with visual effects, the strength of the sound is defined by the skill and purpose it's used for. For skills that deal a large amount of damage the sound is usually also loud and very different from the other skill's sounds.

For some skills, such as channeled projectiles, sounds are relevant to making out when the player has channeled for long enough and when the channel is about to end. These phases usually have animations and visual effects trying to convey the same message and adding a sound on it makes sure the player can't miss it even if their attention is on some other spot of the screen. Different skills and projectiles usually make a different sound when they hit or miss their target, which can be vital in some situations when the player tries to hit a target that is invisible, hiding in a bush or otherwise out of sight.

Characters also have their own voice lines and quotes they repeat during certain actions and in different situation in-game. The purpose of these voice lines is to confirm to the player that the character is doing what it's supposed to be doing and sometimes it acts as a warning or cue to the player. All characters have a sound for when they're taking damage and for when they are moving to where the player directed them or for casting a certain skill. Using an ultimate ability usually triggers the loudest quote or a sound that can be heard by the enemy and acts as a warning should they miss the cues from animations and visual effects.

Each character also has a set of voice lines that can only be heard by the player and have no effect on gameplay. Their purpose is simply to add more flavor to the game by conveying the characters' personalities and backgrounds. The quotes may hint at the world where the character's live in or they may say something completely unrelated. In addition to these, the characters often have voice lines for certain emotes. In LoL these are Joke, Taunt, Dance and Laugh. In DOTA 2 Taunts are equipped as cosmetic items that can be played by the player or triggered by certain events happening during the match. In LoL, taunting or joking near certain enemies or allies that the character is acquainted with from their background may trigger exclusive voice lines that reveal something about the relationship between them. All of this adds up to making the characters seem more approachable and interesting to the players.

5   Customization

5.1   Skins and Color Variations

MOBAs have plenty of different ways to introduce customization to the players. HotS and DOTA 2 support customizations made to the game environment assets, announcer voices, pets and mounts as well as some additional accessories like banners and such. Each game also has a wide variety of different skins for the characters.

Due to the wide variety of characters and skins, most MOBAs have also a system for sorting the skins. HotS and LoL use "Rarity" to define the value and quality of the skins, while DOTA uses "Rarity" and "Quality", but since rarity is the one more commonly used, that is what I will be using to classify the skins as well.

LoL's rarity system starts from Chroma, which is basically just a color change for either the original skin or another skin, sometimes including differently colored particles. The rest are Classic, Standard, Epic, Legendary, Mythic and Ultimate. All skins aside from chromas introduce the character to new splash art. Classic is the character's original skin and starting from Standard skins the characters have new models, textures and often new particles and even sound effects. From Epic skins onward, the character may have new animations as well. Legendry, Mythic and Ultimate skins have new voice overs along with all the other features. Ultimate skins also have multiple new "forms" that include new models and visual effects that change during the game.

HotS' rarity system starts from Base, which is the original skin and it's re-colors. Rare skins are rather simple changes to models and colors, Epic skins are more advanced recolors and model changes often with completely new theme. Legendary skins are complete outfit and model changes and may include new voice lines for the character.

The rarity system in DOTA 2 starts goes from Common to Uncommon, Rare, Mythical, Legendary, Immortal, Arcana, Ancient and Seasonal. Unlike in LoL and HotS, in DOTA 2 rarity, nor "quality" defines how much the skin changes the character's appearance. For example, Immortal rarity simply means these items can't be obtained from anywhere but other players. Arcana rarity means the items grant more customization, such as new models, animations and particles, similarly to HotS and LoL Legendary skins. Ancient and Seasonal items mean items that either have been or will be obtainable only during that specific season. DOTA 2 also has a more unique way of presenting skins. While in LoL

and HotS the skins are finished alternative appearances for the characters, DOTA 2 offers the player a chance to get custom items and accessories for the characters along with full skin sets. These accessories include weapons, head accessories, armors, belts and miscellaneous accessories.

Just as with character designs, the ideas for skins may come from anywhere. In most MOBAs, the characters are published along with at least one optional/purchasable skin or chomas. In LoL, many of these skins originate from the original design idea for the champion. In their blog post "Champion Insights: Jhin", written by Fizznchips, Riot's workers reveal how one of their marksman characters was supposed to be a western themed bounty hunter, but the theme and design were changed during the design process and the western bounty hunter theme became a skin idea and eventually a skin that was launched along with the character when it was released.

Some simple skins that only do minor changes to the design and model are usually more like an exploration of different designs for the same character. More expensive and "rarer" skins instead seemingly introduce the player to a completely new theme and character. Flighty archer characters will still be archers and determined brawlers will remain determined brawlers, but instead of being characters from a fantasy world they may now be rebels from a sci-fi world or teenaged super heroes fighting the forces of evil.

The main purpose of the skins is to offer the players something new and, in a way, an "improved" version of the character. Still, there will always be players that prefer the original design over the skin designs and instead they would prefer another color scheme for the appearance. Chromas, skins with little changes to original design and more complex skins all have their own audiences and people willing to pay for them.

Making a skin for a character doesn't take nearly as much time as making a new character. Riot did a blog thread on a development of a skin for their character Illaoi, explaining the process of making the skin. In the first blog post: "Choose the Next Illaoi Skin" Riot DrPh8 explains that they've been "looking at skin options for her for a while now", confirming that some skin concepts and ideas may "sit on a shelf" for months or years. In another blog post: "/dev: State of Skins" by SuperCakes explains the priorities the skin developing teams have when they choose which skins to make. One of the most important factors is how popular the character the skin is for is as well as how long the character has gone on without getting a skin.

