

The Animator's Sensorium: The Impact of Acting and Animation Experience on Creating Reference Performances

Dr Jason Kennedy
Auckland University of Technology
Department of Animation, Visual Effects, and Game Design
Auckland, New Zealand

Abstract

This research provides an initial investigation into strategies for creating reference performances for animation. The term *reference performance* has various meanings in animation production; in this article, I use it to refer to a recording of a person performing physical and emotional cues, from which performance elements of an animated character may be derived. Beginning with Max Fleischer's invention of the rotoscope process in 1915, animation studios began to record actors as a means to inject greater believability – that is, a “[reconciliation of] realism within the animated form” (Pallant 2011: 41) – into the movements and expressions of animated characters. While various methods exist today to capture reference performances, it remains axiomatic that the utility of the reference is only as good as a performer's ability to produce the desired performance. While seasoned actors would seem ideally suited to the task, large-scale animation studios frequently require animators to film their own reference performances, even though the animators may have limited (or non-existent) acting experience. By comparison, smaller studios and independent productions may not have the time or ability for each animator to self-produce reference; instead, they may opt for an animation director/supervisor to record reference for every character, to work from clips available through online video sites (e.g.: YouTube), or to forgo video reference altogether. This research examines the potential for acting experience to enhance reference performances, and specifically explores three different preconditions of experience when producing animation reference: an actor with no animation experience; an animator with no acting experience; and an academic with both acting and animation experience. As an additional site of inquiry, this research explores the use of head-mounted cameras (HMCs) in the production of animation reference as a means to more fully and reliably capture the research participants' expressive range. This research engages with ethnographic and autoethnographic research models to compare the creative choices of each participant and their ability to produce meaningful expressions, gestures, and body movements as reference performance for a short, *auteur* 3D animated film in a predominantly realistic style. From these analyses, the maximal performance utility of each participant is gauged. By extension, this limited data provides an initial suggestion that acting experience is an essential precondition when producing useful reference performances for the type and style of animation explored in this study. Furthermore, this article relates the acting strategies of its participants to the acting theory of Ivana Chubbuck (2004) and the theory of emotional effector patterns as described by Bloch et al. (1987).

This research suggests that these practice-informed performance theories may prove useful to animator when producing their own reference, regardless of performance experience.

1. Introduction

While the processes used by actors to enact film roles are frequently discussed in both popular and academic media, the techniques used to craft the performances of animated characters are less examined or understood. As an animated character's design more fully approximates photorealism, the animator's relationship to a character increasingly resembles an actor's relationship to the character they¹ perform (Kennedy 2021: 35). The performance relationship between an animator and animated character is perhaps the most immediate during the creation of acting reference. Through kinaesthetically engaging with an animated character's performance needs, the animator-as-actor is more likely to intuitively respond with greater physical and emotional believability than through passively imagining the performance.

As an animated performance is not *real* in the same way that a live (or live-action) performance is *real*, it is important that I clarify how I apply the concepts of "realism" and "believability" to animated character performances. Within animation, *realism* is commonly used to describe both a character's visual appearance and its style of performance. In this context, *visual realism* refers to an aesthetic style that appears true to life – that is, an animated character is visually real if it seamlessly integrates into a *mise-en-scène* that is at least partially recorded via a profilmic process. By comparison, an animated character's performance is understood to be real if the animation is indistinguishable from the performance of a profilmic actor (Kennedy 2021: 34-35). This assumes the animated performance visually conforms to the laws of physics and results in subtle, unrepeatable nuances based on the character's fictional "behavioural pattern" (Joon 2008: 2).

The concept of reference performance is used in many ways depending on the style and technical apparatus of animation production. Within the scope of this article, I interchangeably use the terms *animation reference* and *reference performance* to specifically refer to a recording of a person performing physical and/or emotional cues that is used as a source from which the performance of an animated character is at least partially derived. A film actor is perceived to have an indexical relationship to the character they portray on screen. By contrast, an animator performs by proxy through their animated counterpart (Hosea 2012: 163): the indexical relationship between the two is strongest in any reference the animator filmed to explore performance options for their animated character.

Once recorded, animation reference can be used to better understand the physical mechanics of actions. Likewise, when an animator engages with performance practices that derive from a Method² style of film acting, the results can provide crucial insight into the nuances of expressions, as well as how a character's thoughts, feelings, and intentions manifest in highly specific physical cues throughout the face and body. The animator can then translate these realistic cues onto the body of an animated character to heighten the

believability of its performance. This article is particularly concerned with animation reference as it relates to the production of a 3D animated short film within a semi-realistic style (i.e.: believable but with some heightened or exaggerated performances [Hosea 2012: 54]), and directed by an *auteur* animator³. However, many of this study's findings can be extended to large-scale commercial 2D or 3D animation productions that rely more on emotional engagement and refined action than on figurative animation alone (Hayes & Webster 2013: 68).

