Tampereen ammattikorkeakoulu

Creating animated stickers for social media using Adobe Photoshop

Krista Erkkilä

ABSTRACT

Tampere University of Applied Sciences
Degree Programme in Media and Arts

ERKKILÄ, KRISTA
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Bachelors thesis 54 pages, appendices 6 pages
December 2019

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The purpose of this thesis was to go through the pipeline of creating social media stickers from an idea to a finished product, while studying whether or not Photoshop is a feasible tool for such a project. Social media stickers have become widely used and more popular over the years, making them a viable tool for marketing. This spawned the idea to work with a client to create an animated set of social media stickers.

The thesis goes through the principles of animation and uses these to see how well the animation pipeline in Photoshop fares to more commonly used animation software.

It was found that while Photoshop can be used for small animated projects, it is not suitable for larger projects as it severely lacks some of the tools that are vital to create fluid, appealing animations.

Animation students and those interested in learning how to animate in Photoshop can use this thesis as a beginning point to familiarize themselves with what it is like to animate in Photoshop, and whether or not they want to use such a tool for animation.

Keywords: character animation, 2D-animation, photoshop, stickers, social media

CONTENTS

GLOSSARY

animated on twos/ones	when animating in 24 FPS, the animation keyframe duration is set to one or two frames. In western animation most of the character animation is commonly done on twos, while ones are used for very fast actions
breakdown	animation frames drawn in between the extremes to define the arc and spacing of the animation
ease	used to describe the spacing of the animation when the motion is not linear, hence it has an ease
ease in	motion that slows down as it eases into the following key poses
ease out	motion that speeds up as it eases out of the previous key pose
emoji	image used in text-based communication to convey an idea or a feeling
emoticon	combination of letters used in text-based communication to create a visual message of a feeling
FPS	short for frames per second, conveys how many frames are displayed per second, most common FPS in animation is 24 frames per second
frame	short for animation frame, a still image of which animation consists of
gesture	used to describe a drawing that captures a characters or objects pose, attitude and possible motive
GIF	Graphics Interchange Format, file format used to store animated images
in-between	animation frames drawn in between the key poses and breakdowns
key pose	used to describe the most important frames of the animation or the extremes of the poses
meme	cultural or behavioral feature heritage, often refers to internet memes, which can be ideas, images videos etc. that spread quickly on the internet

off-model	when a character or an object does not match its original design
onion skin	used in frame-by-frame animation to view previous and following frames alongside the selected frame, usually in lower opacity
pose-to-pose	animation method where each key pose is drawn before adding the breakdowns and finally possible in-betweens
rotoscope	method used to transfer information from video reference into hand-drawn animation
sticker	Illustrations used in social media apps similar to emojis, stickers can be animated or static images that help convey emotions
straight ahead	used to describe animation drawn without planning the poses first, commonly used to create a more spontaneous, free-flowing motion
tangent	when two lines connect but do not intercross

1 INTRODUCTION

"With new forms of communication, we are not always face-to-face. This is where emoji and stickers have provided a way of adding that "human touch". As we try to humanize technology, and as brands try to become more human, these ways of communicating become even more important." (infogr8, 2017)

This thesis goes through the pipeline of creating social media stickers from an idea to a finished product, all the while studying whether or not Photoshop is a feasible tool for such a project.

Personal growth goals included improving skills in character animation and further knowledge of the software, as well as meeting the client needs in the project and working in fluent collaboration. Acquiring and developing these skills are vital for further growth in the creative career.

This thesis is targeted to students and professionals interested in getting into 2D animation, but who might not be familiar with any animation software. There are plenty of resources available for those who use software designed specifically for animation, but not every student can afford to buy a license for an animation software they might not be comfortable working with at the end. This is why I chose a software that students are likely familiar with, yet which is not commonly known as an animation tool. Although Photoshop is not designed to be used for animation, it has a lot of potential as it allows full control over the visual look of the animation and grants the artist freedom of expression in limitation of their skills and imagination.

2   ANIMATED GIFS AND STICKERS IN SOCIAL MEDIA

2.1   Brief history of stickers in social media

Since their popularization through the mobile app LINE in June 2011, stickers have been spreading across social media platforms as a new way for social media users to express themselves through visual imagery. Here is a quote from LINE: "We are a pioneer in the creation and design of Stickers, our larger and more expressive version of emoticons. Users can express their emotions or actions by sending a single Sticker instead of a thread of plain text. We believe that Stickers have made communication both more convenient and more enriching. Our users in aggregate sent an average of 389 million Stickers per day in March 2016." (US Securities and Exchange Commission, 2016)


PICTURE 1. Sticker set featuring LINE FRIENDS, a set of characters designed for LINE by Kang Byeong Mok (LINE, 2019)

Facebook added stickers to their website and mobile messaging app, Messenger, in April 2013 (Mashable, 2013). Facebook owned WhatsApp was late to the party, launching stickers in October 2018, for its 500 million daily users (Wabetainfo, 2018).

Stickers continued to spread across platforms, reaching video streaming platforms such as YouTube and Twitch. Twitch is a live streaming platform first targeted towards gaming that aims to bridge the gap between content creators and fans. Twitch uses its own on-platform currency, Bits, for users to unlock new stickers and emotes, and along with it, show their support to their favorite streamers (Twitch, 2019). And as of 2019, following the lead of Twitch, YouTube has added stickers as a new way for content creators to monetize their channel (Techcrunch, 2019).
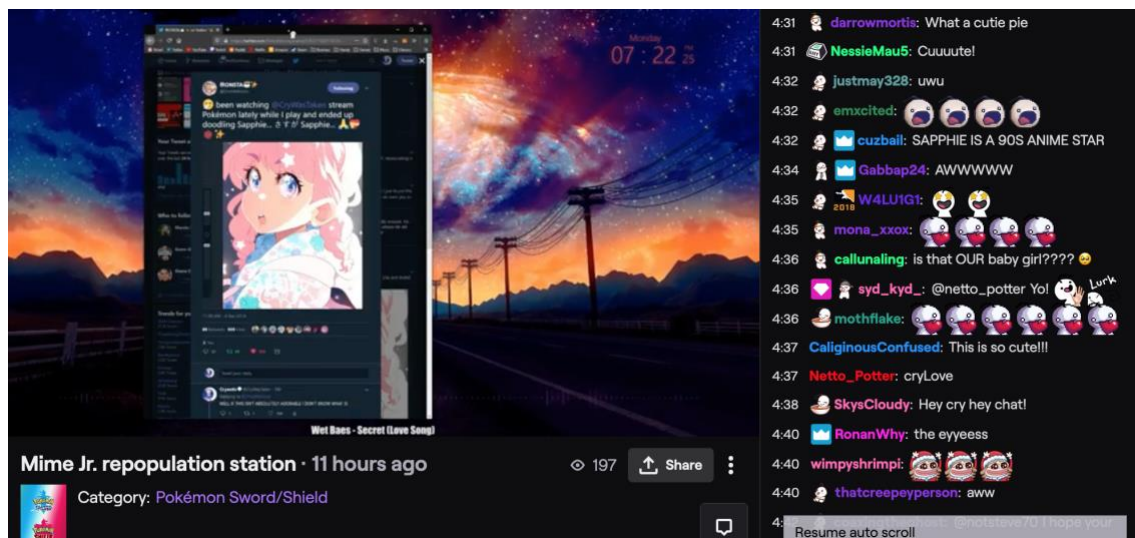
PICTURE 2. Screenshot of users using the emotes in the Twitch chat (2019)

Stickers are also being used to raise awareness and discuss current events. In October 2019, Facebook released a set of stickers designed to raise awareness on mental health issues, and to mark the World Mental Health Day. In addition to this Facebook said they would donate money to organizations working on the cause: "Each time a sticker is sent, Facebook will donate $1 to a group of mental health organizations, up to 1 million USD." (Facebook, 2019)

PICTURE 3. "Let's Talk" a sticker set published by Facebook (2019)

PICTURE 4. Promotional art featuring "Let's Talk" sticker set in use (Facebook, 2019)

2.2   Impact on popular culture

This is the story of Trash Doves and how creating a simple set of stickers can lead to an internet phenomenon, and the effect this all can have on the creators. Released in 2016, Trash Doves, a sticker set featuring pigeons designed by artist Syd Weiler, eventually became an overnight viral meme in Thailand, and quickly continued to spread across the internet.

TRIGGER WARNINGS. Online threats/harassment & stalking, fascists/neo-nazis, parental illness/death, brief mention of suicidal ideation, and drinking alcohol/using marijuana to cope with stress are mentioned.

In early 2017, the flailing purple bird named 'Trash Dove' briefly and violently overtook the internet in a case of extreme social media meme virality.

Trash Doves are my creation, and this nearly ruined my life.

PICTURE 5. Screencap of the introduction of Weiler's statement released on Medium (2019)

This newly found virality led to Trash Doves being spammed across Facebook, which in turn led to some users becoming irritated at Weiler for creating the stickers. An anonymous source eventually tipped that Weiler was being talked about on 4chan, a popular image board. "Many were asking what my bird was, making fun of it/blaming its movement on various disabilities while admiring the Asian Facebook users for creating a nuisance of a meme — and because of its popularity and their newfound personal dislike of me, early discussions of how to co-opt the imagery for their own subliminal messaging. Even scarier still, at the time, were a few individuals mentioning attempts to find my address, trawling the internet for personal information like government ID and banking logins, and tracking down the names and addresses of my immediate family." (Medium, 2019)

Eventually Weiler became a target of a misinformation campaign that sparked in 4chan: "The 4Chan users previously mentioned began writing, creating and publishing official-looking wiki articles and 'explanation' images citing my Dove as a secret white supremacy message." This led to Apple removing Trash Doves from the App Store. Weiler estimated to have lost at least fifteen thousand dollars of revenue during the few days Trash Doves were unavailable for purchase. With the undocumented amount copyright infringements and bootlegged merchandise featuring Trash Doves makes it impossible to estimate how much revenue and exposure was lost overall. (Medium, 2019)

The stress caused by previous events took a toll on Weilers mental health: "The next month was spent half-drunk, dazed and traumatized — sifting through legal emails, filing hundreds more DMCAs, and slowly packing for my previously-planned move back up the coast." In the following years Weiler continued to receive occasional anonymous messages and concerning content. (Medium, 2019)

Aside all negativity, Trash Doves inspired a community of internet citizens to create a body of work. This included fanart, cosplay, handcraft and other works of art. "Revisiting my personal collection of these things, being tagged in reposts, and hearing stories of their good impact into peoples' lives — even years later — has helped me come to terms with the hate that fixed itself within my memory of them — and it has helped me dismiss it." (Medium, 2019)

PICTURE 6. Images featuring fanart based on Trash Doves (Medium, 2019)

In August 2019, Weiler released a new set of stickers featuring the Trash Doves, this time focusing on managing mental health. (Medium, 2019)

PICTURE 7. Few stickers from the latest Trash Doves sticker set released by Weiler (Medium, 2019)

2.3 Big business

"The app Line, which is seen as being the app that ignited the sticker trend back when they first started out in 2011, generated a whopping $268 million in revenue from stickers in 2015." (infogr8, 2017)

