Shared cartoon style in CG animation to maximize empathy

punctum.gr

BY: **Marc Russo**

ABSTRACT

Major animation studios have found a way to enhance audience empathy through a more expressive character aesthetic, surpassing mere appeal. This new benchmark, the Pixar Peak, exists just before Uncanny Valley, where computer-generated (CG) animation can evoke a similar level of empathy as real humans. The shared expressive character aesthetics become apparent when comparing characters from various major studios. However, emotional connection with these characters is influenced by more than just their appearance. Factors such as character performance, cinematic techniques, and intricately designed 3D environments play a significant role. In recent releases, combining photorealistically rendered settings and stylized characters bolsters audience connection. The Pixar Peak is, therefore, not solely about character design but also about the interaction range of animation choices. This article examines the spectrum of character design, from iconic to realistic. It argues that the trend toward realistic environments, alongside cinematic choices and character performances, is essential in achieving the Pixar Peak. It will demonstrate how CG animation can enhance empathy for characters in two significant ways. First, we perceive these animated figures as representations of ideas; they are not just characters we observe but ones we can relate to and embody. Second, the realistic, immersive environments resemble our world, implying that these emotionally resonant characters exist within a familiar context.

ARTICLE INFO:

Volume: **10**

Issue: **01**

Summer **2024**

ISSN: **2459-2943**

DOI: **10.18680/hss.2024.0011**

Pages: **205-228**

KEYWORDS:

Pixar Peak

Uncanny Valley

CG Animation

Character Empathy

Character Appeal

Punctum. International Journal of Semiotics | **10:**01:2024
ISSN 2459-2943 | DOI: 10.18680/hss.2024.0011 | **punctum.gr**

1. Introduction

Creating appealing characters in animated films is the goal of character design. According to Thomas and Johnston, the authors of *The Illusion of Life*, these drawings are pleasing to the eye and crucial for building character and the audience's ability to identify with the situations that the characters find themselves in (1995). Characters are fundamental to audiences' emotional engagement with a narrative and immerse us in the story (Smith 2020). The more we identify with a character, the more we empathize with a character's successes and struggles. Appealing protagonists are crucial to stories like *How to Train Your Dragon* (2010), *Frozen* (2011), or *Brave* (2012), so we immediately accept them as our guides.

Animators have changed and refined the concept of appeal since the early days of animation. Initially, it was something intuitive to artists and designers. The designers at Disney perfected this in their house style. They could sense it and feel it, but it was not quantifiable. Over time, the principle of appeal has been connected to quantifiable theories like Masahiro Mori's Uncanny Valley (1970) and, more recently, to Seyed Tabatabaei's Plausibility of 3D Characters (2018) and Malou van Rooij's Pixar Peak (2019).

Empathy for an animated character, its appeal, and relatability are directly related to a character's design. However, other aspects of these films affect the emotional connection between the audience and the characters. It is also how the character acts (Hook 2017), the cinematic techniques used, and the 3-D constructed worlds (van Rooij 2019).

This article explores the character spectrum from iconic to realistic by examining the feature films and shorts produced by Pixar.[1] It shows how the trend toward realism in the environment, their hand-crafted style of movement, and the cinematic choices (camera, editing, and lighting) are critical tools in creating the Pixar Peak. The paper further elaborates on how computer-generated animation (CG animation) increases empathy for characters in two ways. Firstly, we see these cartoons as representations of ideas. They are characters that we do not simply observe; we become them. Secondly, the realistic and immersive environment looks more like our world and suggests that these characters, representing emotional ideas, live in our world. The paper also proposes a set of design spectrums for future research to plot the design choices from an individual film to understand better how the balance of design choices adds to the audience's connection to a character.

[1] It is a calculated choice for this paper to look exclusively at Pixar Films. In no way am I suggesting that this is a complete analysis. I chose to look at Pixar films because this idea requires comparison from one film to another. There are less variables to contend with when limiting the data set of possible films to one studio. For instance, when looking at *The Incredibles*, it is easier to compare this film to *The Incredibles II* or even *Inside Out* rather than *How to Train Your Dragon* because more artistic choices remain constant. To fully explore this idea, one would need to extend outside of Pixar and start to compare and contrast films from Disney, Dreamworks, and beyond.

2. Appealing characters

Appeal, the 12th and final principle of animation, was "...important from the very start" (Thomas and Johnston 1995: 68). Early on, artists at Disney discovered how critical an appealing character was to deliver a story. They recognized that the character was the audience's guide and how vital a guide was to the enjoyment of the story.

What made characters appealing was intuitive for the artists, "To us, [appeal] meant anything that a person likes to see, a quality of charm, pleasing design, simplicity, communication, and magnetism" (Thomas and Johnston 1995, 68).

Appeal, on the surface, is about what the character looks like, but story artists know that there is a lot more to building a character than what is on the surface. Appeal is also about the character's inner life or bio. It is about communicating the character's inner life through its design (Movshovitz 2017).

An example of this is Mr. Incredible's design from the first act of *The Incredibles* (2004). Mr. Incredible hunches over, his clothes don't fit well, and he is unkempt. All these design choices are an expression of his inner life. When we see him for the first time, we instantly feel he is uncomfortable. We can feel he is trying to fit into a world that is too small for him (which is a theme of the film) and has resigned himself to his current life.

Malou van Rooij, in her article *Carefully Constructed Yet Curiously Real: How Major American Animation Studios Generate Empathy Through a Shared Style of Character Design*, addresses the principle of appeal as applied to CG characters through the lens of the Uncanny Valley (Mori 1970) to create empathy for characters (2019). Thomas and Johnston did not mention empathy, but using van Rooij's Pixar Peak with appeal, one can see how studios maximize the emotional connection between the audience and the characters through a shared style.

The Disney animators developed the 12 principles for Disney's traditional animation production in the 1930s, and they remain critical tools, no matter the animation form artists are working in. CG animators use the 12 principles of animation to make characters believable with a few adjustments. Appeal in traditional or CG animation is how the designers and animators get the audience to care about a character. It is the principle that most closely addresses empathy.

Steve Lambert's article *"Disney's 12 Principles of Animation"* (2017) examines animation principles from a CG animator's perspective. Lambert adjusts one principle: appeal. According to him, appeal should now be "added appeal," "the x-factor that gets your audience caring about your characters" (2017). One of Pixar's pioneers, John Lasseter, modified the 12 principles of animation to make them applicable to 3D computer animation. He believed that appeal and personality are essential principles to consider while designing and animating a character. Lasseter's emphasis on these principles highlights the significance of a character's inner life and how it is conveyed through its design and movement (Lasseter 1987).

Punctum. International Journal of Semiotics | **10:**01:2024
ISSN 2459-2943 | DOI: 10.18680/hss.2024.0011 | **punctum.gr**

The story is the driving force behind every storyboard and design decision made in a film. Those decisions include character design and performance. Performance is how we translate the still character to the screen; it is the visual representation of the personality (Thesen 2020). We can see how the look and the movement make the character appealing.

3. The Uncanny Valley

Van Rooij's paper focuses on CG animation and a shared style that maximizes empathy. She uses the definition of empathy put forth by Suzanne Keen: "what we believe to be the emotions of others" (Keen 2005, 5). The definition of appeal, according to van Rooij and *The Illusion of Life*, is when "[the] viewer believes he or she is feeling what the character feels by identifying and then simulating the identified emotion" (van Rooij 2019: 195). Even though Thomas and Johnston never use the word empathy, it seems clear that this is what they mean when discussing appeal.

Pixar attributes its success to its ability to create characters that audiences of all ages deeply care about. In the book *Pixar Storytelling*, the author David Movshovitz walks through the Pixar character development process for creating characters that go beyond the superficial. Pixar creates characters that audiences like on three levels. First, viewers like the characters because of their visual design. Second, we get to know the characters and understand their world and "positive traits." Finally, "you become personally invested in the world of someone else," and they "become a surrogate for the audience's hopes and fears" (Movshovitz 2017: 34). "This is also called empathy, and your character must evoke it in your audience" (ibid. 34).