Animators are generally expected to produce their own reference performances (Jones & Oliff 2007: 113), although for actions that are especially skill-based or dangerous (e.g.: figure skating, boxing, rock climbing), they may rely on third-party footage. Animation reference enables the animator to study a body in motion on a frame-by-frame basis to better understand how it physically moves, interacts, and conveys thoughts, emotions, and intentions. One of the earliest forms of this method was invented by Max Fleischer in 1915, who patented it as the rotoscope process (Crafton 1993: 158), whereby the animator drew over a pre-recorded performance projected onto a glass panel. The technique of filming a performance to serve as animation reference has evolved into many forms during the subsequent century. Animation reference today often involves an animator recording themselves with a digital camera or smartphone, which produces a video file that can be easily transferred to a computer. Video player and editing software can be used to dissect frame-by-frame moments that serve as the basis for constructing performance choices for an animated character. However, animators are often cautioned against fully copying a reference performance (Wells 2006: 134), as the resulting animation can lack vitality when applied to more stylised forms, especially. Animation reference is a good tool for revealing performance details that may not be consciously registered when observed in real-time, but character poses developed from such reference frequently need to be exaggerated based on the degree of stylisation of the film (Beiman 2010: 10).

While a live-action role in a film is usually played by a single actor, the performance of an animated character is often created through the contributions of many animators, especially in commercial feature-length animations. When multiple artists are responsible for crafting a character performance, there is a distinct challenge in unifying those individual strategies into the appearance of a single hand's contribution. Hayes and Webster point out that within large-scale productions, 'there is little scope for an individual take on characterization' whereas in a more *auteur* approach, a single animator may have greater creative freedom to produce a distinctive acting contribution (2013: 21-22). In feature animations, a character's acting choices are often determined by a combination of the director, animation supervisor, storyboard, and vocal track, and the animators are obliged to adhere to these directions when they produce their own reference performances. However, in *auteur* and smaller-scale productions, an individual animator may be given more creative control over a character's performance.

Animators are a form of actor (Hayes & Webster 2013: 67), although few animators have professional experience acting for stage or camera (Kennedy 2015a: 943). Concepts of acting are taught within many tertiary animation programmes, and books like Ed Hooks'

Acting for Animators (2011) serve as guides to link acting with animation principles. However, animators are rarely expected to assume the responsibility of conceiving, experiencing, and performing characters the same way actors do. To that end, the reference performances animators create are rarely of the same calibre or complexity that a capable actor would produce. Animators may also use reference performances to explore aspects of physicality or expression in exaggerated ways that a professional actor may be less inclined to offer. The question remains: to what extent does acting experience affect an animator's ability to produce imaginative and useful reference performances? Does an actor's professional experience lead to performance offers that could be seen as more valuable reference, or are animators sufficiently equipped to produce reference performances through their animation training alone? This research endeavours to establish a means to understand the value that animators and actors each bring to creating animation reference by examining how three study participants enact the story of a 3D-animated short film.

2. Methodology

This research is framed through an interpretivist theoretical perspective, which provides a meaningful foundation to study the qualitative behaviours and actions of individuals, including my own (Gray 2004: 23). As I have explored in previous research (Kennedy 2014, 2015a, 2015b, 2017, 2019, 2021), my combined experience as both a practicing animator and actor is rare, and my professional academic background enables me to make theoretical and practical connections across these fields.

Within this study, I investigate how three individuals with different performance backgrounds approach the creation of filmed reference performance for a short 3D-animated film. These participants include a professional actor with no animation experience, an animation student with no acting experience, and the author who is a professional actor and animator. I invoke both ethnographic and autoethnographic research models to gain perspective into how each participant produces performance, responds to direction, and is influenced by the recording process. At times throughout this research, I serve as the observer (ethnographic engagement), and at other times as both subject and observer (autoethnographic engagement). Ethnography allows for me to engage with the study participants as sites of inquiry through observation of their behaviour and language, including how each participant uses a combination of personal and specialised language to describe their experience of performing. An ethnography is generally used to describe groups of people who share social and cultural characteristics, but may also be used to describe sites of people who have something in common, whether through lifestyle, language, practice, or any other shared experience (Boyle 1994: 161). In this study, three individuals create reference performances for a 3D animated short film, and therefore share in the experience of being performers. Two of the participants share performance experience as actors and two of the participants share performance experience as animators). While only three participants encompass an extremely limited site from which to extract conclusive data, this experiment provides an initial opportunity to discover and

reflect on the relationship between prior performance experience and how that experience may affect the production of animated characters.

As the author is one of the participants in this research, I invoke an autoethnographic methodology to consider myself as a methodological resource (Brigg & Bleiker 2010: 788-789), which enables me to 'dig deeply into [my] own experience, including the attendant emotions in ways that may not be possible [in other ways]' (Ngunjiri et al. 2010: 8). Thus, the combination of ethnographic and autoethnographic methodologies facilitates a meaningful account of the participants' performance processes, including their emotional experiences and acting choices. To expose and retrace the thoughts and emotions of the other participants, I engage in a dialogue with each of them throughout their performances. The first dialogue occurs before filming, in which I ask the participants to share their prior performance experience and how they prepared for the recording. During the recording process, whenever I feel that a performer has either encountered difficulty with, or demonstrated an aptitude for, acting a shot, I immediately engage with them at the conclusion of the take. In these circumstances, I ask the performer to elucidate their experience, which may include them discussing difficulties with performing the shot, techniques they used, substitutional imagery for objects/characters in the story, insights gained through creating a reference performance, or anything else that seems relevant to their artistic process. I use a similar process for myself, whereby I share insights while filming, as well as record debriefing sessions after completing each shot.