In April 2014 LINE opened their online marketplace for users to sell their own sticker sets. According to Statista, the top-ten most sold user-generated sticker sets sold an average of 215,200 USD each between April-August 2014. According to LINE, about half of the sales revenue were distributed to the creators, which would make the creators earnings approximately 107,600 USD each. (Statista, 2019.)
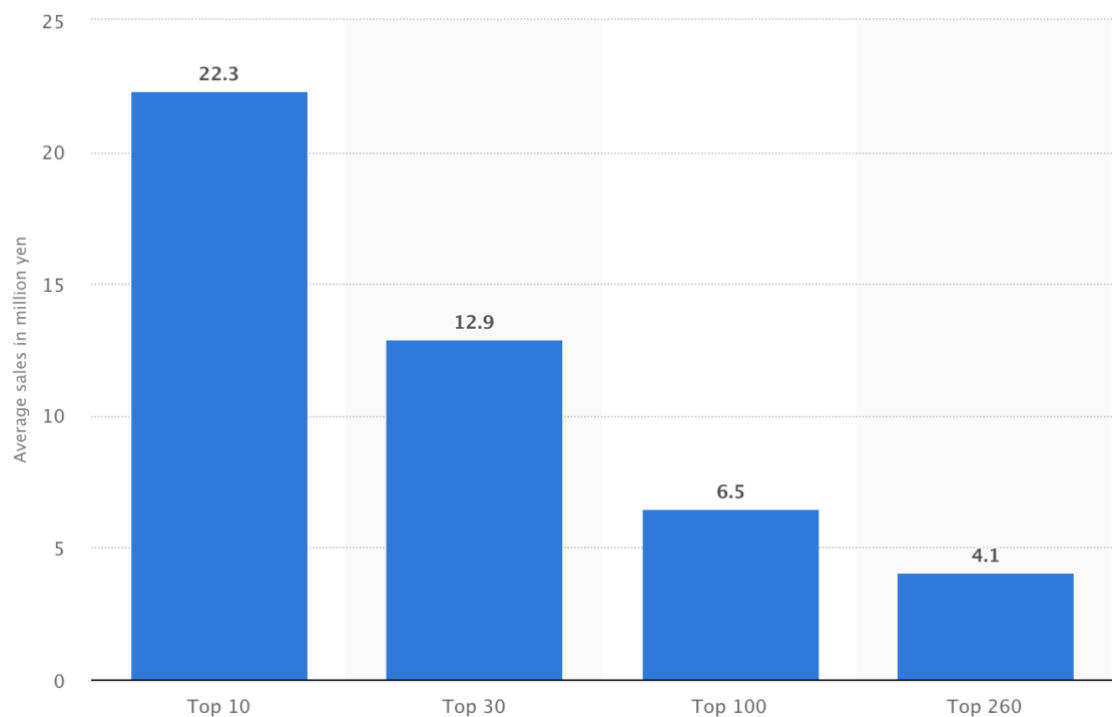

FIGURE 1. The amount of revenue created by top-selling sticker sets in August 2014 (Statista, 2019)

Global brands have recognized the success of LINE and its set of characters called LINE FRIENDS, first introduced in a sticker pack back in 2011 (Pressman, 2016). Back in 2015, LINE FRIENDS became an independent company of its own and has collaborated with several renowned brands around the world, including a Korean boyband BTS with a set of characters known as BT21, and a Finnish mobile game studio SUPERCELL. "'BT21' characters created by LINE FRIENDS and BTS have been hugely popular, reaching more than 8 million downloads and exceeding 71 million exposures on Twitter only 10 days after launching." (PR Newswire, 2019)
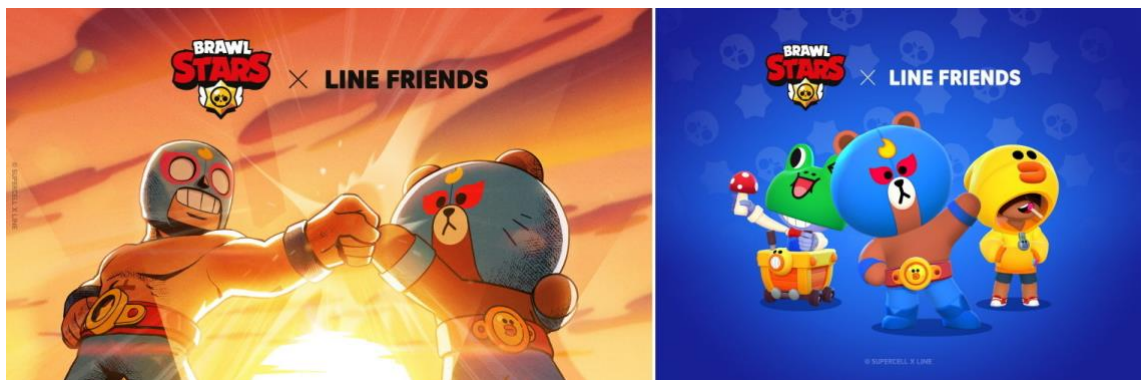

PICTURE 8. Promotional art from Supercells and LINEs collaborative campaign released in December 2019 (PR Newswire, 2019)

3   ANIMATION PRINCIPLES

It is next to impossible to talk about animation without mentioning a single one of the animation principles. Before diving into how the animations are made, this chapter offers a quick overview of the 12 animation principles first introduced in the Illusion of Life by Ollie Johnston & Frank Thomas. (1981)
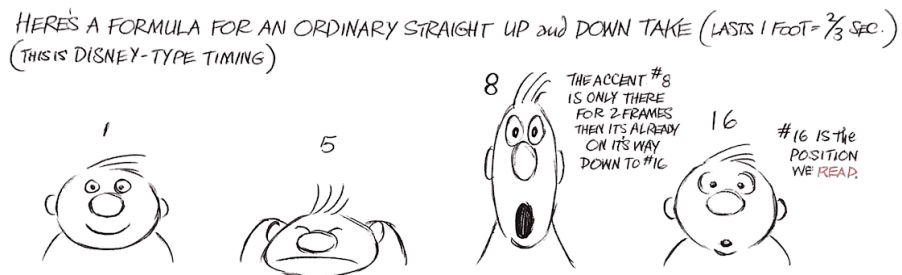
3.1   Squash and stretch

This is what Alan Becker (12 Principles of Animation, 2017) describes as: "The principle that animated objects will get longer or flatter to emphasize their speed, momentum, weight, and mass." How much an object squashes and stretches helps give the viewer a sense of how elastic or rigid an object is. It is important to retain the volume of an object, in order to maintain the overall believability. This is done by narrowing the object as it flattens and vice versa.
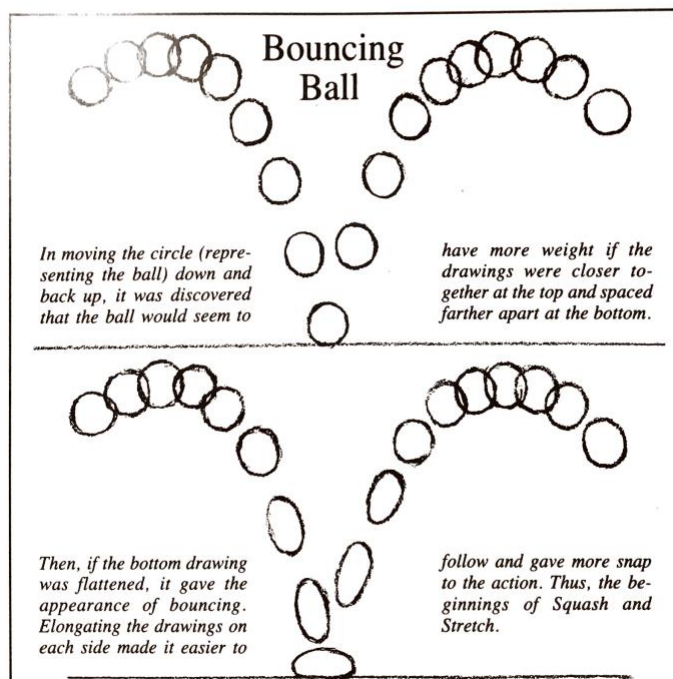
PICTURE 9. Visual demonstration of squash and stretch (Johnston & Thomas, The Illusion of Life, 1981, 51)

PICTURE 10. Example of using squash and stretch to exaggerate facial expressions (Williams, The Animator's Survival Kit, 2001, 286)

This principle can be applied in Photoshop by drawing each frame by hand or using transform tools to morph the shape. Since all the images are stored in bitmap form, there is a limit to how much and artist can morph the frames until they lose image quality.

3.2   Anticipation

Anticipation is used to give the viewer a sense of what is about to happen. Without it, action may feel flat and unnatural. Anticipation can be used to lead the eye by having a character look into a certain direction, or it can be used to add more energy into a punch. Taking an example from real life, creatures often anticipate a jump by kneeling down or taking a step back. (Becker, 12 Principles of Animation, 2017) Again, this principle can be applied in Photoshop either drawing by hand or using the transform tools.
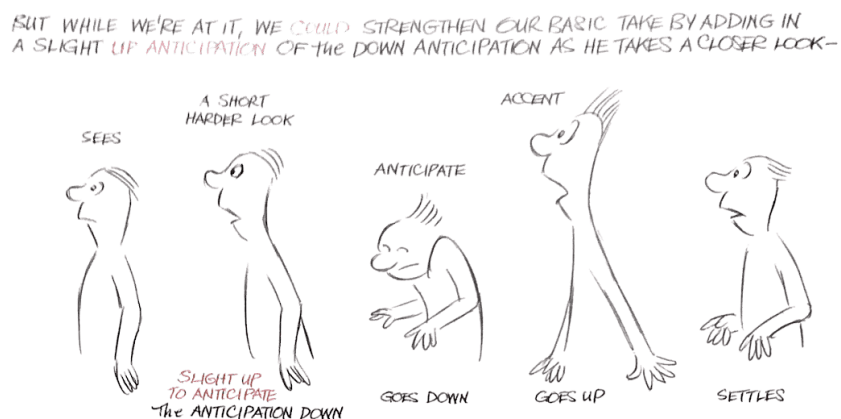
PICTURE 11. Example of anticipation in character animation (Williams, Animator's Survival Kit, 2001, 286)

3.3   Staging

The goal of staging is the presentation of any idea so that it is clear and unmistakable (Johnston & Thomas, The Illusion of Life, 1981, 53). Staging is used to control where the audience is looking and what they are feeling. This includes acting, timing, camera angle and position, and set dressing. (Fecih & Taille, Gobelins, 2017)

Camera angle and position is used to frame the action. Far away shots are used to display big action, while close ups bring attention to the expressions and emotions. (Fecih & Taille, Gobelins, 2017) This principle can be applied in Photoshop, where it is easy to move images and animations on the canvas, however 3D camera movement is not supported.

PICTURE 12. Examples of how camera is used in staging (Griz & Norm, 2018)

PICTURE 13. Weather elements being used in staging to emphasize the character's dire situation. Screencap from Emperor's New Groove. (Disney. 2000)

Proper set dressing, including environment, lighting and weather elements, is used to emphasize the emotions of the characters (Hooks, Acting for Animators, 2018). At its best, staging adds to the action of the animation, and at its worst, it can distract and draw attention away from the action (Becker, 12 Principles of Animation, 2017).