According to Mori's Uncanny Valley theory, we can only feel completely familiar with a real human on a scale of lifelikeness and affinity[2] (Figure 1). While Mori uses the terms 'affinity,' 'familiarity,' and 'empathy' interchangeably when discussing Uncanny Valley, it's important to note that these terms are not interchangeable. Empathy provides the best definition if we are using Keen to understand Mori's Uncanny Valley (van Rooij 2019).

Based on the work of Pixar, Disney, and DreamWorks, van Rooij hypothesizes that these studios maximize empathy by creating an aesthetic that does not rely on pushing toward photographic realism. She explains that there is now another peak, the Pixar Peak, where audiences can empathize with animated characters similarly to real humans (Figure 2). It seems these studios have taken up Mori's recommendation to avoid trying to create photorealistic characters and lean into stylization (Bode 2019). To better understand this, we will discuss the cartoon, its use in character design, and its relationship to realism.

[2] Mori created the Uncanny Valley to describe our ability to empathize with robots based on their lifelikeness. However, it is often adopted for the visual design of CG characters (van Rooij 2019; Bode 2019) and animated movement or performance (Hooks 2017; Bode 2019).

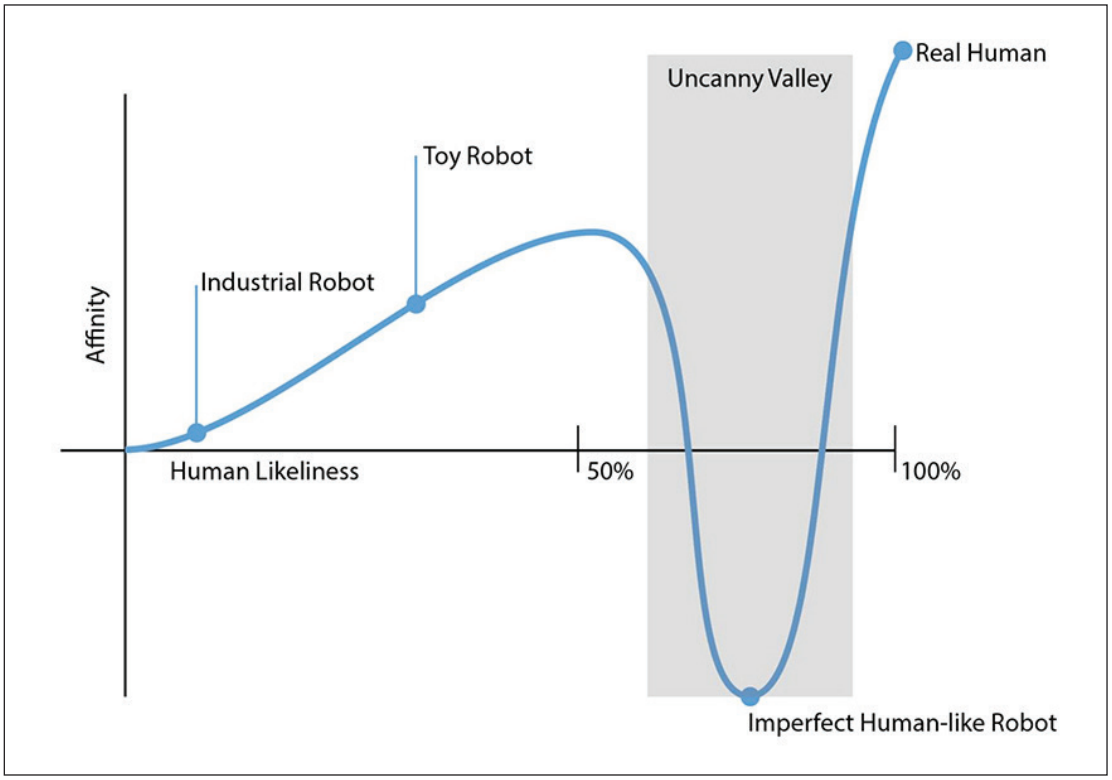

Figure 1. The Uncanny Valley

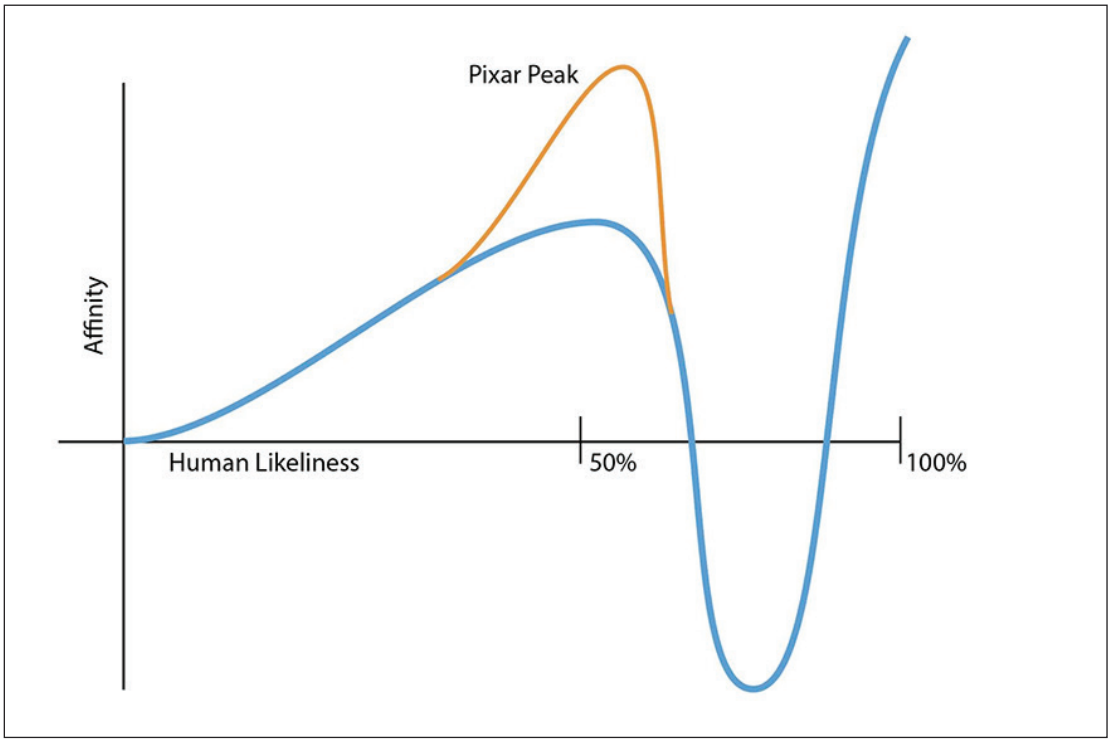

Figure 2. The Pixar Peak

Punctum. International Journal of Semiotics | **10:**01:2024
ISSN 2459-2943 | DOI: 10.18680/hss.2024.0011 | **punctum.gr**

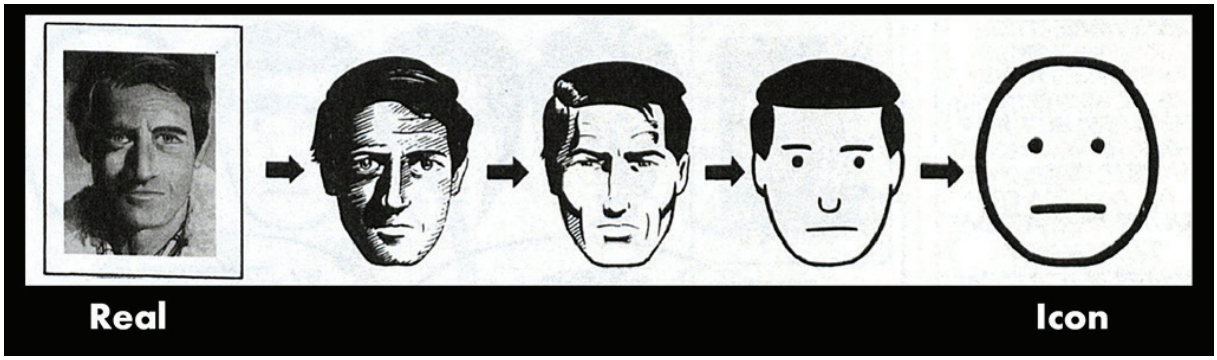

Figure 3. Real to Icon in comics (McCloud, 1993).