Riot's blog thread on the development of the Illaoi skin goes over the process of the skin's creation, which usually starts from making concept and sketching ideas for the skin and

the VFX to go with it. It then moves on to the 3D artists to model and animate while VFX artists work on the visual effects for the skin. For LoL, making a skin includes making a splash art for it as well. Splash art is a completed digitally painted piece that features the character in environment that fits the character's theme and background. Unlike other 2D art made for the character and skin design, splash art is usually the only 2D piece intended to be viewed by players as well as the development team aside from the actual skin.

5.2 Concept and Silhouette

When starting with the design for the skin, the artist and design team all should have a goal that they are heading towards together. When the development of the skin starts, the first step is to decide on the theme of the skin. Usually this is done by setting a vision statement for the skin, like Riot did with one of their Legendary skins: God Fist Lee Sin. In Nikki Brown's blog post "Designing the God Fist" they reveal the vision statement for the skin was "Lee Sin is a god." On every step of the way when doing concept for the design they would ask whether the development would make the viewer feel like the character is a god. If yes, they would continue, if not, the design would most likely be re-worked

Each new skin's development starts with concept art. The idea of the concept needs to go along with the character's personality and theme. LoL and HotS both have some skin lines that share the theme and only have specific characters join those skin lines, determined by their personalities. Some skin lines have a theme of valiant warriors defending peace and justice, so it would seem very un-characteristic for a character with dark and malicious theme and personality to join this skin line. On another hand, having a benevolent healer become a sinister reaper has its own lure due to the contrast. Some skin lines may feature various roles, making it possible to insert different kinds of characters to that particular skin line.
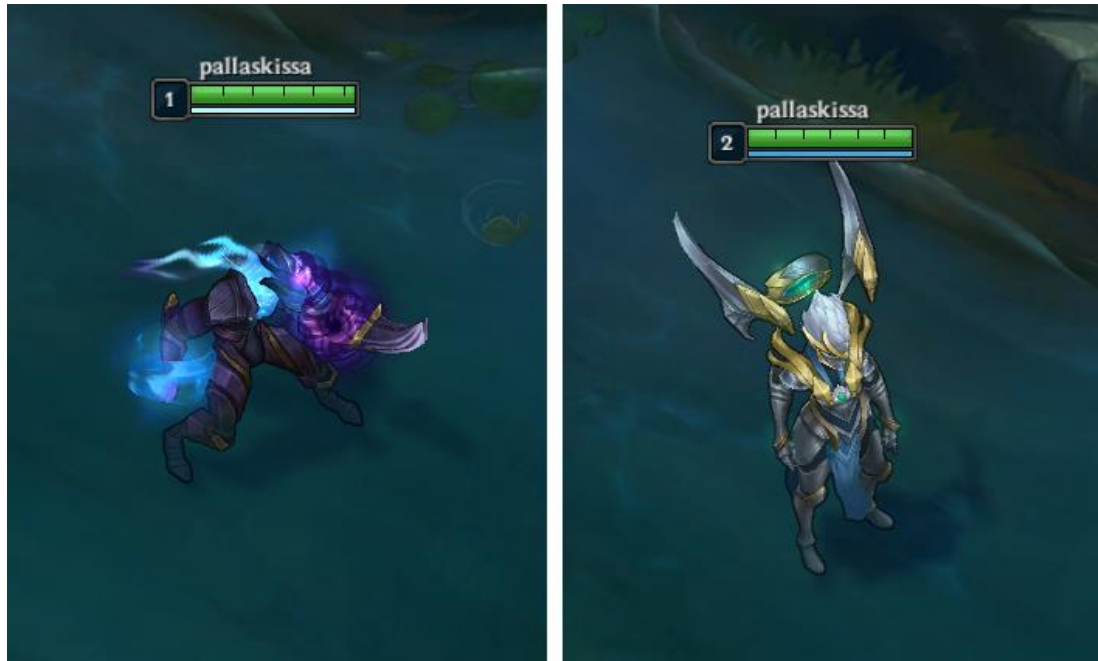
Picture 26: Darkstar Varus and Warden Karma are from two skin lines with completely different themes. Darkstar features seemingly malicious and dark characters while Warden skin line features seemingly noble warriors and defenders.

Since skins introduce the player to a completely new "alternate" versions of the characters, another important step is to make sure the character has a story to fit. What kind of world does the character live in? What do they do there? What are they like? All the character's background and goals need to be re-worked, while keeping the main points same or recognizable. In other words, while the character is to be re-designed, they should remain the traits that made them likable and relatable to the players. Rather than throwing the character into another world with different theme, to make the character and theme more interesting the character should have a role in that world that fits their personality.