3.4 Straight ahead and pose-to-pose

Straight ahead and pose-to-pose are used to describe two different animation methods. In straight ahead animation, each frame is drawn in the order they appear on the screen. This creates a fluid movement, making this method great for unpredictable animations, like fire, smoke, water and other elemental actions. Unlike straight-ahead animation, pose-to-pose is less intuitive and usually carefully planned out. In pose-to-pose animation the essential poses used to execute the action are drawn first, then the necessary extremes, the arc-defining breakdowns, and finally in-betweens. It is common for animators to combine these two methods, using pose-to-pose for the movement of the main body, then drawing straight ahead to add overlapping motion. (Becker, 12 Principles of Animation, 2017) This principle can be applied in any animation software.

PICTURE 14. Example of straight-ahead animation (Gilland, Elemental Magic, Volume 2, 2011)

3.5   Follow through and overlapping action

Follow through refers to how parts of the body continue movement after completing the action. For example, if a character runs and comes to a sudden stop, the rest of the body, for example hair continue the motion towards the direction the character was running. (Williams, The Animator's Survival Kit, 2001) When the character starts moving again it takes time for the rest of the body to follow, this delay between the main body and rest of the body is called drag (Becker, 12 Principles of Animation, 2017).
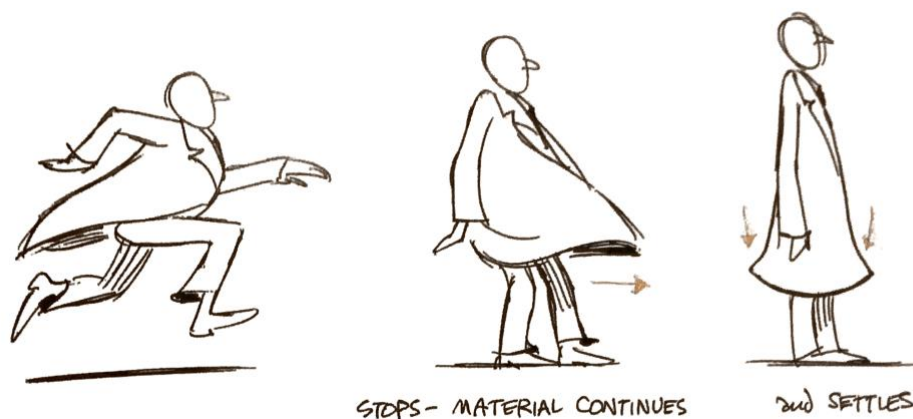

PICTURE 15. Demonstration of how the material continues movement after the character stops (Williams, The Animator's Survival Kit, 2001, 265)

Just like in squash and stretch, the amount of drag tells about the consistency of the animated object. Follow through and overlapping action are usually added after the key animation of the main body is finished. They add realism and interest to the main action. Similar to staging, follow through and overlap can add to the action, or they can take focus away from the action. (Becker, 12 Principles of Animation, 2017)

In Photoshop this principle can be applied by animating the main body first, then adding another animation layer on top and drawing the overlapping elements on the new layer.
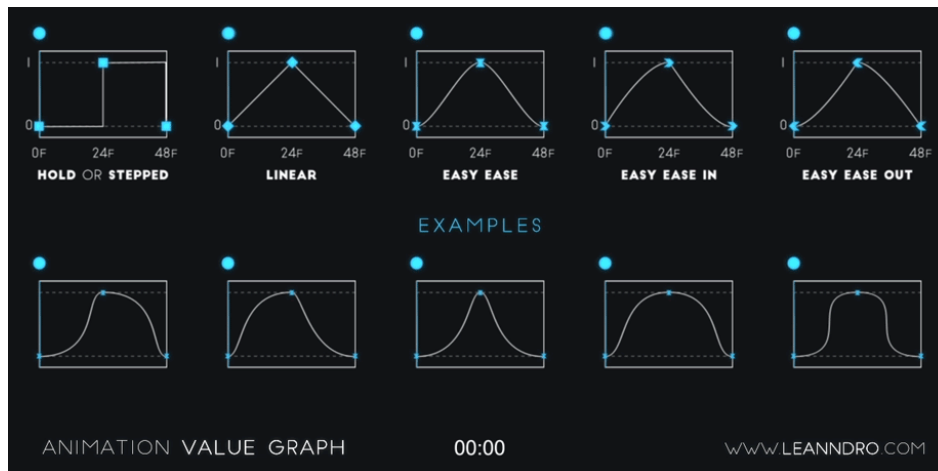
3.6   Slow in and slow out

According to the laws of physics it takes time to build up speed and slow down, also known as inertia. In animation this effect is achieved by varying the spacing between animation frames, also known as slow in and slow out, or ease in and ease out. In slow in, the movement eases into the next pose, while in slow out, the movement eases out from the previous pose. (Becker, 12 Principles of Animation, 2017)
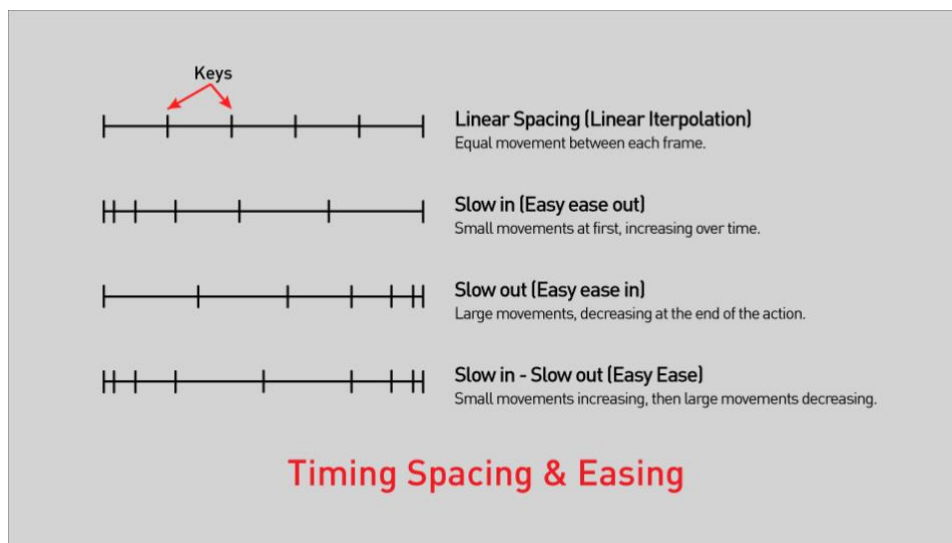
PICTURE 16. Examples of timing charts for different types of spacing (Kershaw, 2014)

The same principle applies to both 2D and 3D animation, with the difference being graphs that are used in 3D to adjust the spacing. In 3D each graph is adjusted according to how the character or object moves on the X, Y, and Z axis. The following graph demonstrates how different eases look like when applied to 3D animation graphs.


PICTURE 17. In 3D animation, slow in and slow out are achieved by adjusting graphs (Leanndro, 2016)

When creating hand-drawn 2D animations in Photoshop, this principle can be applied by adjusting the spacing of the drawing. However, when using video layer keyframe animation, that can be used to animate image size, location and transparency, only linear interpolation and hold is available (Photoshop User Guide, 2019). This means it is not possible to adjust the easing of the timeline animation.

3.7   Arcs

Arcs add realism and natural feel to animation. This principle comes straight from body mechanics, as in nature limbs often move in arcs around their pivots. (Fecih, Gobelins, 2017) In 2D animation arcs are defined by the breakdown and in-between frames (Richards, The Animator's Survival Kit, 2001). For very fast movement of one to two frames, smears are often used in the shape of an arc to make up for less frames (Becker, 12 Principles of Animation, 2017).
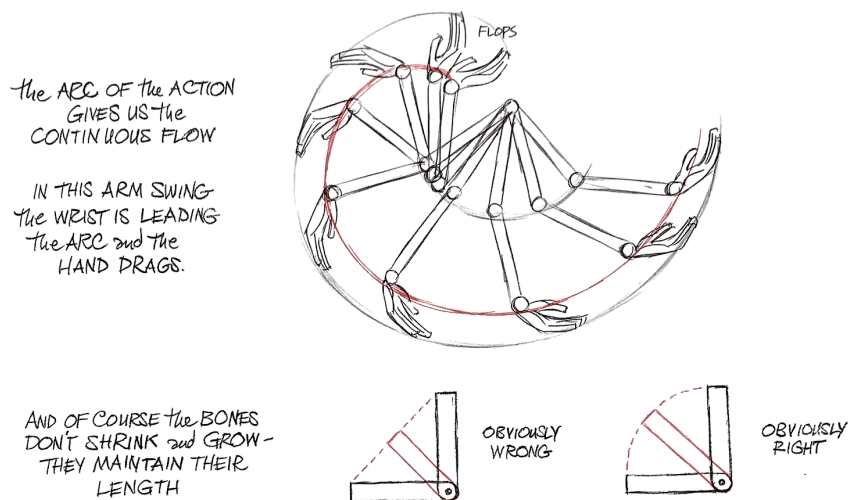
PICTURE 18. Examples of arcs in animation (Richards, The Animator's Survival Kit, 2001)

Using arcs in animation in Photoshop is possible in hand-drawn animation or by adjusting the pivot points of images when using transformation tools. However, the pivot point locations are not saved and are re-set to the center of the image after completing the transform. It is not yet possible to create character rigs for cut-out animation in Photoshop.

3.8 Secondary action

Secondary action is an action that supports the main action. It is used to add to the emotion and story and should not distract from the main action. "Often, the one idea being put over in a scene can be fortified by subsidiary actions within the body. A sad figure wipes a tear away as he turns away. Someone stunned shakes his head as he gets to his feet. A flustered person puts on his glasses as he regains his composure. When this extra business supports the main action, it is called Secondary Action and is always kept subordinate to the primary action. (Johnston & Thomas, The Illusion of Life, 1981, 64)" Animation tools used remain irrelevant when this principle is applied.
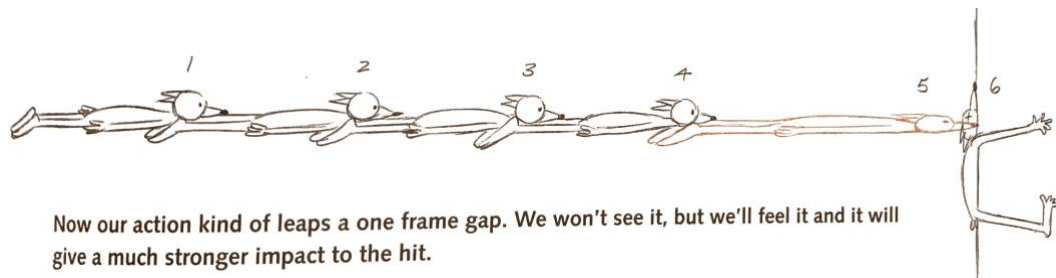
3.9 Timing

Most commonly used framerate in animation is 24 frames per second. The number of frames it takes to execute an action tells how fast or slow the action is. Moving an object from A to B in few frames is much faster than doing this in ten frames. (Becker, 12 Principles of Animation, 2017)

If the frame rate of an animation is 24 FPS, and a single frame appears on-screen for the duration of two frames, this is called drawing on twos. Likewise, if a frame appears for the duration of one frame this is called drawing on ones. Most animators draw on twos and leave animating on ones for very fast action. Drawing on twos makes a slow action look smoother than if it was drawn on ones due to the natural errors found in hand drawn animation. Combining both makes animation more dynamic, similar to how rhythm makes music more pleasant to listen to. (Taille, Gobelins, 2017)

When animating in Photoshop, this principle can be applied by adjusting the framerate of the video timeline and setting the duration of animation frames by dragging them on the timeline. This feature is very common in animation software and makes it easy for an animator to experiment with different timings.

