Filmmaking Theory for Vertical Video Production

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Abstract
Smartphones have changed the moving image landscape and now mobile users are consuming more vertical video than ever before (Richards 2017). In particular, vertical video is gaining popularity amongst content makers for social media since the aspect ratio typically suits how mobile phone users hold their phones and therefore how they are now watching video content (ScientiaMobile 2019). In recent years the 9:16 aspect ratio has established itself as an emerging requirement within the professional video market since companies have realised the commercial value of creating video vertically for mobile consumption (Neal and Ross 2018). In order to stand out, creators are being encouraged to broadcast content that is better quality than that which their audience is capable of creating themselves (Social Chain 2018). The film industry has spent over a hundred years specializing in the production of horizontal videography and there is a distinct absence of literature and training which can help support vertical filmmakers as they learn their craft. As the distinction between amateur and corporate vertical video content continues to blur (Neal and Ross 2018), scholastic work helping to identify some of the techniques, equipment, approaches and methods by which professionals can separate themselves from non-professionals is useful. This paper is the author's reflection on the current literature and practice that surrounds the phenomenon of vertical video production and attempts to bring together his own research with the scattered and often inconsistent pieces of advice and inspiration that have been published in print, online and on video.

Keywords: Vertical Video, Filmmaking, Film Theory, Social Media, 9:16, Mobile, Smartphone, Narrative, Cinematography, Aspect Ratio

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Introduction

In 1930, the Academy of Motion Picture Arts and Science proposed the creation of a standardised horizontal frame for cinema display based on aesthetic, commercial and physiological justifications (Clayton 2019). At a meeting convened in America to confirm the horizontal standard, the soviet filmmaker Sergei Eisenstein challenged their ideas and implored the academy to consider a square frame as standard in order to support vertical moving imagery alongside the horizontal. “It is my desire to intone the hymn of the male, the strong, the virile, active, vertical composition!” wrote Eisenstein (1988, p.207). He further claimed that “We are bent and bound to a passive horizontalism; we are on the verge of emphasising this horizontalism still more”. His prediction was correct and for the next eighty years, vertical filmmaking existed predominantly in the realms of artists and experimental filmmakers (Clayton 2019).

Not long-ago filmmakers laughed at the thought of people filming vertically with their phones (Jansson 2015), however consumer-led market demands now require a new approach and understanding of traditional concepts. Whereas at one time people would complain if a video was filmed in portrait mode, that trend has been flipped (Honigman 2016) as vertical videos are now a standard and expected format, particularly in certain social media platforms such as Instagram, Snapchat and others (Social Chain 2018). There are new challenges for filmmakers who are employed in this emergent format, since a vertical frame is a visually distinct space from the horizontal, and new decisions about how to deal with the changes in frame orientation are needed (Neal and Ross 2018). This paper’s attempt at collecting, organising and framing together different ideas, approaches and conceptual insights concerning the representation of moving images within a vertical frame has been created for the purpose of helping vertical filmmakers establish a theoretical grounding upon which their creative practice can be built. It is also intended to help teachers and educators introduce filmmaking students to concepts that are relevant to both the current and future industry needs and demands. This theory cannot be definitive and is unable to explain all that is possible within the vertical format, it is simply a starting point. Filmmakers collectively will exceed in the future their understanding of what is written here, which after all, is simply the author’s reflective response to his current research and thinking.

Despite the increasing demand for vertical video production, there has been a significant literary absence about how vertical video should be produced and in particular there is an absence of instructional material in relation to vertical narratives, composition and cinematography (Clayton 2019). Although filmmaking has been discussed and analysed for over a century, the advent of professional vertical video production has been greeted by an absence of theoretical analysis for this medium. So much so, that some video producers have simply dismissed the practicalities of vertical video production as unfavourable or impossible, without investigating the creative opportunities that the aspect ratio allows. Filmmakers must now literally and metaphorically think outside of the ‘horizontal’ box, vertical video platforms transformed social sharing when they first appeared in 2013 and it has taken time for the marketing world to accept that the trend is here to stay, as such, in 2019 vertical filmmaking is still just getting started (Social Chain 2018) and filmmakers need to upskill to meet demand. It is important to note that whilst much of the following theory can be applied to filmmaking with different frame dimensions including square filmmaking, orbital filmmaking and horizontal filmmaking, the focus of what is written here is concerned with a vertical aspect ratio.