Much like in character design: the skin is not made by a single person, but by a team that includes designers, narrative designers, concept artists, 3D artists, FVX artists and sound designers. The concept artist works closely with the designer as they go through sketches and paintings of skin ideas to find the exact design that fits the visual statement. Similarly to the process of character design, the concept artist needs to make their art comprehensible so it conveys the theme and personality of the character to the rest of the team. Complete paintings and art to give out the mood is not usually done for skins unlike for character design, since skins are supposed to be lighter and quicker than complete character designs. Sketches of the splash art and similar concept art usually achieves the goal of conveying the theme to others.
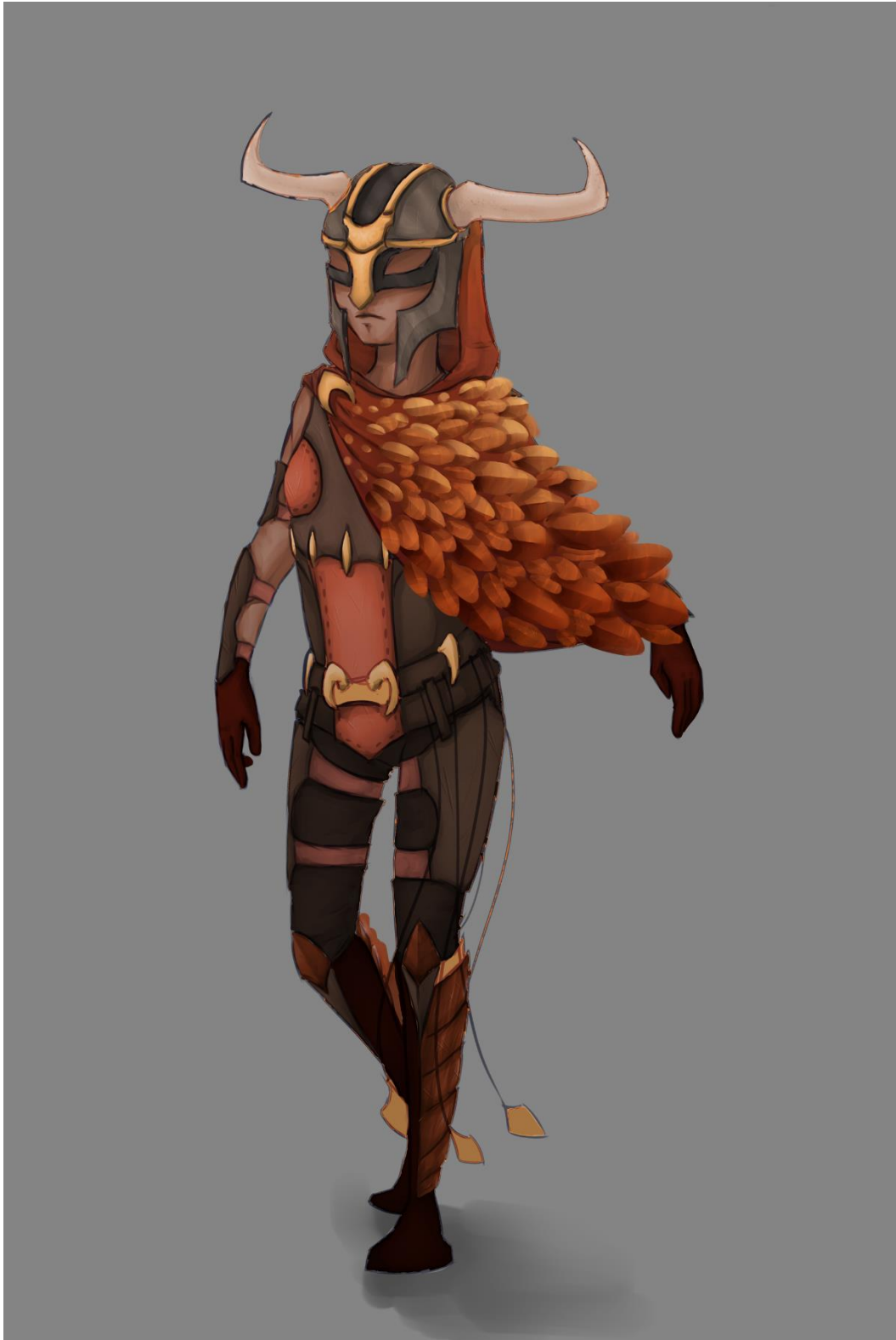
Attachment 12: My skin concept introduces the character to a new warrior theme, while keeping some of the familiar aspects of the design.

Depending on the "rarity" of the skin the artist may need to re-visualize the character's VFX and animations as well. This holds true for Legendary and Ultimate skins in LoL especially. While all skins made are supposed to give the player a completely new and

enhanced version of the characters, these skins are, as their rarity states, supposed to give out the feeling of the player having accessed something incredibly rare and "legendary." The concept artist is expected to make concept of the design and of the character's brand new visual effects and animations as well. Although skins that don't alter the VFX and animations of the characters can be made and well-liked by the players, it can be difficult to introduce a character to a completely new theme while keeping the VFX same. A benevolent healer character may become a slightly more sinister healer that steals the life from enemies to grant it to their own allies. While the light shades of yellow, pink and green may fit the benevolent healer, for the reaper skin that prefers darker shades they may seem very out of place.

Picture 27: Soraka is a benevolent healer character from LoL. Her VFX reflects her theme with soft colors and shapes. In her reaper skin, in Picture 28, the VFX are different color to fit her darker and more sinister theme.

Picture 28: Soraka's Reaper skin introduces the character to a completely new theme that contrasts her original appearance and theme.

Keeping in mind that the purpose of the skins is to introduce a new theme to the players, skins are not supposed to make the character seem like a completely new character. Similarly, the artist should keep their mind on the values and colors used in the original design. Some elements are easy to keep the same, such as keeping darker shades at the character's feet and lighter at the torso and head. New skin designs don't always have the same focus points as the original skin. While the original skin may have emphasized the character's arms and chest, the skin may focus more on the head or the weapon the character carries. It is up to the artist to find the balance between the new and what to keep from the old to keep the character recognizable and familiar. Similarly to the other limitations MOBA genre sets on character design the colors and silhouette should follow the same guidelines as stated in character design.