3.10 Exaggeration

In animation, actions are often exaggerated in order to create a bigger impact on the viewer. This makes the idea of the action more apparent and convincing. Especially in fast action, the action may be wildly exaggerated and off model, which means the design of the character might look off, broken even, when looking at the still image. This all becomes more natural in motion, where the viewer may not see the exaggeration but feels the impact. Exaggeration also plays a role in staging, as the larger movements are used to attract the viewer's eye into the main action. (Becker, 12 Principles of Animation, 2017)

Now our action kind of leaps a one frame gap. We won't see it, but we'll feel it and it will give a much stronger impact to the hit.

PICTURE 19. example of exaggeration in fast action (Richards, The Animator's Survival Kit, 2001, 93)

3.11 Solid drawing

Solid drawings make forms feel like they are in a three-dimensional space. Having the knowledge of three-dimensional drawing and contours makes it possible for an animator to draw the characters or animatable objects from any angle. It is common to start by drawing the basic shapes in the rough animation before moving onto details. In order to ease the animation process, characters are often designed to be consisting of simple shapes. This principle is more dependent on the drawing skills of the animator, making tools of choice irrelevant.

3.12 Appeal

Appeal is used to describe how visually interesting a character or an animated object is and should not be confused with attractiveness. This principle includes all character archetypes. In order to make a character or an object appealing, artists use a variety of shapes and proportions to create visual interest (Silver, The Silver Way, 2017) Character designers usually take the main features of the character and exaggerate them to create a more interesting design (Becker, 12 Principles of Animation, 2017). When designing a character, it is important to choose carefully which details to keep and what to leave out, as this makes the animation process more economical. Again, in this principle the software used remains irrelevant.
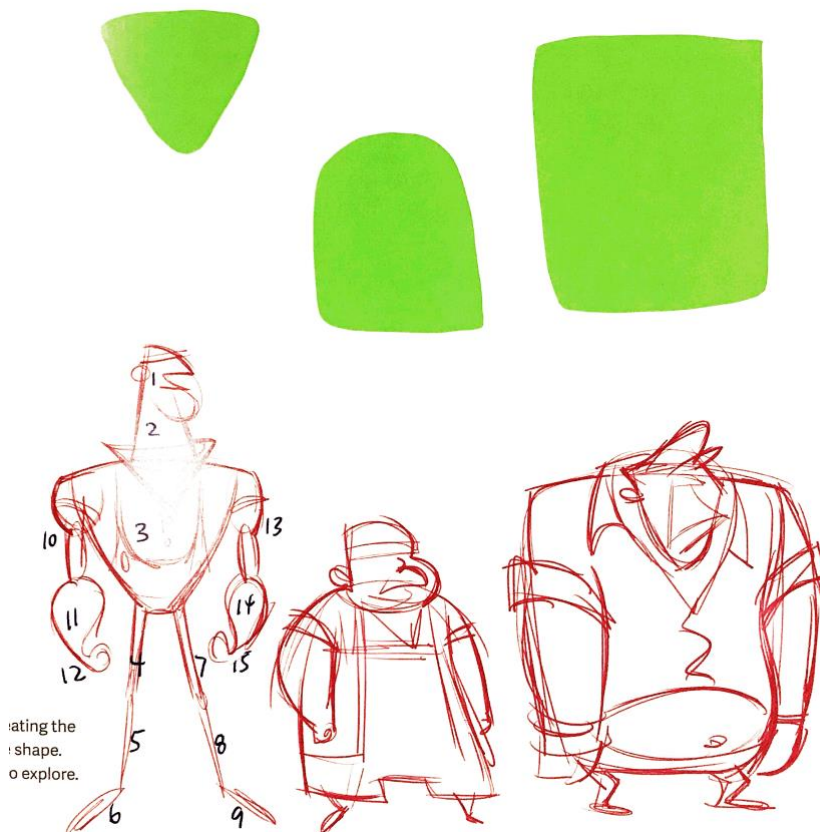
PICTURE 20. Examples of how designers use a variety of shapes and proportions to create visual interest (Silver, The Silver Way, 2017, 107)

4   PREPRODUCTION

4.1   The brief

Each client project starts with discussions about the project brief, which is then written down in explicit detail. This includes what the end product of the project should be, the budget, the timeline, any technical requirements and other details regarding the project that need to be discussed beforehand. It is important to understand what the client wants and what needs can be met within the time frame, in order to ensure consensus and to avoid any misunderstandings down the road. If anything is left unclear, it should be discussed immediately with the client. In the worst-case scenario, a bad briefing can lead to numerous iterations and loss of time, which is something to avoid in client projects where time is the biggest limiting factor.

The end product of the project was planned to be a set of 20 to 25 animated illustrations featuring the game characters and elements. These would then be compiled to an app allowing fans to use them as stickers in social media platforms in order to promote the game.

The style and design of these animations would mimic that of the original character designs, which were handed over as character descriptions and design sheets. The character descriptions would help to get to know the characters personality, attitude and motive, which would then help to distinguish the characters apart and give the animation more appeal. Design sheets would be used as a reference for the character designs and how they look like in different poses and from different angles. Having a clear reference and turnarounds of the characters saves time and lets the animator focus on animation instead figuring out how the design works in three dimensions.

The project schedule spanned over two months, first month for planning and concept work, the second month for illustrating and animating. As most the work was done remotely, most of the communication was managed through group communication platforms.

4.2   Concept work

Given the character briefs and design sheets, the building blocks of the characters were studied through sketching in order to understand their form and to simplify them for animation. In order to apply the principle of solid drawing it is important to familiarize oneself with the subject at hand by drawing it from different angles.

PICTURE 21. Shape studies of the character designs

After getting familiar with the characters designs, it was time to move on to the next step, thumbnailing. Gestures play an important role in animation thumbnails. Gesture drawings include the form, pose, and action of a model or a character. Gesture drawings play an important part in animation as they convey the characters action and emotion. A good gesture tells with a single glance what the character is doing, how they are doing it, and what is their motive. Whereas a bad gesture leaves the viewer confused, wondering what exactly the character is trying to do or what their attitude is. The following image shows the thumbnails drawn for each animation idea. The thumbnails can remain rough and loose, but they should be clear enough to get across the gesture and the idea of the action.
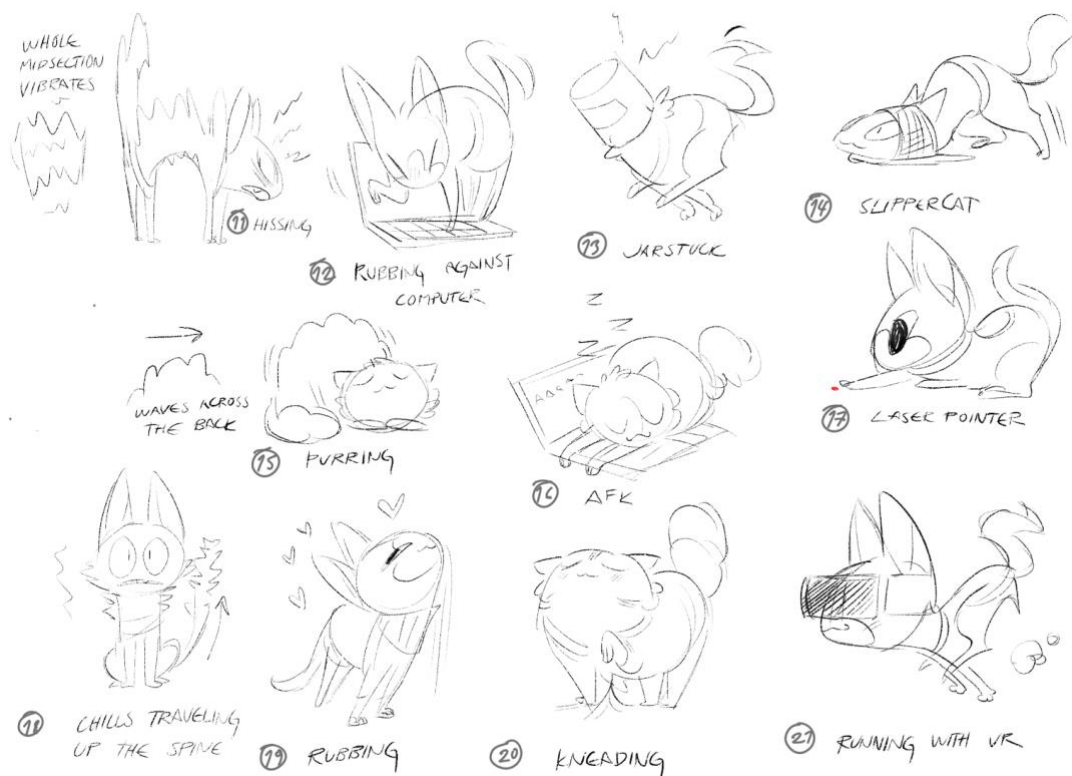
PICTURE 22. Sketches to illustrate ideas for stickers

4.3 Layout and style

When working on one of the first client projects it was advised to make the concept art look as close to the final work as possible. However, in the thesis project some of the elements included in the concepts were left out or changed due to them being unimportant and/or confusing to the viewer. The following image was used as a starting point of a discussion regarding the style. The look of the final animation ended up being closer to the original character designs regarding colors.