4. The spectrums of 3D rendering

The idea of the cartoon and its relationship to realism is vital to understanding appeal. The first duty of the cartoon is not to picture or duplicate real actions or events as they happen but to give caricature to life. "It is the exaggeration of the real for it to assist with the fantastic" (Thesen 2020: 278). In his book *Understanding Comics* (1993), Scott McCloud lays out a spectrum of rendering from realism to cartoon or from real to icon (Figure 3).

We do not remove details when we use cartooning to abstract an image. Instead, we emphasize specific details. By simplifying an image to its fundamental meaning, an artist can enhance its meaning beyond what realism can achieve. The cartoon's ability to focus our attention on an idea is what makes it distinctively powerful (McCloud 1993).

We do not need CG animation to connect the audience and the character. The simple cartoon does this. McCloud addresses the standard peak before the drop on the Uncanny Valley curve and the cartoon's ability to connect with us, "When we enter the world of the cartoon, we see ourselves" (McCloud 1993). There is a peak of identification on the curve of the Uncanny Valley without films like *Inside Out* (2015), *Moana* (2016), or *Shrek* (2001); it just did not reach the level that van Rooij is now hypothesizing.

This is supported by Butler and Joshko's comparison of the animated films *The Incredibles* (2004) and *Final Fantasy: The Spirits Within* (2001). The characters in *Final Fantasy* are photorealistic, while the characters in *The Incredibles* are heavily stylized (Figure 4). Butler and Joshko found that there was far more connection with the characters in the movie *The Incredibles* because the 'caricature' and 'abstraction' in the character design allowed the audience to use their imagination to see their own experiences in the characters. The 'frighteningly realistic' characters in *Final Fantasy* did not give enough space for the audience to imagine more than what was already being visually rendered (Bode 2019). The audience takes their time to add humanness to stylized characters because they know it needs to be added, and the form allows for augmentation. Characters are uncanny or lack audience connection at best when the viewers spend their time trying to discern their specific humanness (Bode 2019).

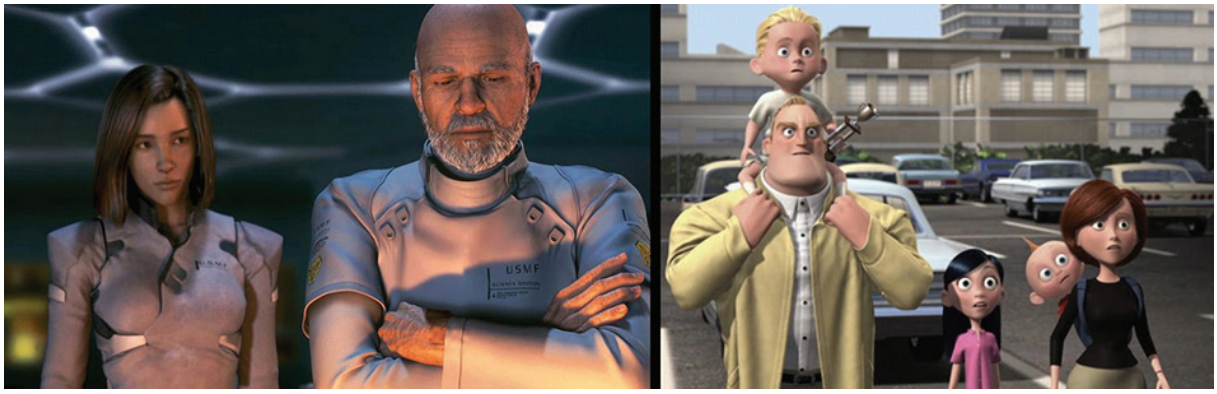

Figure 4. The characters from *Final Fantasy: The Spirits Within* compared to the characters from *The Incredibles* (2010).

CG animation has found a new power to elicit an empathetic response from the audience. We are more likely to cry, be deeply moved, and feel for the characters from Pixar, Disney, and DreamWorks that use CG animation (Sheldon 2019) (van Rooij 2019). An example is from *Toy Story 3* (2010), when Woody and the gang of Andi's toys were trapped in the incinerator (Figure 5). You might remember your feelings as the toys inched closer to the flames. The intense fear you might have felt only makes sense when you think about Woody, Buzz, and Jessie as real characters, not virtual CG animation.

Figure 5. Woody, Buzz, Jessie, and the whole band of toys in the incinerator toward the end of *Toy Story 3* (2010).

Punctum. International Journal of Semiotics | **10:**01:2024
ISSN 2459-2943 | DOI: 10.18680/hss.2024.0011 | **punctum.gr**

Figure 6. A comparison of features and design of the 3D characters: Hiccup (*How to Train Your Dragon* 2011), Anna and Elsa (*Frozen* 2011), and Merida (*Brave* 2012).

Van Rooij attributes the increased appeal and our connection to the characters to the shared character design of these major studios. We all might intuitively know what the shared style is. When we compare the human characters created by different studios, we can see that they seem to have been designed by the same artists (Figure 6). However, it raises the question of whether the power of this shared style is simply a result of the character's design.

Significantly, there are exceptions, such as characters that do not share most of the attributes you see in Figure 5. Forky (*Toy Story 4* 2019) and Baymax (*Big Hero 6* 2014) (Figure 7) are very different from the characters in Figure 5, yet we still empathize with them. There must be more than just a shared character design. Van Rooij states that Baymax's minimal look seems to open several possible emotional states with which the viewer can empathize. If the new level of empathy came only from the shared character style, we might expect more empathy for Anna (*Frozen*, 2011) than Baymax (*Big Hero* 6, 2014).

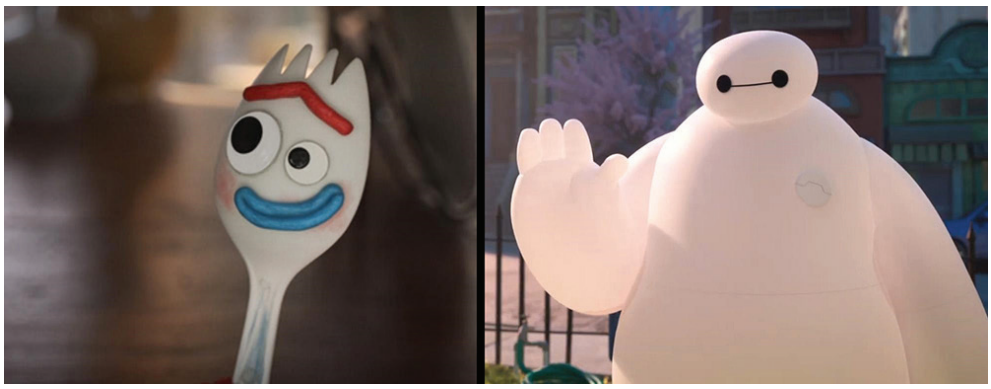

Figure 7. Forky (*Toy Story 3*, 2010) and Baymax (*Big Hero 6*, 2014).