Something the concept artists need to acknowledge is that while the theme of the character may change, the character needs to stay recognizable for the players. While colors and design are a large part of the character's design, the silhouette often plays the largest part in making the character recognizable. Due to this the character's silhouette should remain similar to the original. This is rarely a problem with the lowest rarity skins that only make minor changes to the design and model. For Legendary and Ultimate skins this is a bigger constraint. An archer cannot suddenly become a swordsman nor can a mage suddenly pick up an axe twice their size. The skins should focus on enhancing the elements and traits the character has rather than implementing new ones.

Sometimes even changing the character's armor's shoulder pads or something similarly seemingly minor may make the character resemble some other similar character or another skin. Many characters are seemingly defined by the massive weapons they carry and changing them may make them seem completely different even though the rest of the design and silhouette remains the same. The artist should keep in mind the limitations the character's skills and mechanics set for the design. While the weapon may change, the range and other mechanics of the weapon will stay the same and the skin should reflect those mechanics and range as the original one does. This is especially important in Dota 2, which supports skins made only for the weapons the characters equip.

Since weapons are often a huge part in telling the characters from each other as well at clarifying which way the character is facing, it's important for the artist to remain the balance between the character and the weapon. Simply the fact that a small character is carrying a big weapon may sometimes be enough for the players to recognize the character. While guidelines and limitations set by the genre and original skin concept will take the artist some of the way, it is always up to the artist themselves to define how much is too much and what makes the character recognizable and, more importantly, what makes the character and the new skin likable for the viewers.

5.3   Animations and Movement

Animations are a huge part of MOBA game mechanics and player friendliness. To get better at MOBAs the player must get used to the animations and timings. Due to this, skins that affect the character's animations can be slightly problematic. The priority for making animations is to make them clear and clarify the actions happening in game to the players. The secondary goal is to make the animations fit the new skin's theme.

MOBAs have a lot of different sets of animations for each character, some which affect the gameplay and some with very minor effects on the mechanics. Animations made simply for amusement of the players, like Joke, Taunt, Dance and Laugh emotes and Recall animation are usually the first animations to change when switching skins, since changing these animations won't have any effect on the gameplay.

In LoL, some Epic skins along with the Legendary and Ultimate skins change the emote animations as well as the recall animation to fit better the new theme and personality of the skin. Changing these animations offer the player something new to go along with the

skin, while keeping all the mechanics the same. In Dota 2 the "Taunts" are cosmetics that can be bought for specific characters and stay the same regardless of the skin.

Legendary and Ultimate skins don't change just the emote and recall animations, but also the movement, attack and other gameplay relevant animations. In most cases this may mean that the player must learn all the animations again to play that character efficiently. Making clear animations helps with the learning process. Mechanically, the animations still take as much time as they do with basic and other skins. A skill that takes 2 seconds to channel will take 2 seconds to channel with the new skin as well, and an attack that takes 1.5 seconds will still last 1.5 seconds. So, if the player has once learnt the time some skills take to cast and how long the character takes to attack, learning the timing for the new skin should be easier, even though it tends to do a bit confusing process. New set of animations may be a reason for some players to not use specific skins and for other players it may be the exact reason to do so. At some level, picking a skin that changes animations may affect the gameplay, due to the opposing players not being as familiar with the skin as the player who owns the skin is. Especially in the early phases of the game it's almost as important for the opponents to recognize the attack and skill animations of the other characters as well as their own character's so they can avoid taking damage they could avoid if they can tell the attack is coming.

Picture 29: Bard is a character from LoL with a skill to place down shrines that heal on touch. if they are left alone for few seconds, they heal more. The VFX is designed to let the player know when the shrine is "ready", but a large portion of the community agrees that the effect is very unnoticeable and done better in some of his skins.

Picture 30: Bard's Snowdown skin is largely popular for the clear VFX it has for Bard's shrines as opposed to the original VFX in Picture 29.

In HotS the skins that change character's animations are fewer than in LoL, although Blizzards updates the game's visual effects and animations frequently. Legendary skins are the only skins that may have new animations and voice overs. Usually the Legendary skin includes animations and special effects for skills, but the basic animations remain similar or with minor changes.

In DOTA 2 new animations and visual effects for skins go along with the cosmetic items rather than with the complete skin. Each cosmetic item is made for specific champion and they often come in sets from which the player may choose which parts they will equip. Some cosmetic items, most often the weapon skins, come with new animations and visual effects for skills. The basic animations for moving and other actions remain the same.

Even when the model and animations change according to the skin to fit the theme better, they should still match with the original animations. Walking and running animations should still exist and the character should have animations for reactions to different status effects just as the original skin has. Along with those guidelines and the mechanical limitations for animation lengths, the animations still need to convey the same feeling as the original ones does. Channeled skills and cast animations should still give out the feeling for the power of the skill being casted. Skills that do minor damage may have smaller, less dramatic animations and skills that do large amounts of damage need more dramatic and visible animations to convey the danger to the player as well as to make the action feel more satisfying.

Something that should be kept in mind when considering skins and what they consist of is the age of the skin. Old skins may have visual effects and animations that seemed new and exciting when they were launched, but when compared to skins released nowadays the effects and minor changes to animations may seem less impressive. On some cases, it may be the other way around. Some old Legendary skills may have included new model changes and animations to match, but another Legendary skin released more recently has very similar animations as the basic skin. Although the game companies try to sort the skins by their "rarity" so the player will know what they will be getting, not all skins are equal quality especially since more often than not it is the players deciding whether the skin deserves its Legendary or Epic status by how they spend their money.

DOTA 2 is in a somewhat unique situation among MOBA games due to its platform, which allows the community to customize the characters and create their own skins and cosmetics for the characters. Content and skins for HotS and LoL are always published and created by Blizzard and Riot Games. Over the years the quality and variety of the content has improved and no doubt will keep improving and evolving.