This research is pragmatically considered in that its findings are intended to provide animators, directors, and producers with new means to understand how prior experience impacts the creation of animation reference. This research likewise elucidates how certain creative experiences influence both the quality of a reference performance and the animated acting that results from it. While recording an actor from a static camera mounted on a tripod could record a full body performance, it is limited to filming from a single perspective and cannot closely follow a performer's face as they move and look in a variety of directions. To compensate, two cameras were used to record the full body's performance in each take. These included: a DSLR camera recording in 1080p resolution at 25 frames-per-second (fps), statically mounted on a tripod and positioned toward the front of the performer; and a smartphone at 1080p/30fps, statically mounted to a tripod and positioned toward the performer's left side. Additionally, to fully reveal each facial performance, two different head-mounted camera (HMC) rigs were used. The actor used the Faceware ProHD rig, which records with a built-in monocular camera at 720p/60fps. The animator and the actor-animator used the Radical Variance FaceCam rig, to which a smartphone can be attached; in this study, the phone recorded video at 1080p/60fps. The performance was recorded using the front-facing *selfie* camera and the pre-packaged Android Camera app.

3. Description of Study

The performers in this study were each asked to enact animation reference for the same story, which was presented to the performers in the form of a detailed storyboard. The

story features a meerkat character who is ravenous and desperate to find food. Disgusted by his only food option – maggots crawling over a carcass – the meerkat is ecstatic to find a mouth-watering dung beetle. The meerkat launches into a series of strategies to capture the dung beetle, none of which are successful, and all of which lead to greater injury for the meerkat. Once he gives up on the dung beetle and succumbs to eating the maggots, he discovers that they aren't disgusting after all – in fact, they are delicious.

This is an animation that I, the actor-animator, am producing. The character designs are heavily informed by realism with stylised elements, including the ability to emote in an anthropomorphised manner. This will be an *auteur* 3D-animated short film approximately four minutes in length. The story is non-verbal, which does not require the performers to attempt to sync their actions to a dialogue track when creating animation reference.

The meerkat's performance will be based on a combination of wildlife documentaries, zoo footage, and human reference. The performers do not need to pretend to be meerkats – especially since humans and meerkats do not share similar physiologies. Instead, I ask the participants to focus on moments of the story that cannot be referenced by watching animals in nature – that is, performances that are *directed* behaviour that a meerkat could not be trained to do.

3.1. The Actor's Performance – Dawn Glover

The first performance was recorded on 4 February 2022 and featured Dawn Glover, a professional actor. Glover's undergraduate acting experience at the University of North Texas emphasised the theatre traditions of Konstantin Stanislavski, Bertolt Brecht, and Jerzy Grotowski. She pursued her Master's degree in acting from Purdue University, which emphasised the Sanford Meisner technique. Glover's screen acting work is primarily influenced by the acting coaching she has received through the Kacie Stetson Studio in Auckland, New Zealand. Stetson combines elements of Ivana Chubbuck's screen acting technique with her experience as a professional actor and coach. Glover described her technique as an embodied approach to acting that draws upon her physical acting training to engage with her emotions as they manifest through physical reactions in different parts of her body.

In preparing for recording the animation reference for this research, Glover made especial use of Chubbuck's inner objects technique. Chubbuck describes *inner objects* as '[t]he images and pictures you see in your mind when speaking or hearing about a person, place, thing, or event.' (2004: 77). An inner object allows the actor to substitute a fictional story element for a person, place, thing, or event from the actor's real-world experience, which enables the actor to react to a story beat in a way that is emotionally and intentionally consistent with the character's response within the story. For instance, while recording her performance, Glover was not actually exposed to a maggot-infested carcass or a dung beetle, but she had to produce reactions consistent with how the meerkat responds to these objects (e.g.: disgust for the maggots; rapture for the dung beetle).

As Glover is a vegetarian, her inner object for the maggots was a meat-only buffet. For the dung beetle, she indicated she could turn to a specific favourite food, but she was not presently threatened by starvation. Instead, she sought a different means to channel ravenous desperation: as an actor, she was desperately hungry for a role in a popular Netflix series currently filming in New Zealand. Therefore, when she played the meerkat coveting the dung beetle, she tapped into her own lust for landing a role on the series. She trusted this technique would produce an emotional reaction in her similar to what the character requires in the same moment. After several takes, Glover concluded her choice of inner object for the dung beetle was more cerebral than emotional. While performing, Glover realised that the contrast between the meerkat's disgust for the maggots and his lust for the dung beetle could be better conveyed through her using inner objects of food alone. She found that if she contrasted the maggots with any food she especially liked, such as a Pandora bread bowl soup, this produced a stronger emotional reaction. At another moment in the animation, when the meerkat dangles from a branch while eagerly reaching for the dung beetle, her inner object for the dung beetle became her dog as she imagined reaching to pet him. Glover described this process of testing inner objects and making changes on the fly as a form of play, noting that there were no right answers – only stronger or weaker options. In Glover's experience, this assessment and adjustment of emotional triggers across different takes is common, and the most emotionally charged reactions are discovered through a process of experimentation.