Findings and Conclusions

1. Vertical Subjects And Locations

On Humans

The vertical format allows a person to be shown in full length and opens up new opportunities for physical performance and character exposition. As humans, we often judge each other by our footwear or by the way we walk or stand. However, without a vertical aspect ratio, we rarely see protagonists' lower limbs in any detail. It is rare for a person to be portrayed from head to foot in the horizontal format unless they are framed in a long shot and positioned some distance from the camera, simply because the medium does not support it. The footwear of some of the most iconic characters in film history such as Darth Vader, the Godfather or Gandalf are often difficult to describe and this can be perceived as a shortcoming of the horizontal frame. It is also important to note that a human is a vertical animal, and in many situations, a person will fill the vertical frame. Without any other distractions for the viewer. As such, the vertical format is extremely well suited to a monologue, 'talking head' or 'piece to camera'. The performer engages with the camera directly without any wasted space either side.

On Vertical, Long and Thin Subjects

The world is filled with objects that have risen or elongated more than others in both man-made and natural environments. Long, tall and narrow objects are everywhere. Whenever a horizontal frame captures a tall building or a tree (for example) there is a good mount of wasted space to the sides, which can sometimes be a distraction. Or in order to show more detail, the tall object will have its top and bottom cut out of frame. Since the full horizontal screen is not fairly representing the tall object, this somehow demotes the objects imposing stature. A full tree could not be shown in a close-up but only in a long shot. Although the vertical frame does not easily show these tall objects in their wider landscape, it does allow these subjects to be shown closer up and in more detail. Rockets, boats, trains, missiles, bicycles, spears, arrows and more long-thin subjects also suit the vertical format. It could be argued that in some situations they demand it. Many of these such subjects exist in the world for the purpose of forwards travel or movement and the relationship between long-thin subjects and forward movement is to be noted. In many instances film narratives require their characters to travel from one place to another. Movement forwards lends itself to the vertical format since the direction of travel is not lateral. As such taking a 'point-of-view' shot from the protagonist's perspective or perhaps following the protagonist along roads, pathways, rivers, corridors and more can help the audience feel that they are moving through space and time with the character.

On Most Handheld Objects

Hands are naturally to be found at rest close to a person's waist and hands perform regular functions of lifting and carrying. It is common for a handheld object to be lifted to the face to be inspected by the eye or to interact with the face. The correlation between hand held objects and a vertical movement is strong, since the correlation between the hand and the head are also along the Y-axis. For this reason, any object that is held in the hand can be well suited to a vertical frame.

On Locations

In terms of locations, vertical filmmaking lends itself to narrow, vertical or lineal environments. Anywhere that width will not a play a significant part in the narrative. So when making vertical films, it may suit the filmmakers to shoot within and amongst some of the following spaces and features: Straight roads disappearing into the distance are going to lead the eye forwards, perhaps out of expectancy of something arriving from far away, or perhaps with the intention of the protagonist travelling forwards, either way they look good in a vertical frame. Corridors can be bland and uninteresting when shot in a horizontal aspect ratio, they suit a vertical ratio much better. Similar to filming in a corridor, shooting a person walking up a stairway has been difficult to frame attractively for many horizontal cinematographers. However, by using the vertical frame, a stairway becomes an aesthetic pleasure.

If a person is climbing or descending a ladder, rock face or rope, the tall frame is well suited and allows the camera operator to smoothly follow the action in close detail. Tunnels and caves have a naturally claustrophobic effect and boast narrow or circular aspects. As such these are a comfortable photographic companion for vertical filmmaking. Finally, modes of transport are mostly designed for forward motion and so have a long thin ratio. Filming inside long-thin modes of transportation such as, planes, buses, trains and submarines is problematic in wide-screen, whereas the tall-screen format feels at home. This short list of good filming locations for vertical filmmaking is a small indication of how vertical filmmakers can consider the vertical landscape. Vertical stories around the world, are defined in part by the physical environment and their impact upon the human experience.