5.4   Visual Effects and Sounds

New skins that include new animations are rarer than skins that re-work the character's visual effects. Most skins introduce the character to a whole new theme and change the character's color theme and design completely, due to this, it's hard to keep the same visual effects from looking out place. Making minor adjustments to models and textures is much less time consuming than making visual effects, since they can rarely simply be re-colored and applied to the new skin.

The concept artist and designer usually work together on concepting ideas for the visual effects, but it's the VFX artist that finishes them. Sometimes the effects may be similar to the concept and sometimes they're something completely different. Visual effects can be concepted and drawn, but the effect itself will be 3D and often it's also animated, so the concept artist can only go so far in trying to convey the effect on motionless 2D. Sometimes the concept artists make short and rough animations of some of the character's actions or attacks to capture the movement and the visual effects to go with it better. Even 2D animations can rarely convey the feeling and visual look of 3D effect in 3D space.

When working on visual effects for skins is not exactly same as making completely new visual effects for new characters, since along with the concept art the VFX artist can and

should use the original skin's visual effects as a reference. The new visual effects made for the new skins should reflect the new theme the skin has, but along with that, they should also follow the same guidelines and restrictions visual effects for MOBA games share. Their purpose in the game is to convey to the player what is happening on the screen and show where the and how long effects take. The primary and secondary elements in the effects should remain the same even though their shape and colors may change. AoE skills that deal damage in a circle should have a visual effect in the shape of a circle and it should remain so even in the new skins and so on.

LoL and HotS produce complete skins for the players that completely change the character's appearance rather than parts of them and often change the character's visual effects as well. In DOTA 2, the player can get complete cosmetic sets that change the character's complete appearance or they can choose parts of the appearance, such as a specific weapon or cape. Some characters' weapons include visual effects that will have to be re-made and included in the custom weapons, but these effects don't necessarily affect the character's attacks' visual effects. All cosmetics don't change the characters' visual effects, rather, there are specific items, like weapons, that do it. The player can also get items called "Kinetic Gems", made for specific heroes, that alter the character's animations, ability icons or visual effects when "socketed" into a cosmetic item.

Legendary and Ultimate skins in LoL and some Legendary skins in HotS also alter the characters' voice lines and sound effects. In some skins, the changes in the visual effects can be big enough that the original sound effects sound off with them. While concept artists work on the concept for the skin, the sound designers try to figure out how to translate the concept art into audio. A sound designer working for Riot, Austin "Vonderhamz" DeVries says in his blog post "On Sound Design for the Dragon Sorceress" that sound designers can "make the animator and VFX artist's work feel more crisp and impactful with the right choices, or we can make it feel weak and cheap with the incorrect ones." Heavy and dramatic animations with explosive visual effects should have sounds to match that effect. Same goes for beneficial and harmful effects: friendly skills should have a sound to make it seem friendly along with the visual effects and animations, while high damage dealing skills should have sounds to make the effect seem more impactful and dangerous.

In Riot, each of the sounds for characters is created individually by enhancing sounds made with mouths, sweeping glass shards and with similar methods. The main goal is to make the sound unique and interesting and most importantly, to fit the character's theme

and personality. When designing the sounds for a character and a skin, the sound designer should keep in mind the priorities for making sounds for video games. The sounds should clarify the character's mechanics and differences between skills and reactions, while not making the characters' sounds constant noise or annoyance. The last thing to consider, but none the less important, is the character's theme and the sound's immersivity.

While designing the sounds for a character and skin, the sound designers often gather up and make sounds to act as their "mood board" similar to what concept artists do. It helps with keeping the theme and "mood" consistent, especially if there is more than one person working on the sounds. The sounds can be nonsensical sounds made with mouth that fit the theme the designer is going for, or they can be very thematical and specific, like water dripping in a cave.

The sounds the sound designer starts to work on from the mood board need to fit the theme and visual look of the assets and characters they are meant for, but there are also some technical limitations for them. Each skill and attack take a very specific amount of time to cast and the sounds should match that time. A casting time for a spell can be half a second, or it might take five seconds to charge fully. The sounds made for the effect need to reflect its length and give the player a clear indication how far along casting they are, even if the cast is only half a second long.

The sound design usually goes together with the visuals for characters: the visuals inspire and give direction for the sound designers and likewise, the sounds can inspire the artists with their work.

Along with sound effects, some skins also offer new alternative voice lines and quotes for the characters. These have very minimal effect on the gameplay since majority of the character specific voice lines can only be heard by the player playing the character. These voice lines exist mainly to make the characters seem more interesting to the player and it conveys the lore behind the characters to the player. Some voice lines may be important for the gameplay as well, since the characters may, for example, yell something when they cast their ultimate abilities, which can be an indication for allies and enemies both about what is going to happen or what just happened.

The goals for visual effects and sounds are similar: they should support and enhance the gameplay without cluttering the screen or distracting the player. They should also support the theme and design of the character and skins and offer an enjoyable experience for the player.

6   Conclusion

Character design for MOBA games is a very time consuming and lengthy process that demands effort and ability to work and communicate well with others, especially in big game companies. The teams working on a character design for the same character have people with different areas of expertise including designers, engineers, VFX artists, concept artists, 3D modelers, riggers, animators and sound designers. For a successful character design aimed at a large audience, all these people should be capable of working together to communicate their ideas and to create content that compliments each other's work.

Designing a complete MOBA character would mean designing a concept and mechanics for the characters as well as making the concept art, reference sheets, 3D model, animations, VFX, sound effects and voice overs. Making concept art for character includes multiple phases that may be split to different people depending on how many people are working on that character design. These phases include thumbnailing and concepting the design, creating a concept piece of the character as well as making a reference sheet and a movement sheet.