The increase in empathy in animated films is not solely due to the design of characters. Pixar's recent movies, *Luca* (2021) and *Turning Red* (2022), feature characters that are more exaggerated, cartoonish, and iconic than characters like Hiccup (*How to Train Your Dragon*, 2010), Anna (*Frozen,* 2011), and Merida (*Brave*, 2012). Pixar (Disney and Dreamworks) continues to use a Non-Photorealistic Render (NPR) for the characters in their films. However, despite their differences in appearance, the emotional impact of these new characters is just as strong. Although character design is important, it alone does not fully explain why audiences connect with these computer-generated characters. To better understand the appeal of these characters, we need to revisit the concept of appeal from the beginning.

Thomas and Johnston recognized the limitations of traditional animation and the form they were using. They felt there were problems in trying to communicate feelings through line drawings. When using traditional animation, the artist cannot render subtle shadow patterns on the face, and these details are critical to revealing shades of character in a person, which leads to misinterpretation of delicate expressions. The artist would try to add refinement but then over-render and create a feeling of restraint in the character's expression of emotions. The refinement would result in a lack of authenticity (Thomas and Johnston 1995). Hayao Miyazaki's observations about the limitations of cel animation were similar to those of Thomas and Johnston. In *Starting Point: 1979 - 1996*, Miyazaki says, "That cel animation images are simple and clear is another way of saying that they also lack much depth and sophistication" (Miyazaki 2022: 83).

Disney wanted to get closer to the character and use extreme close-ups, but the character's face would flatten out. So, to maintain appeal, they stuck with simple and direct drawings. The wisdom was never to get too close to the camera (Thomas and Johnston 1995).

In CG animation, the line is gone – unless we are talking about the recent trend in the Spider-verse franchise (Ramin Zahed, 2018), *Arcane* (2021), or *Watchmen* (2024) – allowing for extreme close-ups. Studios can move in close, so audiences feel like they are getting into the head of the character without the rendering becoming flat. There is detail to reveal on the outside, which suggests that there is detail to learn about the character on the inside. CG animation can now use the same film language as a Hollywood classic or modern blockbuster.

Thomas and Johnston relied on acting and story structure to increase appeal due to a problem with the medium. Lambert agrees that performance is the most important aspect of appeal or added appeal (2017). The character's performance is critical to animation, especially the subtleties, details, and imperfections (Roe 2019, Lambert 2017). Walt Disney himself agreed that the feeling[s] of the characters came from the movement (Culhane 1999). Empathy for a character from the audience is created by "endowing your character with a thinking and feeling brain" throughout the performance (Hooks 2017: 12).

Punctum. International Journal of Semiotics | **10:**01:2024
ISSN 2459-2943 | DOI: 10.18680/hss.2024.0011 | **punctum.gr**

One might think that motion capture performance, like photographic realism, would then be the way to maximize empathy for a character through movement. Recreate the real world and have the character act like a real person. Even before motion capture, Thomas and Johnston knew you could not simply follow the live-action by just rotoscoping the reference. They noted that it was "impossible to be emotionally involved" with a character that was moving too realistically because they felt as though the audience knew the character was not "a real inhabitant of [the] fantasy world" (Thomas and Johnston 1995: 323). Moreover, in *The Illusion of Life*, they felt like a straight rotoscoped animation would be "tight and restricted." The animators need to emphasize the movement so that "what appears on screen is a simple, strong, direct statement that has clarity and vitality" (Thomas and Johnston 1995: 323).

But photographic realism has never been the ultimate goal for studios such as Pixar, which uses an NPR render for their characters. The goal of animation is not to copy life but to capture the essence (Stanchfield and Hahn 2009). Focusing on characterization, Pixar, Disney, and DreamWorks "share a certain simplified, more expressive aesthetic" (van Rooij 2019). The characters are stylized. "Stylization strategies are taken to let the viewer participate more actively in the meaning-making" (Tabatabaei 2018: 2).

Van Rooij does not focus on characterization through animation. As part of their 'simplified expressive style,' Pixar has resisted the trend toward using motion capture and relies on the animation artist to craft the performance. The character's performance "plays a significant role in the constitution of their realism more so than their visual design" (Tabatabaei 2018: 1). Animated movement breathes life into characters. The performance or the illusion of life is essential for creating an empathetic response from the audience for the character (Hooks 2017).

Pixar, Disney, and DreamWorks have not used all the technological advances of VFX studios. They have stuck to their already established expressive style. But they continue to make advancements in texture, lighting, and rendering. The style of a character is determined not only by their appearance but also by animation, cinematic techniques, and rendering. Thomas, Johnston, Lambert, Hook, and Tabatabaei support this idea.

The performance is important, but we should remember these characters do not live in a blank world. They live in a world constructed and rendered by the same computers and conventions that render the characters. "Computer animation's audio-visual experience and perceptual correspondences are facilitated by its use of both 3-D 'sets' and virtual cameras" (van Rooij 2017: 195). Cameras that can move freely in a virtual set can make the audience feel like they are in a real environment. This differs from traditionally animated films, with limited camera movement.

The multiplane camera used by Iwerks Studio and Disney and the stereoptical camera (or setback camera) used by Fleischer Studios brought depth, perspective,

and the illusion of 3D space to each animated frame (Jaeger 2013). The more faithful representation of three-dimensional space was integral in creating the Disney house style that would hit a sweet spot between photorealism and exaggerated reality or 'hyper-realism,' as defined by Paul Wells (Mihailova 2019). While the environments in the early Disney and Fleischer films were beautiful and immersive, they were quite different from the 3-D sets used today.

Camera effects in 2D animation changed again with the release of the 1993 version of *Beauty and the Beast*. We see the emotional impact that a more realistic environment, as expressed by the camera's ability to move about freely, has on the audience. There are many moments in the film where one feels connected to Belle and the Beast, but the ballroom scene has an impact because of its 3-D environment. Most praise for *Beauty and the Beast* was for the ballroom scene, which was the first to use a CG-animated background in the final production. But it is also because when the camera starts to sweep up and around the ballroom, the characters, the world, and the story all come alive. The suggestion of the real 3-D world of the ballroom increases our connection and empathy with the main characters (Failes 2021).

Since the same rules for creating and building characters apply in building a world, it is possible to use a similar spectrum to the one used for characters. Environments can also range from real to iconic (Figure 8).