After recording several takes, Glover noticed that she was producing bigger expressions than she would for standard film acting. She asked if, when performing for animation reference, it was better to push expressions or to pull them back 'closer to the chest'. I indicated that due to the style of this animation, she would be okay to play the role bigger, so long as she truly represented the character to herself while truly representing it to the audience⁴ – that is, so long as she remained *emotionally connected* (Kennedy 2021: 126). She advised that when working big, the actor has to 'be brave to be ugly', and that she drew from the methods of Brecht and Grotowski to achieve this. Fortunately, since reference performances are rarely seen outside of the production team, the actor's glamour, or lack thereof, is not publicly scrutinised. That being said, more contained and intimate performances can still translate well to an animated film, especially if the animation is likewise more contained or intimate.

3.2. The Actor-Animator's Performance – Jason Kennedy

This performance was recorded on 19 March 2022 and featured the actor-animator (the author). My training as an actor began at Albion College, which emphasised the theatre tradition of Stanislavski. At Albion, I performed in several theatre productions each year and completed my Honours thesis in playwriting. During my postgraduate experience at the University of Cincinnati, I pursued an MFA in animation, while continuing to write and perform scripts for stage and video. I have taught 3D animation at the tertiary level since 2006, and produced a variety of commercial, fine art, and research-related animations. In 2011, I began classes at the Kacie Stetson Studio, which I have continued taking on a casual

basis since. In 2021, I completed my PhD at Auckland University of Technology, which was a practice-led inquiry into the nature of acting within performance capture animation.

Prior to recording each segment, I recorded in a notebook the relevant storyboard panels, the major actions required, and the emotional journey the meerkat experiences during that segment. At the Kacie Stetson Studio, actors are taught to work from four *core* emotions: love, hurt, anger, and fear. I plotted the emotional arc of each story segment using these emotions. For instance, during the first sequence, the meerkat digs for food in the desert sand, finds a bug, and bites into it only for the bug to disintegrate in his mouth, confusing the meerkat. A shadow passes by overhead and the meerkat stands alert. I plotted out the following emotional journey for recording the segment:

- Fear (starvation; desperation at not finding food)
- Love (finding the bug; eating the bug)
- Hurt (the bug disintegrates)
- Fear (the shadow passes by overhead)

As Glover and I train at the same acting studio, we share many acting methods. For instance, I identified specific inner objects I could link to each of the characters, places, things, and events within the story. For certain story elements, my inner objects were more visceral than others. In less clear moments, I relied more on my overall activity and pattern of breathing to ensure my emotional engagement was aligned with the moment-by-moment needs of the segment. This required that I be simultaneously aware of my breathing and not distracted by this awareness, which is a skill I have developed in my acting practice. Each of these techniques helped to ground my reference performances in my immediate emotional and sensorial reality, a state of awareness I refer to as the “animator’s sensorium”. By engaging with my sensorium, the reference performances provide a range of physical and emotional cues that parallel my character’s moment-by-moment reality within the story. When those cues are transferred into animation, the animated performance feels more unique and emotionally connected.

Although this animation lacks dialogue, I engaged with nonverbal vocalisations, such as grunts, whines, whimpers, and excited inhalations. These vocalisations helped to further ground me in the performance, and I noted improvements to my physical gestures and breathing patterns as a result. Likewise, my body and facial performances became more varied and playful, which can be especially useful to an animator when working from reference. As with Glover’s performance, my whole face was involved in producing each expression.



Figure 1: The actor-animator exhibiting a disgust response as captured by the FaceCam HMC rig.

While breathing helped me better connect with my emotions, it also helped me better visualise visceral sensations – for instance, the disgusting smell of rotting, maggot-infested meat. *Breathing in* each acting beat⁵ resulted in a deeper emotional connection for me as the actor, and produced richer and more varied body and facial performance. This is especially important when I attempted to sensorially engage with something that was not physically present, such as the carcass. However, by consulting my memories of foul smells and my concomitant responses, I could more effectively imagine and emotionally engage with a fictional rotting carcass. By focusing on my breathing, my facial expressions became more asymmetrical, especially in the lower-half of my face (Figure 1). Such asymmetry is often sought in animation as it lends to greater performance and design appeal (Kennedy 2021: 157). Likewise, I more rapidly performed my transitions from one acting beat to the next, and I perceived them as more emotionally grounded.

While filming the second segment, I started vocalising new ideas for inner objects whenever I felt my connection to the scene's beats wane. For instance, when approaching the maggoty carcass, I imagined myself starving and approaching a buffet, only to discover that every platter was rotten. In my transition from being disgusted at the maggots to being enthralled at the dung beetle, I spontaneously vocalised my excitement with utterances like 'Oh, yummy!' Such phrases are often what compose part of an actor's *inner monologue*, which Chubbuck describes as 'the dialogue inside your head that you don't speak out loud.' (2004: 172). However, I found that vocalising my inner monologue during these takes provided me with better access to my emotions, actions, and thoughts. This would not

normally be an option when recording a live-action performance, as vocalising the inner monologue would impose upon the acting; however, when acting for animation reference, the animator can choose to exclude certain actions while working from the overall pose.