Each artist has their own style and habits they practice while working on character design. Concepting, thumbnailing and sketching for example, is a very large and important part of character design, but the techniques used to create concept art of the character vary from artist to artist, especially once the artist has more experience on the subject. There are multiple techniques and practices that can be used as a guide while doing the character design, for example, using specific colors to create a desired effect or contrast. While these techniques should always be considered it should always be kept in mind that it is always up to the artist to decide what works and what doesn't. Following a guide set in stone, even if it made by experts, will not always yield the best results.

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Pictures

Picture 1: Bethesda's Skyrim: Special Edition (15.5.2018)

Picture 2: Blizzard Entertainment's Overwatch game client (15.5.2018)

Picture 3: http://www.lol-wallpapers.com/artwork/summoners-rift-overview/ (9.3.2018)

Pictures 4 & 5: Riot Games' League of Legends game client (15.5.2018)

Picture 6: Riot Games' League of Legends game client (15.3.1018)

Picture 7: Valve's Dota 2 game client (15.5.2018)

Picture 8: Valve's Dota 2 game client (15.5.2018)

Picture 9: Blizzard Entertainment's Heroes of the Storm game client (16.5.2018)

Picture 10: Blizzard Entertainment's Heroes of the Storm game client (14.3.2018)

Picture 11: http://i.imgur.com/Oq1cmp9.jpg[/img] (14.3.2018)

Picture 12: https://www.riotgames.com/asset-kit/league-of-legends/splash-art (15.3.2018)

Picture 13: https://www.riotgames.com/asset-kit/league-of-legends/splash-art (15.3.2018)

Picture 14: Blizzard Entertainment's Heroes of the Storm game client (23.3.2018)

Picture 15: Blizzard Entertainment's Heroes of the Storm game client (23.3.2018)

Picture 16: Riot Games' League of Legends game client (21.5.2018)

Picture 17: Valve's Dota 2 game client (16.3.2018)

Picture 18: Riot Games' League of Legends game client (23.3.2018)

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Picture 20: https://www.riotgames.com/asset-kit/league-of-legends/splash-art (15.3.2018)

Picture 21: Riot Games' League of Legends game client (23.3.2018)

Picture 22: Riot Games' League of Legends game client (23.3.2018)

Picture 23: Riot Games' League of Legends game client (23.3.2018)

Picture 24: Blizzard Entertainment's Heroes of the Storm game client (16.5.2018)

Picture 25: Valve's Dota 2 game client (15.5.2018)

Picture 26: Riot Games' League of Legends game client (23.3.2018)

Picture 27: Riot Games' League of Legends game client (23.3.2018)

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Picture 29: Riot Games' League of Legends game client (23.3.2018)

Picture 30: Riot Games' League of Legends game client (17.5.2018)

Attachments

Attachment 1:

Attachment 2:

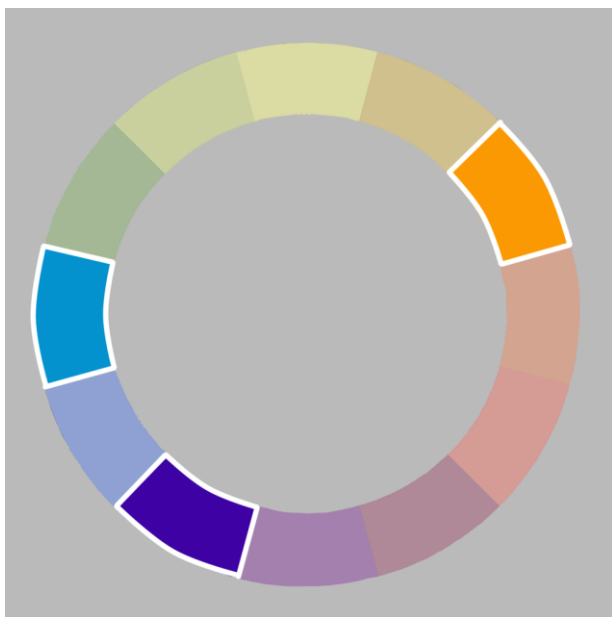

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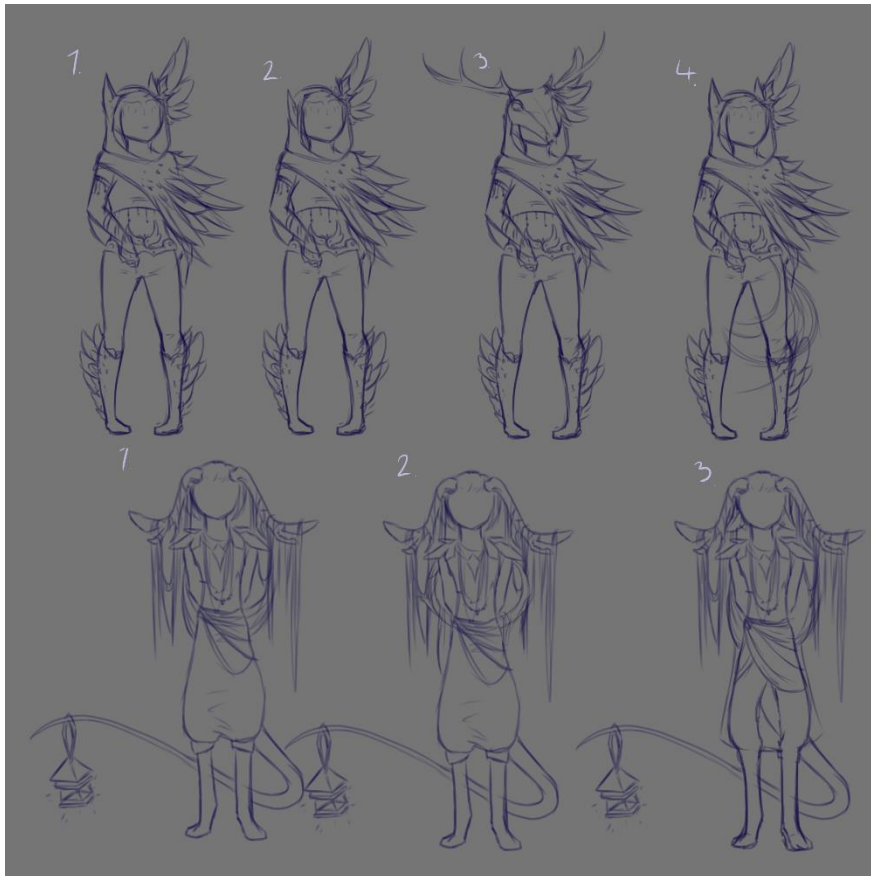
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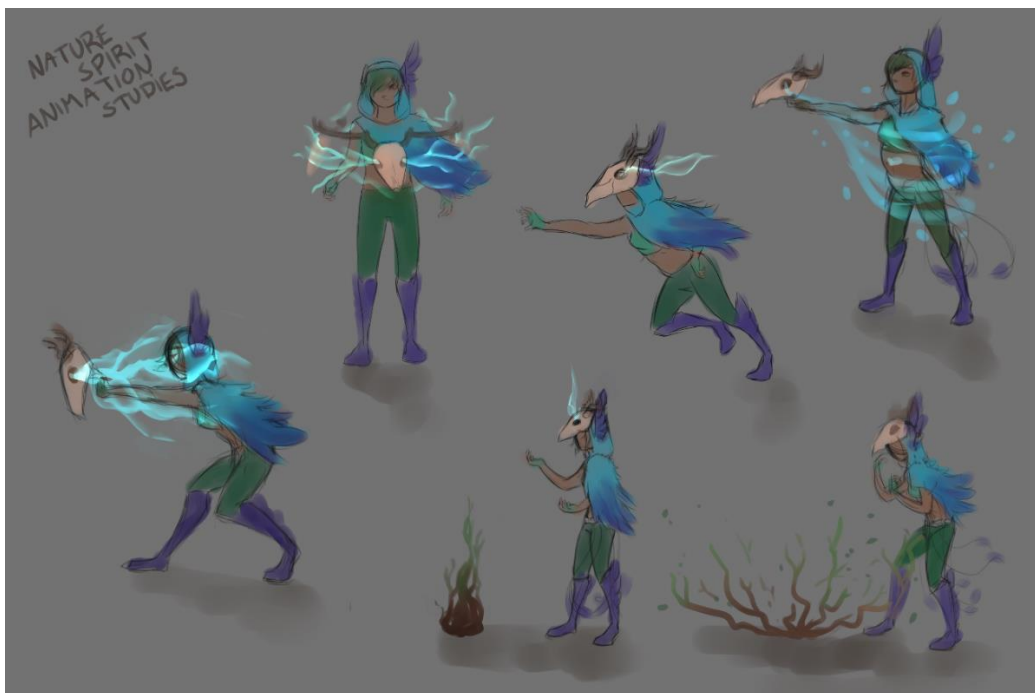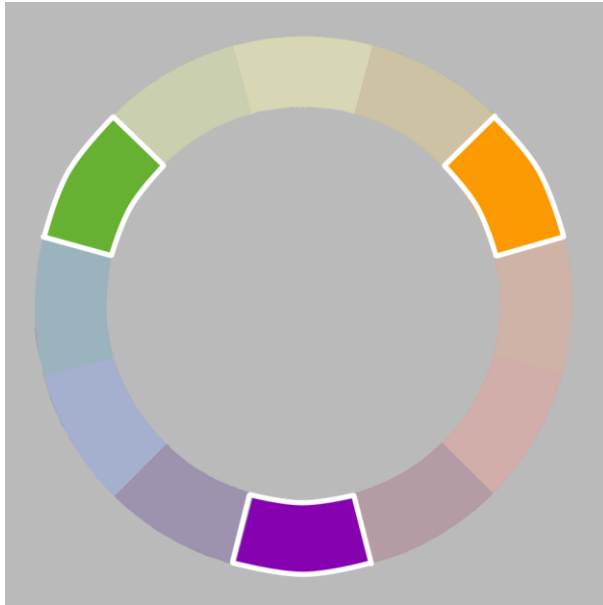