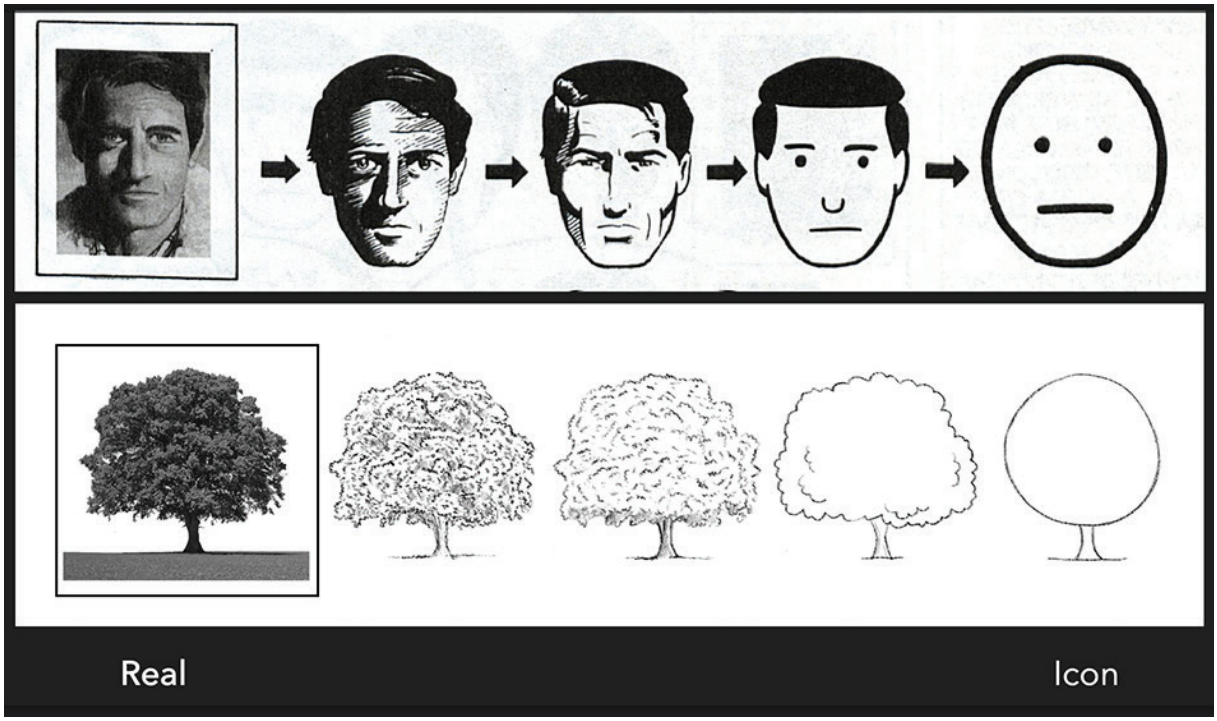

Figure 8. The Spectrum from real to iconic for environments lined up with McCloud's spectrum.

Punctum. International Journal of Semiotics | **10:**01**:**2024
ISSN 2459-2943 | DOI: 10.18680/hss.2024.0011 | **punctum.gr**

For the environment, McCloud also describes a spectrum from iconic to realism, but most of his discussion focuses on objects. The example he uses to illustrate the spectrum is with a teacup (McCloud 1993). He does this to discuss the strengths of real versus icon visually and narratively. The iconic teacup "could get up and dance and we would not think it was out of place, but realism, in the context of the cartoon, is better able to portray the beauty and complexity of the physical world" (McCloud 1993: 41). While it would seem obvious to use the same rendering style (Non-Photographic Rendering) for the character as you do for the environment for consistency, there are reasons to mix one style with the other.

This idea of mixing and matching styles is not new. We can also find examples of animated characters inhabiting photographic environments in some of the Fleischer Studio shorts from the 1930s. Disney and Studio Ghibli offer a different example. They render their backgrounds without an outline to capture a wide range of colors and focus on light, shadow, textures, and intricate details. This intentional mixing of rending styles between the characters and the world is impactful, especially when we see the world as 'real' and not just 'more real' than the characters. However, in traditional animation, while the rendering of the backgrounds is more realistic, the camera is still not free to move through the environment.

McCloud briefly discusses the combination of rendering styles by pointing to *the clear-line* style of comics that combines iconic characters with realistic backgrounds. "This combination allows readers to mask themselves in a character and enter a sensually stimulating world. One set of lines to see. Another set to be" (McCloud 1993: 43). McCloud tells us that animation has used masking to help audiences enter fantastic worlds for 50 years. *Understanding Comics* was published in 1993, so McCloud refers to traditionally animated films. He was unaware of the changes that would come post-*Toy Story* (1995) and the potential that CG animation would bring to character identification and environment by taking a stylized character rendered in a Non-Photographic Render and putting them in an environment that is rendered in a Physically Based (realistic) Render (PBR).

Van Rooij states that the stylistic success formula for Disney, Pixar, and DreamWorks is hitting a 'sweet spot' on a spectrum from realistic to iconic to generate the highest levels of empathy from the audience. The article starts to bring together two ideas. The "more expressive characters seem to be accepted by the audiences as real and authentic, evoking empathy and amplifying meaning," and they use "digital sets, virtual cameras, and perceptual cues to create a believable, three-dimensional world in which [the characters] 'live'…" (van Rooij 2017: 203)

When we bring together iconic cartoon characters and place them in a world like ours, we accept these characters as authentic and their emotions and ideas as genuine or real. Unlike actors, these characters are not merely portraying emotions but embodying them. In CG productions, emotions and ideas can live and breathe in our world.

5. Mixing spectrums to maximize empathy

We can see evidence of Pixar beginning to experiment with this idea of mixing renders as far back as 2013 with the release of the short *The Blue Umbrella*. When the short starts, viewers may initially struggle to differentiate whether this is a city street captured in photographic footage or animation. That confusion is understandable because 5-years before the release of *The Blue Umbrella*, Pixar had set a precedent of mixing live-action footage with animation in *Wall-E* (2008). However, in the case of *The Blue Umbrella*, it is all animated CG sets. Pixar also pushed the mixing of styles in the 2015 film *The Good Dinosaur*. The film shows a giant contrast between the caricatured dinosaurs and the realistic landscapes. At the end of the movie, we are shown computer-generated images of natural elements that resemble the work of a skilled landscape photographer.

Pixar is at the forefront of the trend of mixing renders and is currently exploring various techniques. In this regard, I would like to examine two examples from Pixar. However, this is not to suggest that other studios do not have films that may also be informative and interesting to study. Compared to other studios, Pixar has a consistent output of shorts and feature films that are easier to compare and contrast.

6. Film analysis

There are almost countless choices that the directors and animators are making in the process of creating modern CG productions. The choices related to appeal and characters are just as expansive. I propose looking at CG films along four different spectrums:

- The character design
- The environmental render
- The use of cinematic techniques
- And the character's performance

These four design choices in a movie can be plotted on various spectrums. The combination of where a movie falls on all those spectrums creates the unique cartoon style that characterizes Pixar Peak, as shown in Figure 9. To illustrate this point, let's use two examples of Pixar films: the short film *LOU* (2017) and the critically acclaimed feature film *Inside Out*.

Punctum. International Journal of Semiotics | **10:**01:2024
ISSN 2459-2943 | DOI: 10.18680/hss.2024.0011 | **punctum.gr**

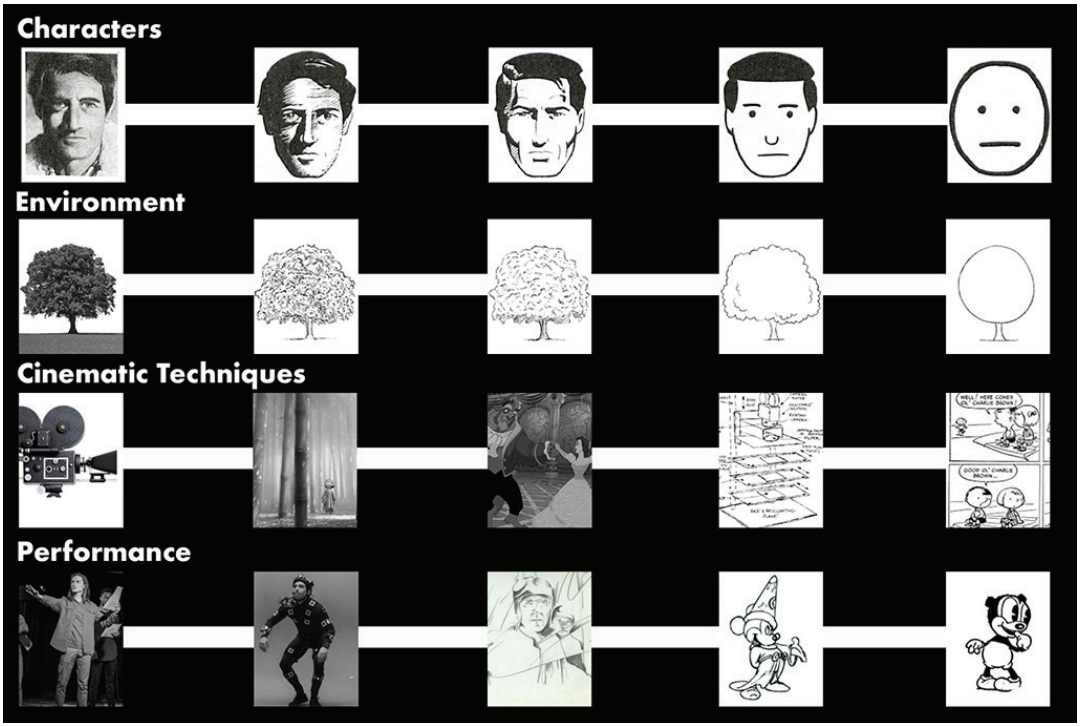

Figure 9. The spectrums of character, environment, cinematic techniques, and performance.