Part of the story involves the meerkat hanging by one arm from a tree branch. While it was not feasible or safe to stage any of the performers hanging from tree branches, I was also cautious against letting the performers simply mime the action – that is, to pretend to hold onto a branch that is not actually there. At the Kacie Stetson Studio, we are taught that the experience of feeling and manipulating physical props produces stronger emotional responses – a process Chubbuck refers to as *doings* (2004: 142) – whereas pretending to engage with a non-existent object inhibits an emotional or imaginative connection. My animation training also cautions against interacting with pretend objects due to purely physical concerns: when a performer picks up and interacts with a prop, the performer encounters the size, shape, weight, momentum, balance, and tactility of the object. The object affects the performer's centre of mass and how they move their body to support the object. When the performer mimes an interaction with a prop, they must instead imagine everything about the size, weight, momentum, and shape of the object, as well as how their body would respond to it. It is my experience that reference performances always suffer from physical inaccuracies and emotional disconnection when a performer mimes an interaction with an imagined prop.

When recording the performance of the meerkat hanging from a tree branch, I identified ways for each performer to have something physical to hold onto, rather than just imagining a branch. For Glover, this object was the horizontal metal pole of a portable green screen rig. The pole was placed above her head so she could reach up to grab it. In my case, I held onto a taught clothesline tied to my patio. As Solovyeva filmed at a park, she grabbed a real tree branch. When holding onto our various 'branches', none of the performers attempted to physically hang from them. Instead, we kept our feet planted on the ground, but stretched our bodies to pretend we were reaching for the dung beetle. This enabled us to produce performances above the waist, whereas the rest of the performance could later be constructed through the animator's imagination and online videos of people hanging from one arm.



Figure 2: The actor-animator exhibiting an exaggerated fear response as captured by the FaceCam HMC rig.

In the following scene, the meerkat is spread flat against the grill of a speeding tour bus, pinned in horror. The meerkat's fear is exaggerated in this comedic moment. I was aware that I would likewise need to exaggerate my facial performance when playing this scene (Figure 2). When moving from beat to beat, my imagination and breathing were vital to me producing a series of thoughts and emotions that could be conveyed at a believable tempo. During each take, I internally monitored my body's reaction. For instance, if after a take I felt my heart racing, my breathing irregular, my mouth open, and my body tending away from the fear stimulus, I would judge that my body's reaction was consistent with a fear response (Bloch et al. 1987: 5-6). This could be further confirmed by watching the video of the performance. If I felt that the performance lacked believability and I did not experience all of the fear response symptoms, I assumed the performance was not emotionally connected and should be re-recorded for improvement.

One of the benefits of creating animation reference is that it sometimes leads to acting choices that were not planned in the storyboard. For instance, toward the end of the story, the dung beetle becomes attached to its dung ball, which rolls backward toward the meerkat. In response, the meerkat opens his jaw wide only for the empty side of the dung ball to lodge itself in his mouth. In the storyboard, the meerkat reacts with shock, dismay, and disgust, and after extracting the dung ball from his mouth, he gives up on the dung beetle altogether. However, while performing this scene, after spitting out the imaginary dung ball, I started to pout my frustrations, saying to the dung beetle: 'You nasty little... You just, you just go your way.' I liked this petulant turn for the meerkat and it was a spontaneous discovery that I only made by *living through* the performance.

3.3. The Animator's Performance – Varvara Solovyeva

The final performance was recorded on 27 March 2022 and featured Varvara Solovyeva, the animator. At the time of writing, Solovyeva is an animation student in her final year of undergraduate study at Auckland University of Technology and does not professionally work in her field yet. She does not have any previous acting training or experience. Within the curriculum of her animation degree, students are taught principles of acting to better understand, see, and translate performance to animated characters. While students are sometimes given techniques for how to rethink and improve their own reference performances, the degree does not specifically teach acting to students at any depth similar to an introductory acting class for stage or screen.

Solovyeva was already familiar with the meerkat's story as a result of working as my research assistant on the film. I did not provide Solovyeva with any guidance about how she should prepare her performance, and prior to recording, I asked her about her preparation. She indicated that she practiced in front of a full-body mirror with the storyboard in view. She looked at the character's expressions in the storyboard and attempted to reproduce them with her face and body. She indicated her performance method was more external than internal, and focused on producing expressions rather than on achieving particular emotional states within herself. For her, this involved observing the muscles involved in the character's expressions in the storyboard, and attempting to reproduce those expressions in her own face. That is, she had a clear idea of what she wanted the character's performance to look like (i.e.: expressions, posture, actions), which she attempted to reproduce through her body.

Prior to filming each shot, I reviewed the story beats⁶ with Solovyeva to ensure she was clear about what needed to be performed and in what order. However, once filming began, Solovyeva noted difficulty with remembering the order of beats while enacting the performance she had prepared. In her preparation, she had practiced each action separately rather than as part of a flow, so she was less aware of how to cohesively connect them. To assist Solovyeva, I verbalised each action she needed to take – as well as any emotional cues, reactions, or internal monologues – as she progressed through each scene.