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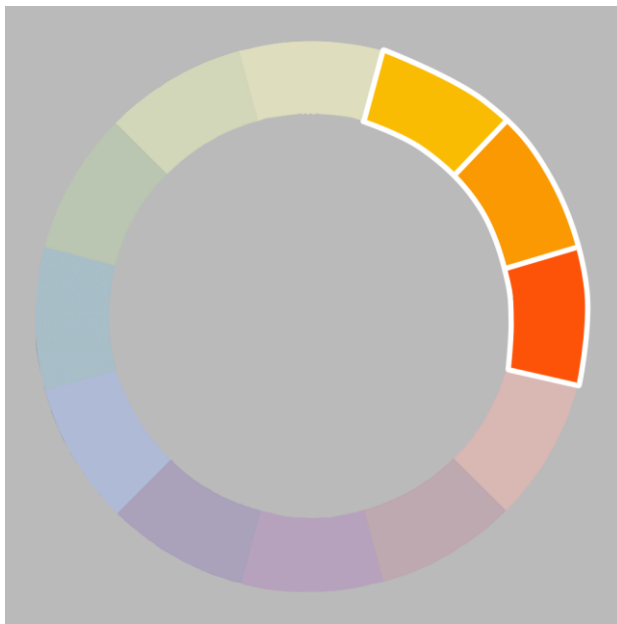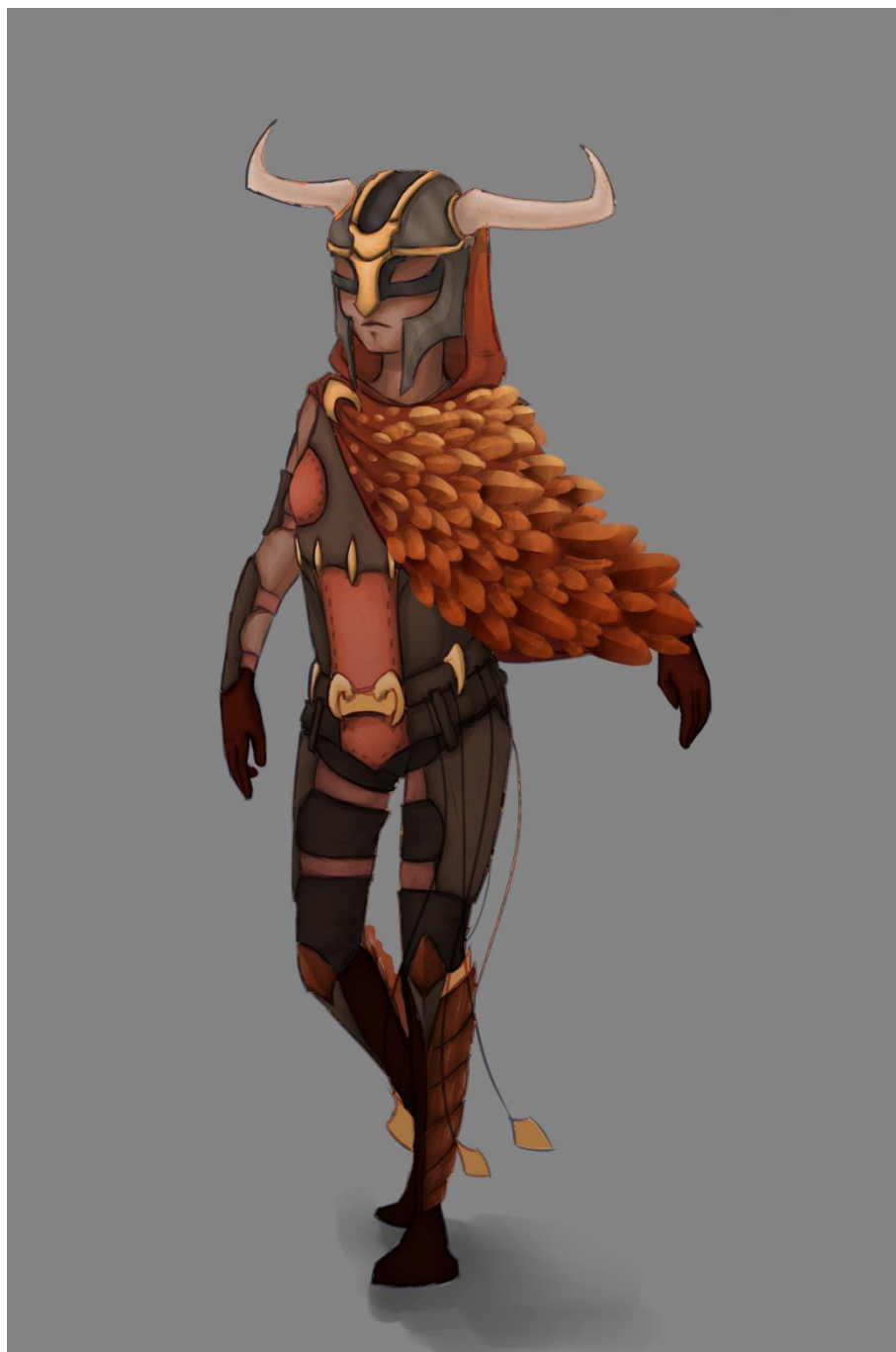

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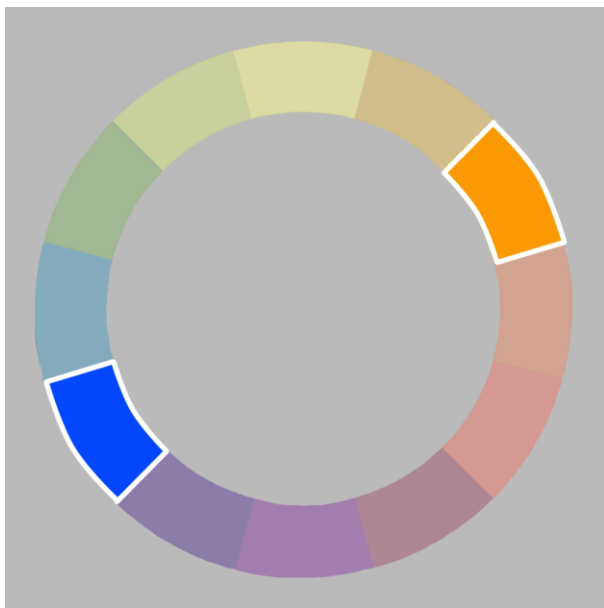
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