The spectrum of character design is taken from Scott McCloud's *Understanding Comics*. The spectrum of environment design was adapted directly from McCloud. The spectrum of Cinematic Techniques ranges from a real camera to a virtual camera in a CG environment with lens effects such as depth of field, a virtual camera with freedom of movement in a 3D space, a multiplane camera, and a fixed camera. For performance, the spectrum ranges from live or film actors, motion or performance capture, rotoscoped action, crafted keyframed animation performance, and straight-ahead animation performance.

In the short film *LOU*, which is about bullying, the opening scene takes place on a playground. Although we briefly see kids playing on the playground, we only view them from afar. After that, we zoom in on different aspects of the playground (Figure 10). The lighting, textures, and natural environment are all rendered realistically. These moments are intended to bring back our memories of playing on the playground as children or to make us feel like we are in the real world. The realistic render is meant to evoke the image of that perfect playground on which we used to play as kids.

We are then introduced to the main character, JJ. He is an idea, the classic schoolyard bully. If we consider the spectrums as a continuum rather than buckets, the environment of *LOU* is very close to realism on the spectrum, and JJ is much closer to iconic. The other children look a little more realistic than JJ (Figure 11).

Figure 10. Selected images from the opening moments of *LOU*.

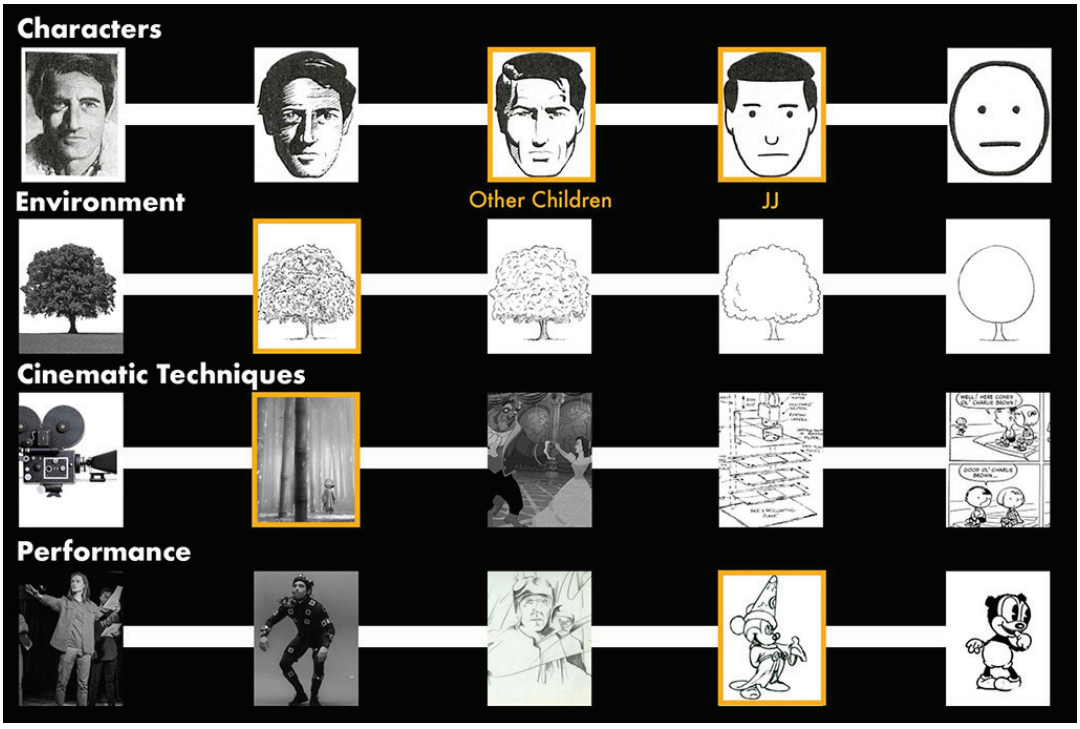

Figure 11. The spectrums of character, environment, cinematic techniques, and performance for *LOU*.

Punctum. International Journal of Semiotics | **10:**01:2024
ISSN 2459-2943 | DOI: 10.18680/hss.2024.0011 | **punctum.gr**

JJ is designed to be more iconic than the other students because we are meant to see him as the idea of a bully. The realistic rendering of the environment places this idea of a bully on a very real playground. Since we can put ourselves in the environment and see this environment as realistic, the emotions and connections we have to the characters are more powerful. We empathize with the other students as JJ goes around and torments each of them.

Since JJ is iconic, we easily suspend disbelief when the lost-and-found box comes to life and grapples with him. JJ's iconic form also allows us to switch from disapproving of his actions to understanding his struggle and ultimately empathizing with him and his sadness. However, it is not just his cartoon form that helps make this connection; the environment that we recognize as our world increases identification.

LOU also uses classic cinematic techniques like rack focusing, slowly panning around objects, handheld camera shakes, and extreme close-ups. *LOU* uses the close-up to amplify the audience's connection with JJ because we can be intimate enough to see and feel his emotions.

The subtleties of the performance add to the appeal. It is reminiscent of Les Clark's animation process for Mickey Mouse in *The Sorcerer's Apprentice* (*Fantasia*, 1940). For *Fantasia*, Disney shot a live-action reference of a boy leading an imaginary broom. One would think that simply simulating that movement would be enough to capture the audience. But it is the additions and interpretations that Clark gave to the animation, the "jaunty little-boy determination as Mickey bowed, hopped downstairs, and flopped into a chair all with supreme self-confidence," that made Mickey feel like he is feeling and thinking and not just moving (Culhane and Walt Disney Productions 1999: 28). Thinking and feeling is the illusion of life. As Hooks states, "when you endow a character with the illusion of life, you set the stage for an empathetic connection with the audience" (13).

JJ is visually iconic, and so is his performance. Rather than the motion coming from one actor (live action or motion capture), his motion throughout the short fuses many performances and ideas and makes him an iconic character. We see animators bringing together many ideas and their own experiences to create an engaging and empathy-inducing performance (Roe 2019). Bukatman asserts in *The Poetics of Slumberland: Animated Spirits and the Animating Spirit* that these animated performances are more engaging to audiences because they are part of a studio pipeline and are the sum of many people's experiences (Roe 2019).

Inside Out introduces us to Riley, a young girl who moved from Minnesota to San Francisco with her family. Riley pushes closer to realism than JJ and the students from *LOU*, and so does the environment. Riley looks like the characters we looked at when

we listed the features that make up the shared visual style: small, soft features with large eyes on a large round head, a realistic mouth, and subtle detailing (Figure 9).

When Riley enters her new school cafeteria, it is rendered realistically. The filmmakers aim to make the audience remember their own experience of looking for a friendly place to sit. Additionally, the camera movement through the cafeteria as we follow Riley reminds us that this is a 3D world. As van Rooij states, this visual cue tells us that this world is like ours (van Rooij 2017). Notice the dappled light, the subtle textures, and even the carefully placed garbage poking out of the waste bin. The construction of everything makes the world feel real (Figure 12).

Figure 12. The spectrums of character, environment, cinematic techniques, and performance for *LOU*.

When Riley ultimately sits by herself, we empathize with her. The animation focuses on her darting eyes as she uncomfortably navigates past a sea of unfamiliar and seemingly unfriendly faces to a place by herself. She sits and pulls inward as she points her knees and toes slightly toward each other. Finally, she takes a last deep breath and sighs in relief. Track yourself the next time you watch this scene. You might find yourself unconsciously taking that same breath.