Initially, Solovyeva's facial performance was primarily restricted to her eyes and brows, while her mouth and lower facial region mostly remained in a neutral expression. The exception was when she performed the meerkat biting into a desiccated bug, as this required the use of her mouth and jaw. However, in the following moment when the meerkat is startled by an eagle, her mouth returned to a neutral expression while she looked for the bird. At this point, Solovyeva appeared to stop breathing, which, when combined with her closed mouth, inhibited her from expressing visual cues consistent with a fear response, as described by Bloch et al (1987: 5-6).

After recording the first shot, Solovyeva indicated the performance process was more difficult than she had anticipated, especially in terms of maintaining an active imagination. Developing a visceral imagination that can quickly jump from one idea to the next is part of

an actor's training, but is not necessarily a skill an animator learns. Solovyeva acknowledged that her process of trying to reproduce the external manifestation of an expression rather than engaging with herself at an emotional level was akin to 'faking' an emotion. She reflected that it is difficult to fake an emotion when a shot demands that the performer quickly moves from one thought/emotion to another thought/emotion. At this point, since inner objects had been valuable to Glover and me, I decided to test their utility for Solovyeva. For the meerkat's disgust reaction to the maggots, I asked Solovyeva to think of the grossest thing she could imagine eating, which was a cockroach. While she performed the shot, I told her to imagine holding the cockroach between her fingers and feeling how it moved. This instantly resulted in a much more tangible and believable expression of disgust, and her breathing became more active and consistent with her reaction. Likewise, I asked her to think of the tastiest thing she could imagine, which was ice cream. This became her inner object for the dung beetle.

Instead of producing a performance with her body, Solovyeva indicated she is more familiar with planning a character's emotional journey through drawings on paper. When she does this, she focuses on crafting poses that convey the main plot points of the story, but is less concerned about how the character emotionally and physically transitions between beats. Whereas drawing poses gives Solovyeva a sense of control of the outcome, she realised she struggles more with acting because of its spontaneity, which to her feels like loss of control of the performance outcome. For instance, she was concerned with adhering to the actions and expressions from the storyboard. I encouraged her not to view the storyboard as prescriptive, but rather as a suggestion of acting choices for the scene. I also clarified for her that enacting meerkat-like behaviour is not a key concern, and that she should be more concerned with actions and expressions that can only be conveyed through human performance.

4. Discussion

In this study, the animator's technique of focusing on external manifestations of performance contrasted with the actor's emphasis of tapping into her internal emotional life to produce a character. The animator approached her performance with a specific visual outcome in mind, whereas the actor did not work toward a specific outcome, trusting that activating particular emotions and intentions would lead to an outcome consistent with the needs of the story. By comparison, the actor-animator emphasised tapping into his internal emotional life while pushing facial expressions and body language to further extremes than the animator or the actor. To an extent, the animator was more deliberate in her approach to performance, whereas the actor and actor-animator were more explorative and open to serendipity. The actor's comfort with exploration likely extended from previous experiences of this method producing positive acting results, whereas the animator had no acting experience to draw from.⁷ The actor-animator's willingness to create bigger expressivity extended from his previous animation experience, which supports that large, emotionally connected expressions effectively translate into animation. The actor, lacking that specific

experience, performed in a manner more consistent with her screen acting work, which is emotionally connected but less exaggerated by comparison.

Overall, the animator's expressions were more limited, emotionally disconnected, and lacking in performance variety compared to the actor and the actor-animator. This is not to be understood as a value judgment but rather a reflection of the difference in performance potential related to different creative experiences. Hosea suggests that standard film-acting techniques may be appropriate for complex animated characters, but can become overcomplicated when applied to characters in more figurative or stylised roles. For the latter, a broader and more exterior style of expression may be more appropriate for an animator to consider (2012: 56).

While limited to just three participants, this research suggests that acting experience may provide an animator with greater confidence exploring a range of performance options, including tapping into deeper emotional states and acting with exaggerated qualities. The animator recognised the utility of actors as people who can 'add to a performance', which provided insight into how she viewed her role as a performer: she felt she was meant to reproduce the actions and emotions of the storyboard as faithfully as possible, and no more. By contrast, my experience suggests an actor's instinct is to use the storyboard as a springboard for ideas while interpreting the role in their own way. This is a crucial distinction that I, as someone who acted long before I became an animator, did not consider. However, this understanding will frame how I coach animators about performance in the future. I would strongly encourage any curriculum with a substantial focus on character animation to also include sustained acting training related to how performing different styles of acting can benefit different styles of animation.

While performing reference for a scene that lacks dialogue, an animator may benefit from a director (or fellow animator) vocalising the character's inner monologue. This process may help the animator keep track of the beats of the shot while providing a basis for the animator to access their emotions. For instance, during the shot when the meerkat emerges covered in rhino dung, I provided a range of vocal cues that significantly improved and expanded the animator's performance: When cueing the carcass and dung beetle on a subsequent take, I called out the inner objects the animator earlier identified (i.e.: cockroaches and ice cream, respectively). This resulted in her making unplanned choices and reactions that did not occur in previous takes.