PICTURE 23. Early style test

The following image demonstrates how the stickers looked before the final round of feedback. After the feedback session one of these concepts was discarded due to the overall idea not being apparent enough for the viewer. The rest were due to some small changes later down the animation pipeline, such as color changes, background changes, or had some confusing elements tweaked or removed.
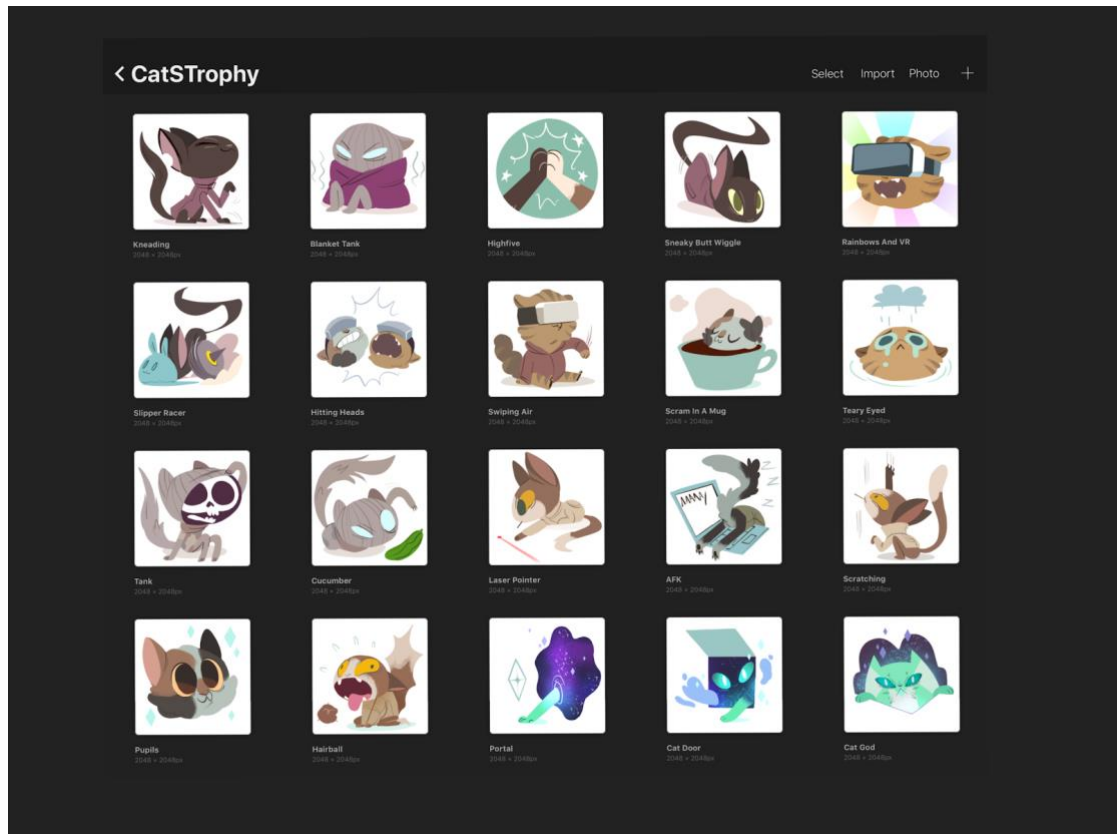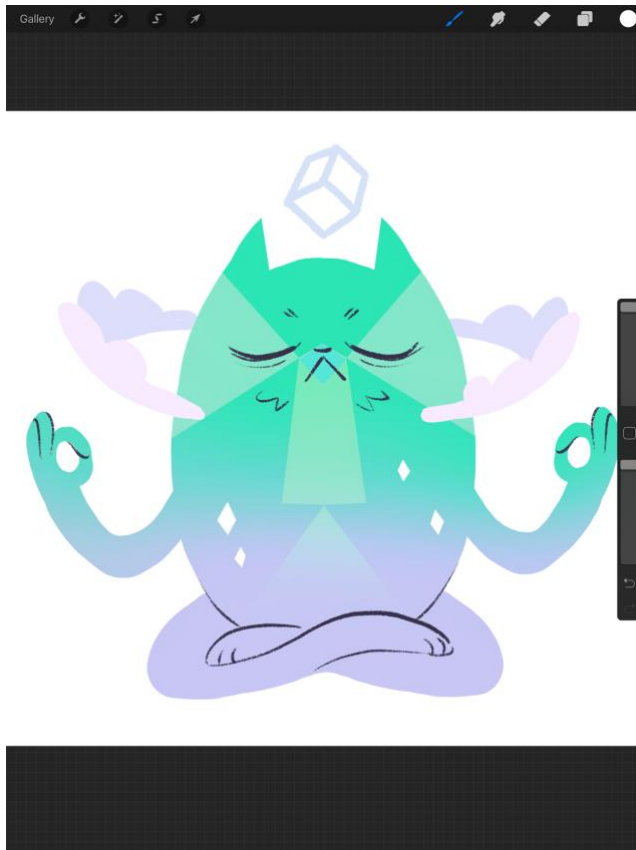

PICTURE 24.. Screenshot from Procreate showing the overview for the look of all the animations before final round of feedback

PICTURE 25. Procreate screenshot of a concept of a ceiling cat that got discarded due to the idea not being apparent enough for the viewer

PICTURE 26. Procreate screenshot of a new concept featuring a meditating cat, this was chosen because it brought variety to the set, and was much more readable than the previous iterations

4.4 Animation style

The characters are not set in a realistic world, and their expressions and motions can be wildly exaggerated to support the action or emotion at hand. This gives the animator freedom to explore, making the workflow more fun, which in turn makes a more entertaining animation.

The anthropomorphic character designs lie somewhere between human and a cat. Since there is no reference for this type in real life, it is important to plan out how their bodies function, and what level of realism is expected. Do the characters sit like a human or a cat? Can their limbs stretch beyond realistic limbs? These questions were discussed with the client.

According to the client, although the characters have more human-like proportions, their behavior is closer to a cat. This creates a challenge for making the animation believable, as a character needs to act and walk like a cat, but still have their hind legs work like that of a human.

Limb flexibility and level of realism was also discussed, and according to the client the character limbs are built similarly to Cartoon Networks highly popular animated show Adventure Time, where limbs can bend realistically, but also act like wet spaghetti. Even with animation styles where the anatomy does not aim to be realistic, it is common to have a set of rules established as it makes the characters and the world they inhabit feel more believable. These guidelines also help keeping the animation style consistent, which is important especially in larger teams with multiple artists and styles, where the work is often looked over by production designers and art directors.
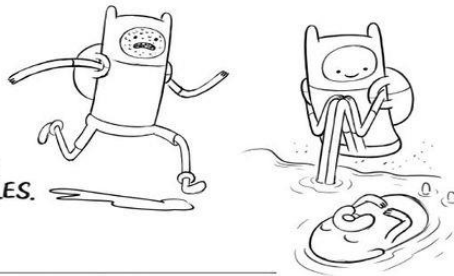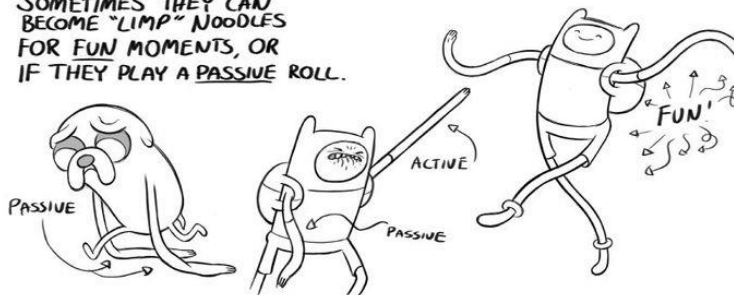
PICTURE 27. Guidelines for limb mobility from Adventure Time (Thinking Animation, 2016)

Sometimes it is not possible to tell from the character design sheets how a certain element would look like from a different angle or how different parts of the body look when posed. Just like with the limbs, the cat paws and how they would function was discussed with the characters designer before animating. Character hands and feet are second most expressive elements in animation right after the characters face (Taille, Gobelins, 2017).

PICTURE 28. Paws and feet concepts to flesh out how they might look like with different poses and angles

5 MAKING STICKERS

5.1 Planning for animation

Thumbnails are a quick way to explore different ideas for animation. Working in small scale is time-efficient and helps to focus on the bigger picture.

One of the things to keep in mind while working on thumbnails is the silhouette, a good pose reads well even in a small scale. If the silhouette does not read well, it can help to pull important elements apart from it. This is also a good time to check if the staging is working or not, is the focal point where it should be?

According to animation lecturers in Gobelins, the first and most important step in animation is planning. This can be divided into three parts; text, subtext and context. Text defines what the character is doing, subtext defines how the character is doing it, and context defines why the character is doing what they are doing and what happened beforehand. Finding the text, subtext and context helps flesh out the character, what they are doing, thinking and feeling. This all gives a solid ground for the final animation. (Taille & Tamura, 2017)

After finding the subtext, it is possible to move onto thumbnails. The principles of staging and exaggeration play an important role in thumbnailing, and they can add or take away from the action. Things to consider while thumbnailing are; keeping a clear focal point, avoiding tangents, maintaining a clear silhouette and showing a clear line of action.
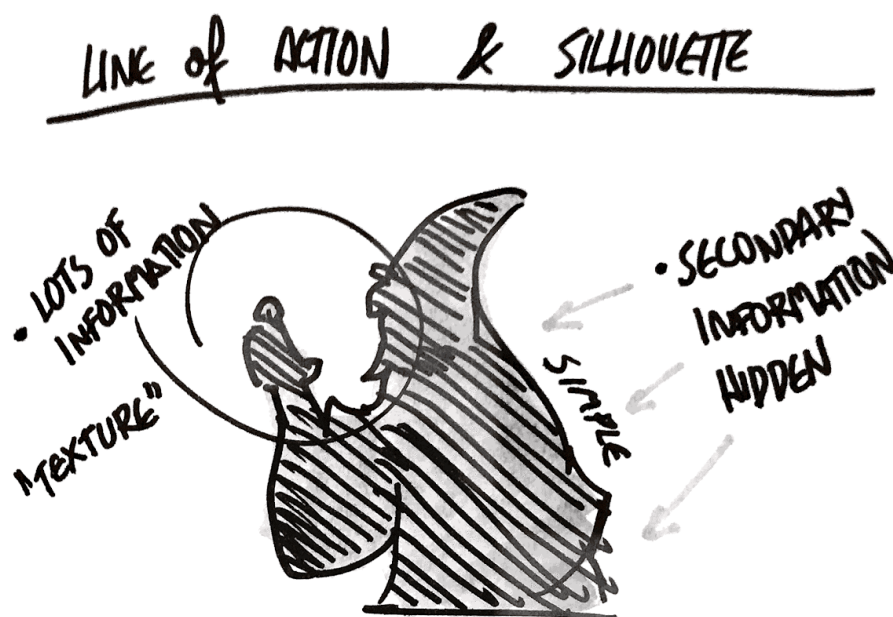
PICTURE 29. Example of a silhouette with clear focal point and a line of action

The planning can be the most time-consuming part of the project, but it saves a lot of time on the long run. Drawing and cleaning up an animation frame takes a lot of time considering how long a single frame is going to appear on the screen, and if there is an error in the frame, it takes double. This is why making mistakes and fixing them should be done in the thumbnails and not in the final animation frames. The better the planning phase is done, the easier and the less time consuming the animation process is going to be. (Taille, Gobelins, 2017)

5.2   Rough animation

Most of the character animations were started by drawing rough animations with pose to pose method, first by drawing the key poses, then breakdowns and if necessary, the in-betweens. After the main action was animated, overlapping animation was added to complement the main action.
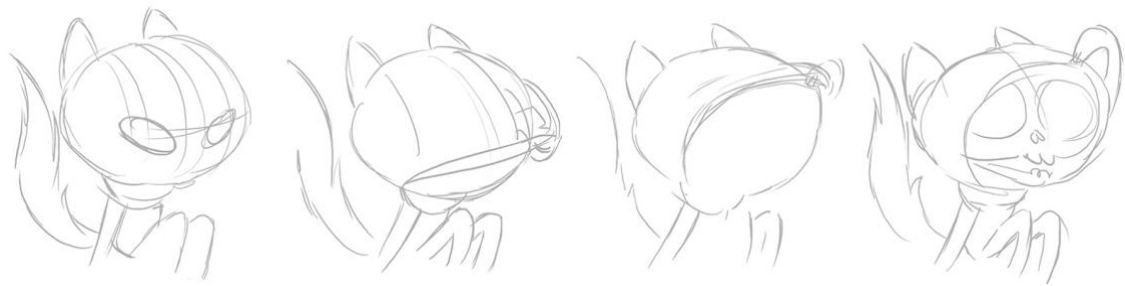

PICTURE 30. Example of a rough animation drawn using the pose to pose method

Each animation starts by drawing the key poses, which are the most essential drawings for conveying the action (Richards, The Animator's Survival Kit, 2001). Flipping between the key poses before drawing the breakdown helps to see the motion in action.

Since all the animations were planned to be drawn on twos, after importing the PSD-files from Procreate to Photoshop, the timeline was converted to video timeline, and framerate was set to 12 frames per second, which in this case was equal to 24 frames per second but animated on twos. Changing the timeline framerate later in the project can lead to missing frames and bugs, so it is good practice to decide on the framerate before animating.