Plotting the design choices for *Inside Out* on the list of spectrums would look like the chart in Figure 13.

Punctum. International Journal of Semiotics | **10:01:2024**
ISSN 2459-2943 | DOI: 10.18680/hss.2024.0011 | **punctum.gr**

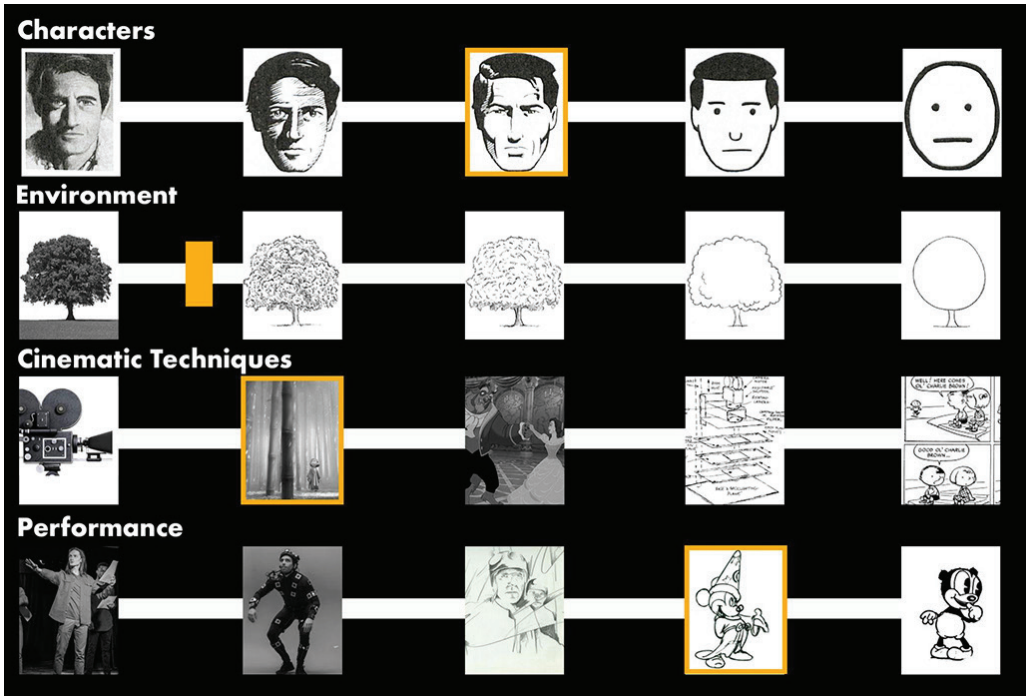

Figure 13. The spectrums of character, environment, cinematic techniques, and performance for *Inside Out*.

We can see a counterexample if we look at the characters from *The Incredibles* (2004). The characters occupy the same place on the spectrum as Riley, but we empathize with them less. If we look at the environment, there are many of the same clues that suggest a 3D world, but the forms and the textures in the environment are not nearly as realistic (Figure 14). This affects our recognition of the world and our identification with the characters.

Figure 14. Environment and characters from *The Incredibles*.

Figure 15. Selected images from the end of *Inside Out*.

The scene at the end of *Inside Out* when Riley is attempting to run away back to her home in Wisconsin is emotionally tense because Riley, the character, the idea of a vulnerable girl feeling homesick and alone, is running away not in a cartoon world, she is running away in a real world, our world. And we know how frightening and dangerous our world can be (Figure 15). Looking at this rendered world with its overpasses and highways, we start to imagine the frightening situations that we read in the news, like human trafficking showing up in the world of *Inside Out*.

7. Final thoughts

The features *Luca* and *Turning Red* (Figure 16) both chose to use a character style much closer to iconic. We know they are human, but their style lets us see the main characters, Julia, Luca, and Alberto in *Luca* and Meilin in *Turning Red* as the ideas they represent.[3]

[3] Elemental (2023), the more recent release from Pixar, pushes the character design even closer to the cartoon/iconic end of McCloud's spectrum from figure 3. The emotional connection with Ember and Wade from Elemental is no less than with characters from any of these other movies. This further supports the premise there is a balance of multiple spectrums that is creating the deeper connection between the characters and the audience.

Punctum. International Journal of Semiotics | **10:**01**:**2024
ISSN 2459-2943 | DOI: 10.18680/hss.2024.0011 | **punctum.gr**

Figure 16. Characters from *Luca* and *Turning Red*.

The worlds in *Luca* and *Turning Red* move toward iconic. In both cases, the surrounding environments are not as realistic as the environments of *Inside Out* or *Soul* (2020). However, the filmmakers edit in simulated B-roll footage and small details to indicate that these animated worlds are real. In *Luca*, the film pauses from the main story for a few moments to show us some quiet ambient moments that seem very real, like the ocean waves lapping onto the shore (Figure 17). The film *Turning Red* captures reality in small details, such as the food that Meilin's father cooks (as shown in Figure 17). Despite the stylized worlds of the film, it reminds us of our world. Both films connect the characters' themes of friendship, secrecy, and a search for belonging to our world.

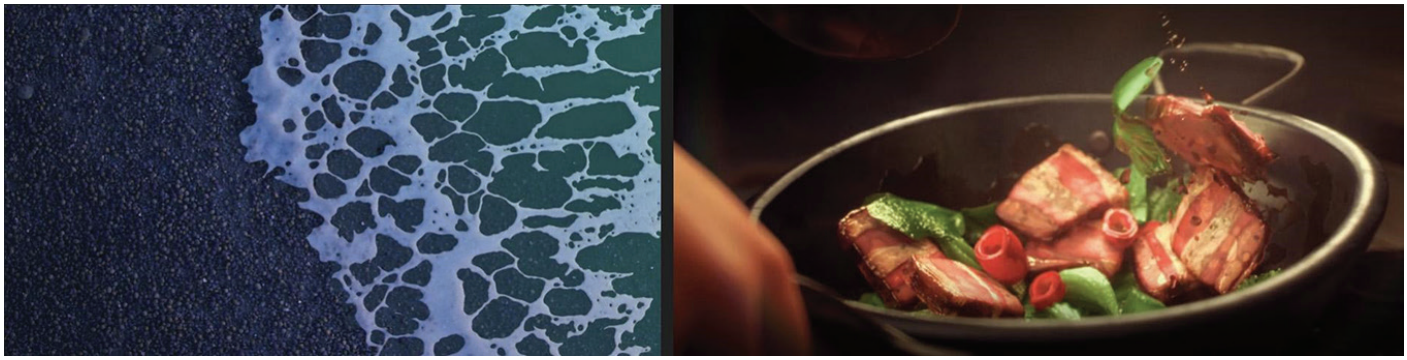

Figure 17. A moment of the ocean waves lapping onto the beach from *Luca* (2021). The food cooked by Meilin's father from *Turning Red*.

Figure 18. An older woman sleeping in front of a TV playing *Big Deal on Madonna Street* (I Soliti Ignoti 1958) from *Luca*. *Wall-E* watching *Hello Dolly* (1968) in his bunker, from Wall-E.

Pixar makes a few other choices beyond performance, environment, and rendering to show us that their characters live in our world. In the movie Luca, there is a scene where Luca and Julia are running along the rooftops. During this scene, we glimpse them through the window of an older woman's apartment. The woman is sleeping in front of a TV, showing footage from the 1958 film *Big Deal on Madonna Street*. This is similar to the VHS version of *Hello Dolly* (1968), which plays multiple times in the movie *Wall-E* (Figure 18). Including these classic films from our world in the movies *Luca* and *Wall-E* helps make the worlds in these movies feel more relatable. As a result, viewers can empathize more with the characters in these films.