Within this study, the performers with acting experience differed from the performer without acting experience in terms of greater

- Range of acting choices and degree (subtlety, exaggeration) of expression
- Utility of connective moments between beats
- Openness to playfulness

Despite the actor and actor-animator producing performances that exhibited greater emotional and expressive ranges overall, the animator still produced useful and worthwhile expressions, gestures, and body poses. However, she had more difficulty transitioning between acting beats, resulting in her transition moments being less useful reference for an

animation. This extremely limited survey of talent suggests that an animator's reference performance may result in a few poses that can serve as key frames for an animated character, but that an actor's reference performance may provide a better understanding of how to transition between those poses when applied to an animated character, especially within a more realistic style.

This conversation highlighted that while this distinction was clear to me as the director and story creator, it may not be to an animator working on the production. In situations like these, it would be prudent to express to the animation team which aspects of the character need to be conveyed through human performance, and which can be derived from natural history reference. A director may assume the animators would be able to naturally make that distinction, but not all animators may possess the experience to confidently arrive at the same conclusion as the director.

While the actor and the actor-animator both performed in conditions that minimised onlookers, the animator performed in a park and was witnessed by many parkgoers. It is reasonable to assume that as someone who was less experienced at performance in general, the additional concern of being seen by strangers may have increased her nervousness and negatively impacted her performance ability. She acknowledged some trepidation before the first take, but after I provided her with some encouragement, she appeared to relax. Later in the performance, she indicated she was less concerned with the parkgoers and did not appear to be negatively affected by performing in public.

While the methods the participants in this research used to perform animation reference are largely applicable to the creation of animation reference in general, various production considerations were not explored. For instance, when creating large-scale animated films, a single character's performance is often crafted from the contributions of multiple animators. Any single animator may contribute to only a handful of shots in a given feature film, and the animator may be responsible for more than just a single character's performance. Due to the time required to create feature-quality animation, it is unlikely for an animator to fulfil the requirements of an individual character's performance across an entire film, especially if the character occupies more than just a cameo appearance. Thus, the performance of a feature animated character is commonly an ensemble performance of multiple animators, not to mention 3D artists, supervisors, directors, and other creative talent who contribute to the final on-screen performance (Wolf 2003: 55).

An animator may be considered an actor, but a single animated character often has multiple actors. Each animator must work to produce the appearance that the character's performance is created by the same animator. As Hayes and Webster note, 'there is no space for an *auteur* approach: the animated character must appear to consistently perform from moment to moment and from scene to scene.' (2013: 21). By extension, each of the animators involved in the production of reference must be able to produce similar results when they enact the shots they are assigned to animate (2013: 68). Unlike with the animation in this research, most animated characters will be accompanied by a vocal track recorded by a single actor, which can provide a form of performance continuity for animators to work from. Additionally, a talented animation director can provide their

animation team with a clear sense of the character throughout the story, and help to convey this through storyboards, animatics, and other forms of visual planning. In certain production situations, such as with some animation for television, the director may record themselves performing reference for the entire episode and distribute this for animators to work from. In the end, a character's animation must appear to have been created by a single hand, free from virtuosos providing their individual interpretations (Hayes & Webster 2013: 70). This appears to inhibit an animator's performance freedom. However, if the director and animation leads provide clear communication about a character's motivation, behaviour, and relationship to the story, a talented animator can still explore creative possibilities within those bounds.

Animators generally record their reference performances using a smartphone or a tripod-mounted camera. Ideally, the camera should match the position, framing, and lens characteristics of the animated shot's virtual camera. However, if the performer moves a great deal during the recording, especially turning away from camera, the static camera will not fully capture the details of the facial performance. Reference performers are further limited by the camera's field of view in that when attempting to simultaneously recording full body and facial performances, they are limited to performing in the narrow space within the camera's field of view. If the performer needs to record expressions in close-up, they lose the ability to see how the rest of their body is physically influenced by emotions. This study included the use of head-mounted cameras as a means to accurately record the participants' full expressive range during their performances, while recording each participant's full-body performance with two separate tripod-mounted cameras. With an HMC, no matter which direction a performer looks, their face remains centred and in focus. Such visual data was invaluable when studying each actor's moment-by-moment expressive changes. It also provided a reliable means to compare and contrast the facial performances of each actor. Additionally, the HMC allowed the static cameras to record with a much wider field of view, which provided the performers with much greater freedom of movement.

5. Conclusion

This project explores how the professional skills of animators and actors impact on the creation of reference performances for a short, *auteur* 3D animation in a predominantly realistic style. This study engaged in ethnographic and autoethnographic research models to explore how each participant approached the creation of reference performance, with an eye toward interrogating the following questions:

- What does the experience of being an actor or an animator bring to the production of animation reference?
- Is the ideal experience a combination of acting and animation, or is this combination superfluous?