After the video timeline is set, each layer (except video layers) has its own row in the timeline with 5 second duration. Each time a new layer is created, it is preset with the same duration. This can be adjusted manually, but a faster way to go about creating a new frame for animation would be to create an action that duplicates and clears the layer, then linking this action to a function key.
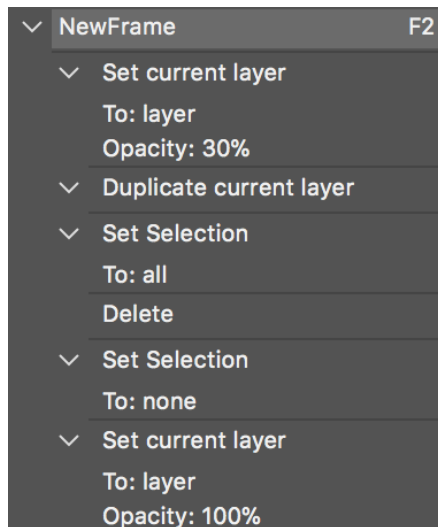
PICTURE 31. Screenshot of the Photoshop action editor featuring the steps recorded to set a new key frame

Animation frames can be arranged into video groups by dragging them to the same row in the timeline. This makes it easier to move and duplicate the key frames, and makes the timeline easier to manage.
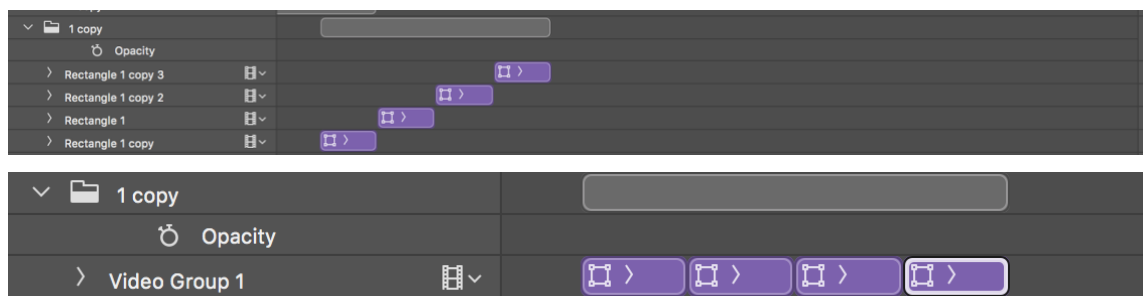

PICTURE 32. Frames can be organized on single row, which creates a video group

When drawing the key poses and breakdowns, animators are commonly advised to flip between the frames instead of using onion skins, as it is easier to see the motion in action. Flipping also makes it easier to see the characters or objects turning in three-dimensional space, as in-betweens drawn with onion skins can result in deformations. (Tamura, Gobelins, 2017)

Breakdowns define the arc of the motion and whether the spacing motion is linear, or if there is ease in or ease out. It is helpful to draw the arcs separately as guides, rather than trying to imagine them when drawing each frame, which can result in jittery motion instead of a smooth curve.
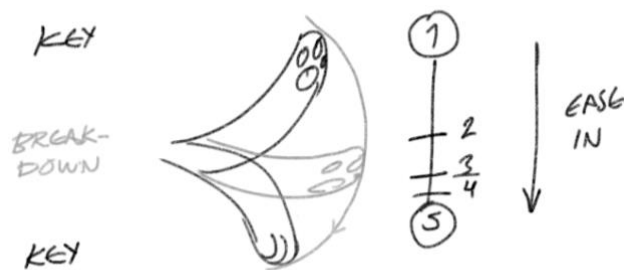

PICTURE 33. Example of the key poses and breakdown for a paw movement that slows down at the end

5.3   Clean up and color in Photoshop

Since Photoshop lacks many of the features commonly used in animation software, such as making a new keyframe, flipping between frames, color fill tools, etc., it was necessary to create Photoshop actions to accommodate for these missing features. These actions were then connected to function keys to speed up the workflow.

Making a duplicate of the current layer also duplicates its duration on the timeline. This feature was used to make an action to ease the coloring process. The action duplicates the current layer, lowers its opacity down to 30% and makes a clear layer with same timeline duration. This new layer can then be used for cleaning up line art or coloring. To make the color fill action that fills up the selected area

with selected color, the area was selected using the magic wand tool, and the following steps were recorded: Expand selection by 3 pixels, use hotkeys alt+backspace to fill it with color, then cmd+D (or ctrl+D) to deselect. The same action was used in inverse as well, to do that the same steps were recorded, but the selection was contracted by 3 pixels instead of expanding. Using contract or expand on the selection fills up the holes that would easily be missed by the paint bucket tool.
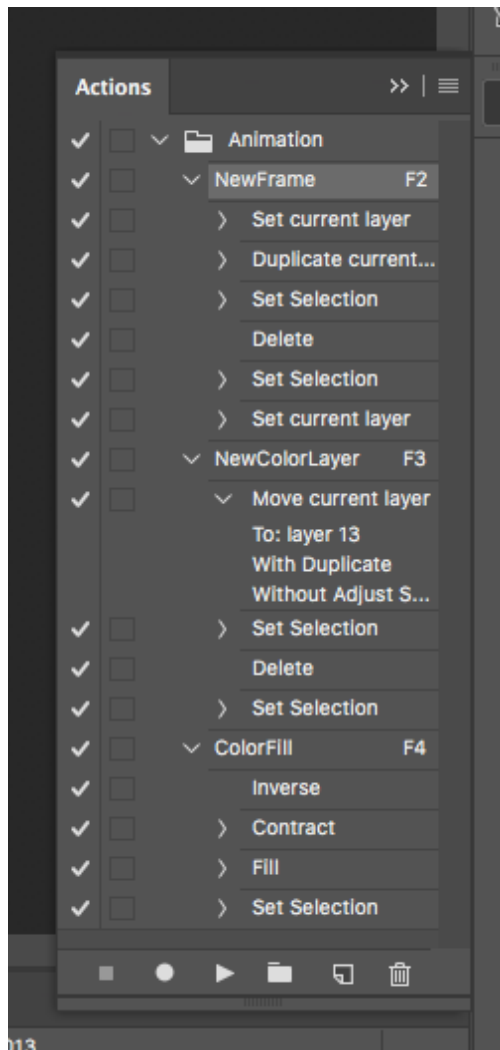
PICTURE 34. View of the recorded action steps

A less time-consuming method for cleanup was to duplicate the previously colored frame and tweak it with the warp tool to fit the rough animation frame. Compared to coloring each frame by hand, this method is much less time consuming, but can cause the animated objects to look flat. When used in moderation, this method worked best for bringing life to the character by adding small movements to support the main action, such as small twitching of the tail, or slight rotation of the body parts.

PICTURE 35. Warp tool being used to animate the twitching of the legs

5.4 Animating smart objects

Layers and video layers can be animated to change their position, opacity and layer style. This is not yet possible for groups but can be worked around by converting the group into a smart object or a video layer. Smart objects and video layers can be transformed and scaled, which is what was done to animate the pieces that needed to move around or scale up and down. It is also possible to animate the opacity of a layer. To those familiar with animation in After Effects, working with the Photoshop video timeline and keyframes is fairly easy as it is very similar to After Effects.

Here is an example of how this method was used to animate a simple shadow; The shadow layer was an ellipse converted to a smart object and the duration was set to how long the shadow would appear on the screen. To create the animation, the stopwatch icon was clicked, a keyframe was set to the beginning and the end of the duration of the animation to make the animation loop, then the shadow was scaled down and a keyframe for it was set in the middle.
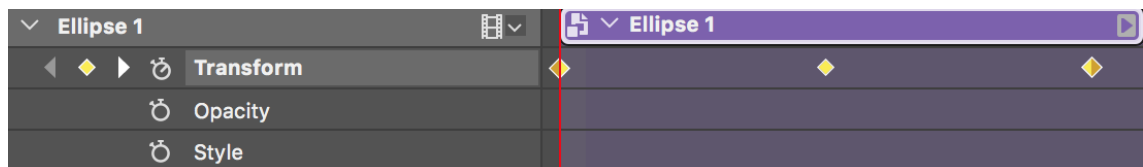
PICTURE 36. View of the animation timeline with set keyframes for transformation

Smart objects can hold still images including vector and bitmap, or video files and frame animations. Working with smart objects is non-destructive, meaning that when a smart object is edited, the information contained within the smart object remains untouched. In resemblance to bitmap and vector layers, smart objects can also be scaled and animated, which means the frame-by-frame animations contained by the smart object can be animated as well. Converting frame-by-frame animations into smart objects makes it easier to duplicate and reuse the animations when needed.

This method was used to animate repeated elements and small special effects such as the impact lines in the paw high five animation that can be seen in the screenshot below. In this example the animated lines follow the same timing, but they can be offset for more organic special effects like rain or sparks, as seen in the image following the paw high five screenshot.
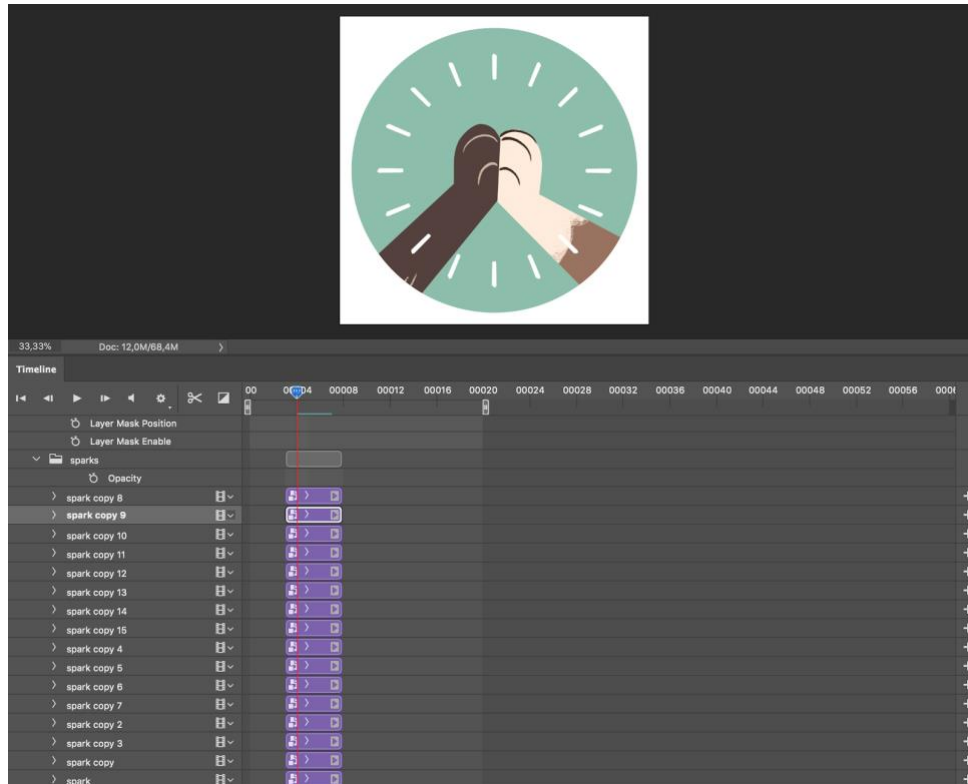