8. Conclusion

> "If a character lacks appeal, why would you care what happens to them?" (Lambert 2017).
>
> "Your job as an animator is to create in the audience a sense of empathy for your character." (Hooks 2017)

We need to care about the characters on a deep level if we are going to see the benefit of traveling on their journey. Pixar has spent three decades creating rich, detailed characters with whom we empathize. From Woody (*Toy Story* 1995) to Joe Gardner (*Soul* 2020) to Joy and Sadness (*Inside Out 2* 2024), Pixar has been able to take us beyond liking its characters (Movshovitz 2017). They have created characters with relatable inner lives, not just appealing outer shells.

Punctum. International Journal of Semiotics | **10:01:2024**
ISSN 2459-2943 | DOI: 10.18680/hss.2024.0011 | **punctum.gr**

Pixar, Disney, and Dreamworks have discovered that CG animation gives them a unique opportunity to connect with the audience on a deeper level. Van Rooij has shown that these studios recognize that there is power in the cartoon and have not moved toward photographic realism. They developed a shared character design style that changes how we experience cartoon or animated characters in a film (2019). The shared style includes 3D sets, realistic lighting, character performance, and cinematic camera techniques are all part of this shared style. Now, audiences empathize with CG animated characters as they would with a human.

While these studios have maintained a more iconic style for their characters, they have also pushed toward realism in other parts of the film's design. In the shorts *LOU* and *The Blue Umbrella* and the feature films *Inside Out* and *Soul*, Pixar has chosen an environmental rendering style close to realism. Pixar understands that the animated characters or cartoons represent us in the film.

When animated characters are designed with more emphasis on their iconic representation rather than realism, we associate them with the ideas they represent. These characters are placed into a realistic world that we can relate to. This results in two outcomes for the audience. First, we can identify better with the characters and empathize with them because we can feel their emotions and relate to the struggles happening in our world. Second, we experience the world through McCloud's concept of masking, where we perceive the environment and become the character (McCloud 1993).

By plotting character design, environmental render, character performance, and the use of cinematic techniques on a set of spectrums inspired by Scott McCloud's spectrum of cartoon styles from real to iconic (McCloud 1993), we can better understand the choices made in CG animated films. These spectrums are certainly not the only ones that affect the audience. What are the other significant choices, and how do they interact with each other? This area needs more exploration. This mapping can help us better understand the shared style of Pixar, Disney, and Dreamworks. It makes it easier to see the similarities and differences between productions. It also makes it easier to see how mixing the design choices can affect the audience's ability to empathize with a character.

Pete Doctor, the director of *Inside Out* and *Soul*, has said, "what you're trying to do when you tell a story is to get the audience to have that same feeling" (Peters 2021). Creating a story that resonates requires great writing and well-developed characters. Supporting the story with thoughtful design choices can make it even more impactful. Using the spectrums discussed, we can maximize the audience's ability to empathize with the characters, making the story more meaningful and emotionally engaging.

References

Bode, Lisa 2019. The Uncanny Valley. In: Nichola Dobson, Amy Ratelle, Caroline Ruddell, and Chris Pallant (eds.) *The Animation Studies Reader*. New York: Bloomsbury, 59–67.

Culhane, John and Walt Disney Productions 1999. *Walt Disney's Fantasia*. New York: Abradale Press/H.N. Abrams.

Egan, Kathryn S. 2005. The Soul Factor. *Glimpse* 7: 49–53. doi:10.5840/glimpse200577.

Failes, Ian 2016. 30 Years Ago: The CG Secrets of the Ballroom Sequence in 'Beauty and the Beast.' *Cartoon Brew*. Available at: https://www.cartoonbrew.com/feature-film/30-years-ago-cg-secrets-ballroom-sequence-beauty-beast-145174.html

Fleischertoons 2021. *Popular Science | 35mm | Fleischer Studios Behind the Scenes | 1938 | Max Fleischer Popeye Cartoon*. [Online]. YouTube. Available at: https://www.youtube.com/watch?v=iy-Nwxugs-8 [Accessed 5 Jan. 2023]

Hooks, Ed 2017. *Acting for Animators*. London: Routledge.

Jaeger, Luke 2013. The Fleischer Studio's 'Setback' Camera vs. Disney Realism. *Animation Studies 2.0.* Available at: https://blog.animationstudies.org/?p=233

Keen, Suzanne 2010. *Empathy and the Novel*. Oxford: Oxford University Press.

Lambert, Steve 2017. Disney's 12 Principles of Animation. *Animation Artist*, 51–63.

Lasseter, John 1987. Principles of Traditional Animation Applied to 3D Computer Animation. *ACM SIGGRAPH Computer Graphics* 21(4): 35–44. doi:10.1145/37402.37407.

McCloud, Scott 1993. *Understanding Comics: The Invisible Art*. New York: HarperCollins.

Mihailova, Mihaela 2019. Realism and Animation. In: Nichola Dobson, Amy Ratelle, Caroline Ruddell, and Chris Pallant (eds.) *The Animation Studies Reader*. New York: Bloomsbury, 47–56.

Mori, Masahiro 1970. The Uncanny Valley. *Energy* 7(4): 33–35.

Movshovitz, Dean 2017. *Pixar Storytelling: Rules for Effective Storytelling Based on Pixar's Greatest Films.* Middletown, DE: Bloop Animation.

Miyazaki, Hayao, et al. 2022. *Starting Point: 1979-1996*. San Francisco: VIZ Media.

Peters, Brian G. 2021. "6 Rules of Great Storytelling (as Told by Pixar)." *Medium*, Sept. 14, medium.com/@Brian_G_Peters/6-rules-of-great-storytelling-as-told-by-pixar-fcc6ae225f50 [Accessed 1 Aug. 2022].

Ramin, Zahed 2018. Spider-Man in the spider-verse: the art of the movie. [online] London: Titan Books. Available at: https://titanbooks.com/9653-spider-man-into-the-spider-verse-the-art-of-the-movie/ [Accessed 8 Jun. 2019].

Roe, Annabelle Honess 2019. Animation and Performance. In: Nichola Dobson, Amy Ratelle, Caroline Ruddell, and Chris Pallant (eds.) *The Animation Studies Reader*. New York: Bloomsbury, 69–79.

Punctum. International Journal of Semiotics | **10**:01:2024
ISSN 2459-2943 | DOI: 10.18680/hss.2024.0011 | **punctum.gr**

Sheldon, Zachary 2019. The Gollum Problem: Empathy and Digital Characters in Cinema. *Animation* 14(3): 207–221. doi:10.1177/1746847719881702.

Smith, Murray 2020. *Engaging Characters: Fiction, Emotion, and the Cinema*. Oxford: Oxford University Press.

Stanchfield, Walt and Don Hahn 2009. *Drawn to Life: 20 Golden Years of Disney Master Classes*. Burlington, MA: Focal Press.

Tabatabaei, Seyed M. 2018. Plausibility of 3D Characters: Towards a 2nd Uncanny Valley. Concordia University, Department of Design and Computation Arts, Montreal, Canada. Available at: https://www.academia.edu/36714896/Plausibility_of_3D_Characters_Towards_a_2_nd_Uncanny_Valley [Accessed 15 Jan. 2022].

Thesen, Thomas P. 2020. Reviewing and Updating the 12 Principles of Animation. *Animation* 15(3): 276–296. doi:10.1177/1746847720969919.

Thomas, Frank and Ollie Johnston 1995. *The Illusion of Life: Disney Animation*. Hyperion: New York.

van Rooij, Malou 2019. Carefully Constructed Yet Curiously Real: How Major American Animation Studios Generate Empathy Through a Shared Style of Character Design. *Animation* 14(3): 191–206. doi:10.1177/1746847719875071.

AUTHOR

Marc Russo a comic artist and animator based in the Triangle of North Carolina. He is an Associate Professor of Media Arts, Design, and Technology at North Carolina State University's College of Design, USA.