These results show the actor exhibited an experience-based understanding of the relationship between breathing, emotion, and physical/expressive reactions. The actor had specialised strategies for guiding an active imagination when engaging with objects not

physically present in a scene, including Chubbuck's techniques of inner objects, inner monologues, doings, and beats and actions. Likewise, she had more practical experience about how to adapt to new strategies when encountering performance difficulties. She demonstrated better facility with remembering the flow of beats in a scene, as well as how to quickly and believably transition between them. The actor's whole body and face were active in each reaction, leading to better overall expressivity. With this, she exhibited greater comfort with serendipity and being playful or silly in a scene, including making 'ugly' facial expressions. This led to spontaneous performance discoveries that extended beyond the storyboard options alone.

By contrast, the animator wished to exert control over the animation by crafting a particular look for her character. This included actions she drew or rehearsed and wanted to experiment with while performing. Through her animation training, she had a more tacit understanding of how props affect a character's performance vis-à-vis body mechanics. Additionally, she better understood which elements can be ignored or reconfigured in a reference performance – for instance, how actions from different takes can be retimed or spliced together into an amalgamated, yet cohesive, performance.

The actor-animator possessed similar qualities to both the actor and animator above, with some meaningful differences. Compared to the actor, the actor-animator understood he could incorporate certain acting preparation techniques without impacting the utility of the performance reference (e.g.: verbalising his inner monologue). His animation experience led to a better understanding of which of the storyboard actions he needed to perform, which he could source from third-party reference, and which he could construct from his imagination alone. Compared to both the actor and the animator, the actor-animator was naturally more comfortable with exaggerating his expressions and body language while also remaining emotionally connected. By comparison to the animator, the actor-animator was much more comfortable with being playful and making spontaneous performance discoveries. This led to a better understanding of which performance qualities translate well to animation, such as varied body performances and asymmetrical facial expressions.

These findings suggest that far from being superfluous, screen acting experience positively impacts the creation of animation reference, and that many techniques actors use can benefit animators when enacting their own reference performances. It is important to acknowledge that both participants with acting experience share many of the same screen acting techniques. Chubbuck inherits and expands upon techniques popularised by earlier acting teachers, including Uta Hagen, Lee Strasberg, and Konstantin Stanislavski. Actors who are familiar with other screen acting coaches should find cognates to the techniques outlined here. While the actor produced useful reference despite no animation experience, an animator's production knowledge also adds significant value to how animation reference is created. Although limited in scope, this study suggests that an animator's ability to produce useful, unique, and nuanced reference performances is improved when combined with screen acting experience. This research would benefit from a larger pool of animation and acting talent to support its conclusions, including animators with mid- to long-term professional experience. Additionally, further study is needed to test the application of

HMCs in various animation production environments, but this research suggests those results would likely be positive.

Animation is most commonly taught at the tertiary level, and it is here that lifelong good practices can be instilled. Animation curricula are often structured based on a transference model⁸ of education, in which educators impart creative and technical strategies for the students to follow in the creation of their practical work (Leimbach 2010). While the transference model is effective for delivering much required knowledge, this research suggests the importance of students working through their own experiences as a critical site of inquiry and reflection. To support this method of learning, I suggest animation educators also engage with aspects of an experiential pedagogical framework. For instance, inner objects proved useful to each participant in this study, but inner objects are highly personal and can only be discovered and tested through self-reflection. As an example, I provide here a sample experience-based strategy for animators engaging with inner objects to support their performance reference: before filming reference, write down an inventory of personal visceral experiences that could be used as inner objects where appropriate – for example, what grosses you out, or what makes you joyful, or what tastes great to you. By cataloguing many of these visceral experiences, the animator creates a sensorium to draw from whenever they record a scene. Since these experiences are highly personal, they provide useful substitutes for fictional people, places, things, and events in the story.

6. References

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Endnotes

¹ I purposefully use *they/them/themself* as third-person singular pronouns throughout this article due to their inclusivity.

² So-called "Method" acting was first developed by Lee Strasberg as a means to transfer to film acting the approach to performance realism that Konstantin Stanislavski popularized for the stage in the early 20th Century. Many other acting teachers have built upon the techniques of Stanislavski and Strasberg while retaining the title *Method* as a basis to describe their acting styles (Balcerzak 2013: 198-199).

³ That is, an animator who maintains near-total or complete creative control of an animated production, including the design and performance of the characters. Such productions are generally funded by smaller budgets (Hayes & Webster 2013: 22). Due to their influence over the various aspects of production, auteur animators tend to have a more generalist than specialist knowledge of animation. While "generalist" may imply a less refined knowledge of any one role in animation production, many generalists are significantly skilled in multiple roles, as opposed to specialists who are especially well trained in a single role.

⁴ It is my experience as an animator that when working from animation reference, it is easier to pull back an overplayed expression than it is to push an underplayed one.

⁵ Chubbuck defines a beat as a 'thought change', which can be 'one word, one line, or even as much as a page of dialogue' (2004: 91). A beat is not limited to dialogue and can also be detected through a character's non-verbal actions.

⁶ Here the usage of story beats versus acting beats can be confusing. A story beat is the smallest unit of action that helps to compose the overall narrative. Story beats can emerge whenever a new action, thought, or idea is introduced that contributes to the telling of the flow of story questions and answers.

⁷ It is important to place these results in context, as the performers worked toward a more realistic (albeit exaggerated) style; the animator's technique of working externally may prove more useful when working with more stylised character designs and animation.

⁸ Also known as a learning transfer model.