PICTURE 37. Example of using smart object to duplicate animations

PICTURE 38. Example of using duplicate animations to animate the sparkles

5.5   Working with video layers

It is possible to import video footage to Photoshop that can then be edited, animated or drawn on like a regular bitmap layer. This method was used to animate a cube rotation by combining a short video clip rendered in 3D software, Blender, with hand drawn animation. To work in a way that does not affect the original video and keeps the animation layer separate, a blank video layer was created on top of the imported footage and animation frames were drawn on the new layer instead.
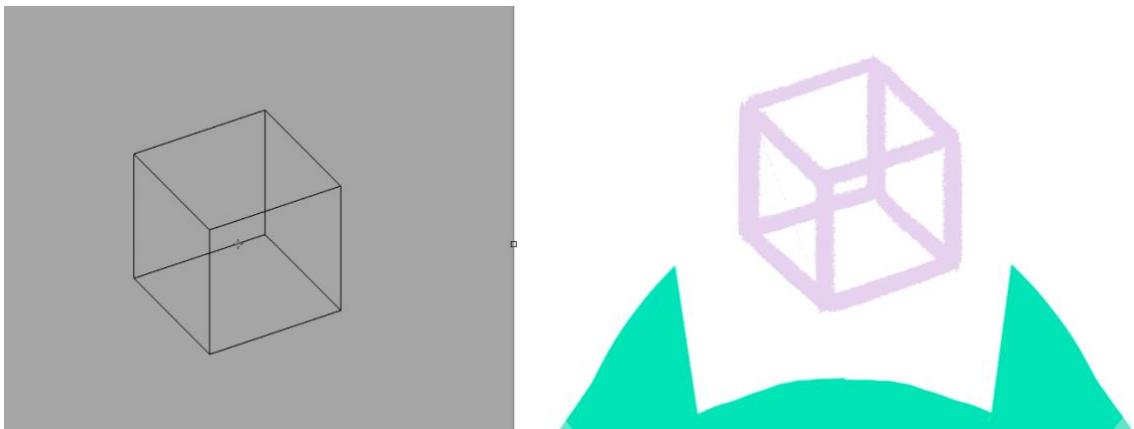
PICTURE 39. Reference cube animation frame in comparison with the rotoscoped animation frame

In Photoshop video timeline, it is possible to animate the location, scale and transparency of an image. This was used to animate the character floating up and down. First step was to enable the stopwatch, which created a keyframe for the current position. By jumping to another spot on the timeline, moving the character, and then creating another keyframe caused Photoshop to in-between those frames according to linear interpolation. Linear interpolation means that the spacing of the keyframes is even, and the is no ease in or ease out. According to Photoshop documentation, there is not yet a possibility to create eases in the timeline (2019).
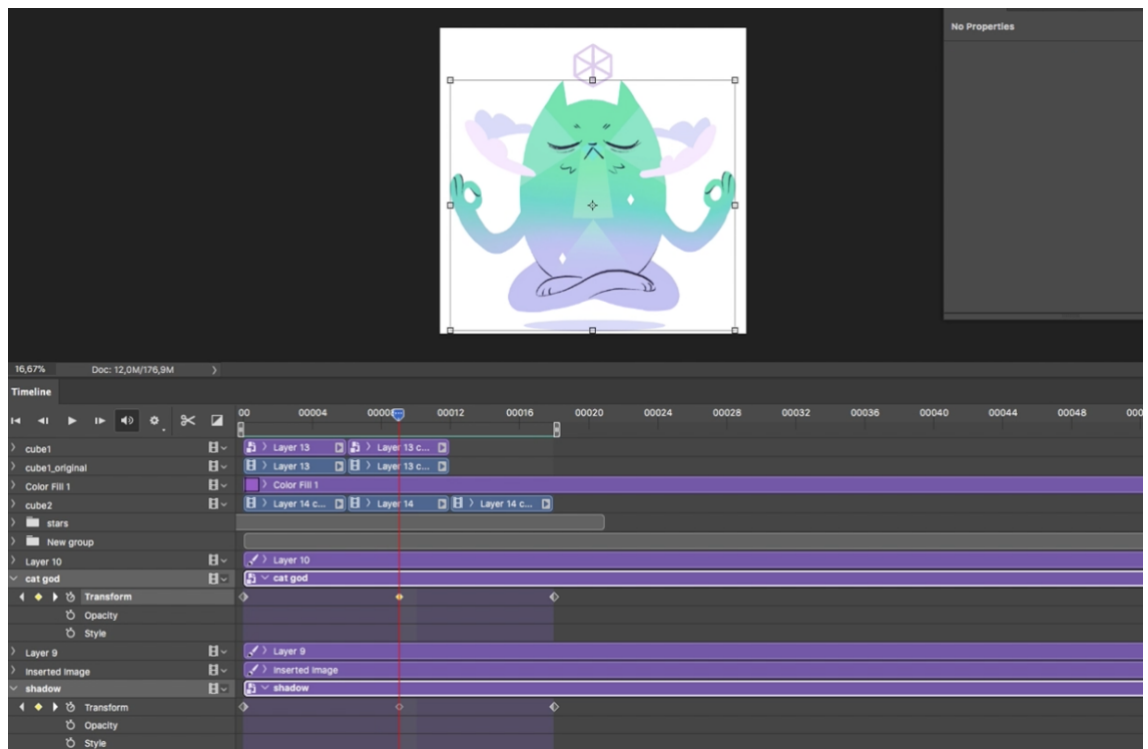
PICTURE 40. View of the animation timeline and keyframes for layer position and scale

5.6 Rendering

After the animation was finished, it could be exported as a video file, image sequence or converted into an animated GIF. These files would then be used to preview the animations in one of the platforms chosen to release the sticker pack on. The following settings were applied, most important ones of them being the file format, image size, and checking whether the animation was set on loop.
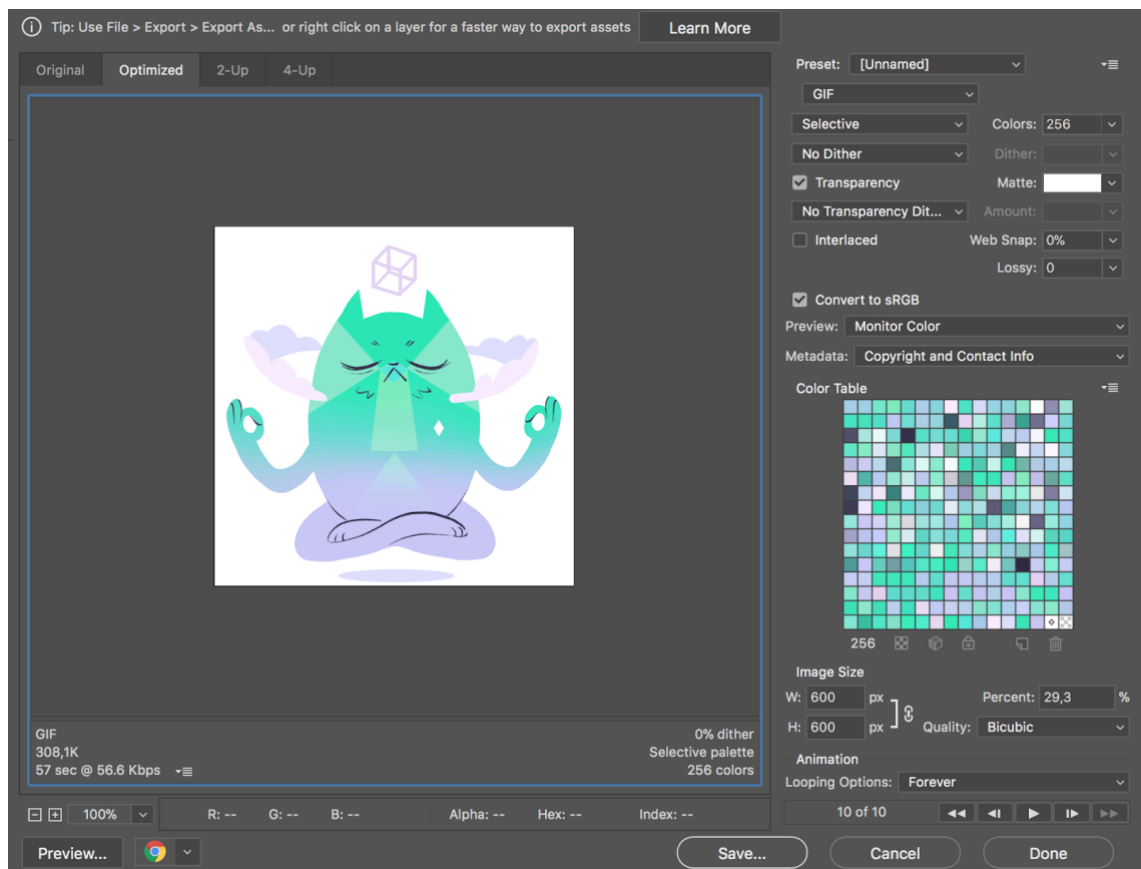
PICTURE 41. Settings for exporting the animation for GIF preview

6 CONCLUSION

As mentioned previously, time is the most limiting resource in animation, therefore it is best to make the time estimate for the project as realistic as possible with plenty of buffer time. It is important to have a clear plan before getting started on the next step, and to make sure there is a consensus with the client and their expectations and whether those expectations can be met within the given resources.

Learning a new tool and getting familiar with it takes time, and this needs to be taken into account when planning the schedule for a project. In this project it took 1-2 days to get familiar with the video layer animation method, and 2-3 weeks to find a workflow that felt most comfortable. Learning a new working method fairly fast was an asset in a project with such limited time frame, with less than a month to execute the final 22 animations.

However, the project was not finished within the time schedule that had originally been planned for it, and the deadline had to be pushed further. Even when using shortcuts and actions to accommodate for the features that usually make the animation workflow more fluid, animating in Photoshop turned out to be a lot slower process than expected. The features that Photoshop lacks, and that could speed up the workflow greatly, would be onion skins, ease in and ease outs, and proper color fill tools. All of these are common features in more standard animation software. On top of the missing features, Photoshop lacks the community and documentation that might be needed for those who animate in Photoshop to lean on when questions arise.

The following chart demonstrates how Photoshop fares next to ToonBoom Harmony, OpenToonz and RoughAnimator. ToonBoom Harmony is a good example of what is considered an industry standard in animation, most commonly used for television animation (ToonBoom Animation, 2019). This alongside the monthly fee that is very close to the monthly fee of Photoshop makes ToonBoom Harmony a more viable solution for an animation professional. The next option, OpenToonz is a free animation software with the merit of being used by Studio Ghibli (OpenToonz, 2019). Since OpenToonz is a

free software it could be a tempting solution for someone getting started in animation, however the documentation of the software at the time is only available in Japanese. This leaves RoughAnimator, an animation application available for both mobile and desktop devices. Although RoughAnimator is a lesser known tool for animation, it has all the features required to create an animation, and a very user-friendly interface, making it most suitable tool out of the four for beginner animators.

	Photoshop CC	Toonboom Harmony (Essentials)	OpenToonz	RoughAnimator
Pricing (license)	unavailable	410€	free	4,99$
Pricing (/month)	24,79€	25€	free	free
Platform	Desktop, mobile	Desktop	Desktop	Desktop, mobile
Main applications	Illustration, photo editing, graphic design	2D Games, cut-out animation, paperless animation	Commercial and non-commercial 2D animation	Hand-drawn animation
Cloud support	Yes	No	No	No
Bitmap/vector support	Bitmap, limited vector	Vector	Vector and bitmap	Bitmap
3D support	Yes	Yes	Yes	No
File formats	DPX, MOV, MP4, BMP, GIF, JPG, JPEG,	MOV, MP4, WMV, TVG, TGA, SGI, PSD, YUV, PAL, SCAN, PNG, JPG,	3GP, AVI, BMP, GIF, JPG, MOV, NOL, PNG, RGB, SGI, Spritesheet,	MOV, GIF, PNG sequence

	PDF, PSB, PSD, PNG, TGA, TIFF	BMP, OPT, VAR, TIFF, EXR, PDF, DTEX	TGA, TIF and TIFF	
Resources	User guide, tutorials	Webinars, templates, video tutorials, white papers, documentation	Documentation	Documentation, tutorials
Community	Blog, forum, portfolio platform	Blog, forum, showcase	Forum	Blog

SPREADSHEET 1. Comparison chart between Photoshop CC, ToonBoom Harmony, OpenToonz, and RoughAnimator

In summary, Photoshop did not turn out as a feasible tool for character animation, as it lacks many of the important features that are common in animation software. While there are some features that can be made up for by using recorded Photoshop actions, lacking these features and having to use these workarounds can be very intimidating for someone trying to get into animation. Photoshop may still have some applications, such as short animations consisting of few frames, or animated banners.

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APPENDICES

APPENDIX 1. Software used in this thesis

Photoshop CC

Procreate

Blender

APPENDIX 2. Visible Realms

Founded in 2017 by two entertainment and game industry veterans Eliza and Teemu Jäppinen. They have previously worked on the cutscenes for Trials of the Blood Dragon by Redlynx Studio. Eliza is also known for being the creator behind Studio Killers, an animated band with a 300k+ YouTube following, and being a dedicated entrepreneur with award winning skills in animation and direction. Both of them have a penchant for pop culture and great love for animals, cats especially.

APPENDIX 3. Character briefs given by the client (Visible Realms)

Ludo: Cast as the lone wolf, the hero, destined for greatness all of this weighs on her. At heart she questions 'greatness' and why she's been cast into this role. She thinks idolizing someone is BS. (Ellen Paige from 'Juno' or Jon Heder/Napoleon himself in 'Napoleon Dynamite')

Shade: Shade is the one who travels the shadow dimensions. He often aids the dead send their messages to the living. Shade's not afraid of much since Shade has explored most of the darkness we never get to see. Probably has a twisted sense of humor. (Keanu Reeves from 'Constantine' but with a bit Bill Murray from Ghostbusters)

Mittens: Always optimistic, Mittens never feels down. She wanted to race in the cat 'S' trophy for as long as she can remember, but it took her a while to get into the tournament. She often got the participatory trophy but thinks it's just as good as gold, silver, or bronze. Mittens attitude is unbeatable. (Steve Carrel in '40 year old virgin')

Tank: Tank was rummaging around a laundry bin, when her head got stuck in a sock. When she saw herself in the mirror, she kind of liked the look so she stuck with it. Tank is an enigma, no one really knows what Tank is thinking from one moment to the other, but she is incredibly inventive. (Most like Kate McKinnon's character in ghostbusters 3)

Scram: Scram's the local cat at the coffee shop, you know the one. The one that's sleeping by the window looking out at traffic. Scram spends most of the day dreaming of other adventures, and when the lights go out, you can find her sleeping on one of the many books in the cafe absorbing it's knowledge. Scram sneaks out to join the Cat 'S' Trophy games, as cats sometimes do. (Giles from Buffy the Vampire Slayer)

APPENDIX 4. Final animations stills
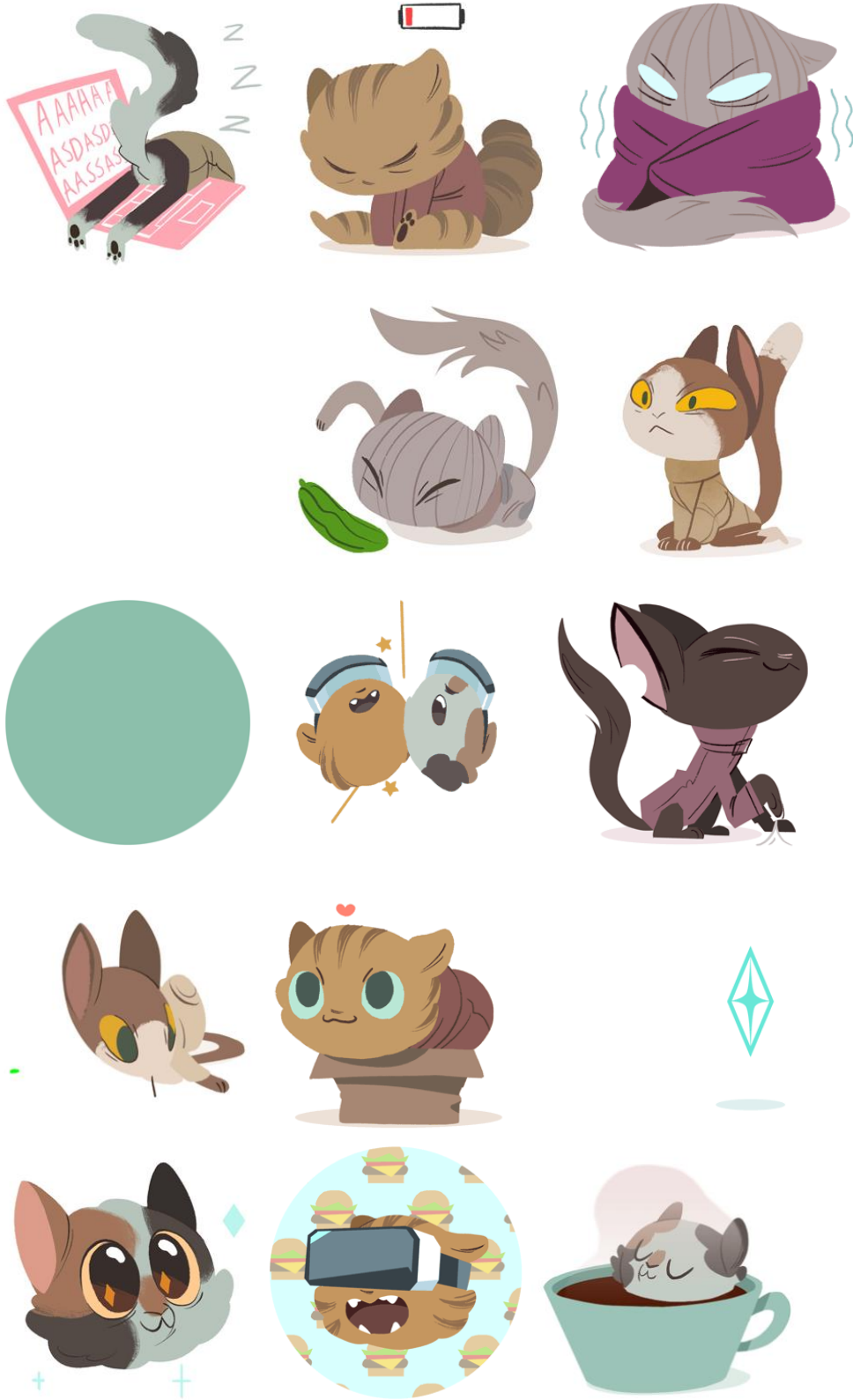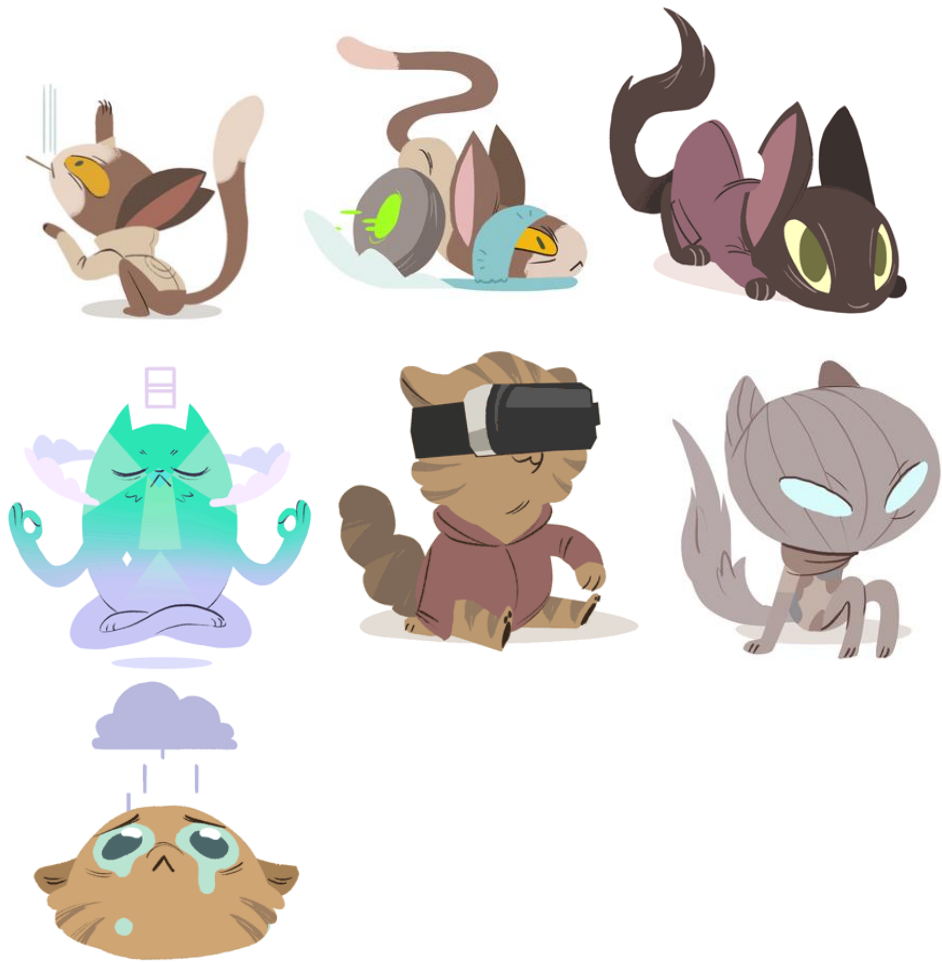
APPENDIX 5. Client review of sticker work set

"The end result of the sticker set is phenomenal, endearing, and definitely a lovely set of animated pieces. There's a good balance of animation and stillness that make the stickers very commercially versatile, they are definitely not hectic, which would have been the case with more movements.

Ultimately Krista performed her task well, delivering a very cohesive vision of desirable digital stickers.

I do want to point out that the look of the characters and stickers is not initially what we had in mind, halfway through I saw the beauty of Krista's vision. Which was a more naive, yet commercially viable look and feel to the stickers. Should there have been more discussion, this could have aligned sooner. I only mention this because other clients with less creative backgrounds may terminate the project before completion based on a mismatch of expectations. Once I understood the look and vision fully, the whole thing made perfect sense, and brought out new and unexpected things in our project… But it was already half way into the time and cost of the project before that understanding was reached… In the end we consider this sort of journey quite a natural creative process, but it is worth while working on from both sides (us included) and to keep in mind that communication of vision is key to successful team work.

Thank you Krista for the amazing work!

E"