2. Vertical Narratives And Symbolism

On Power and Vulnerability

On a psychological level, a perception of height is associated with power. Bigger and taller entities are considered powerful by our subconscious. As such, in classical filmmaking, taking a low angled shot has always accentuated notions of power by giving a perception of height. In a vertical frame this perception can be exploited to a greater degree than in a horizontal frame. In reverse, looking down on a subject can make it appear vulnerable and this again can be effectively demonstrated in a vertical frame. Without using high or low angles, a vertical frame can also present the subject's vulnerability to the natural world by showing the large expanse of nature above the protagonist's head. For example, an individual placed at the bottom of the screen and shown to be walking through rain or snow, or perhaps swimming deep underwater, indicates a vulnerability to the natural world.

On Dominance and Subordination

By taking notions of power further, the vertical frame lends itself to showing how one entity may dominate another. This could take a simple form such as an image of a parent chastising a child or perhaps a victorious boxer knocking down his opponent. The powerful character being represented at the top of the screen whilst the weaker character is positioned at the bottom. Representing a character within their environmental challenges can also be well represented in a vertical format. Imagine Jack at the foot of the beanstalk, a new employee approaching her job in a tall skyscraper or perhaps a nervous rock climber at the foot of the

mountain. Notions of dominance, born through psychological perceptions of height power are well suited to the vertical frame.

On Status

Status is an important dramatic concern and it is important for a filmmaker to make it clear who is the main focus of the scene or a particular narrative moment. By placing a character or an object in sharper focus or by placing them in a more dominant position on the screen, you are increasing their status to the audience. Since the field of view is narrow on a vertical frame, it is easier to focus the audience's eye on a particular subject, indeed it is common for the main subject to fill the entire frame. As such it can be argued that the vertical format allows a high degree of unmistakable status conference upon the main subject of the screen.

On Overcoming Gravity

One of the more dominant and oppressive forces endured by humanity each day can be associated with an often-sub-conscious battle against gravitational entrapment. Notions of physical strength are sometimes associated with anti-gravitational actions such as lifting, standing, climbing and growing. Upwardly mobile characters are ones to be respected and admired, 'natural leaders and winners', whereas a person moving along a horizontal plane could be identified as a conformist or 'power neutral' individual. The virile, the strong, the powerful, the victorious and the successful can be associated with conceptions of ascension. Imagery of a winner being placed on his friends' shoulders, or of a superhero flying into the sky or of a plant growing and reaching maturity can all be well represented by the vertical frame. It can also become a narrative device to show that while the strong may rise, the weak will fall and in so doing succumb to the gravity humans strive to resist.

On Depth

Descending through water, falling through the sky or perhaps lowering into a cave network can be difficult to portray on a horizontal frame unless it is filmed on a wide shot. Far from being associated with failure and weakness, deliberate downwards travel can be a brave and adventurous journey for a protagonist. The vertical frame naturally supports upwards and downwards movements and certain framing can allow action to take place towards the bottom of the frame whilst showing the depth above. High angled and low angled shots of depth and height give particularly dramatic effects and accentuate perspective.

On Intimacy

Since human beings are vertical creatures, the human nervous system experiences sensations running up and down the body. Neural transmitters across the body help the human to learn and experience the world around them. Intimate moments are experienced from head to toe through a combination of cerebral and tactile responses. Whereas many filmmakers concentrate simply on a kiss for intimacy, a more passionate experience can be gained by witnessing the touching of hands, the balance of hips, a weakness in the knees or a raising of the heel. Although many films have created a horizontal association with intimate experience, there is enormous value in showing such scenes vertically, not least because intimacy is often vertically experienced.

On Individuality

The language of horizontal film is often focussed around the interactions of one person with others and the conversational aspect of filmmaking has developed as a performative tool for narrative exposition. Interaction between the protagonist and others is important in most narratives, however at other times, the narrative requires only to represent an individual journey or experience. As such we find that the vertical frame supports the individual in the telling of their personal story and monologues may even become more commonplace in vertical films. This may provide a new approach to visual performance and a new opportunity for actors to share less screen time.

On Entrapment

Feelings of claustrophobia and imprisonment can be associated with an inability to move or escape. Since humans predominantly move along a horizontal plane, an actor observed within in a vertical frame can enhance an audience's perception that the character is trapped. Without the audience being able to see the environs, or how the character can interact within it, they are unable to consider escape routes and so they share the character's feelings of powerlessness. For this reason, it may be that some genres such as horrors, mysteries or suspense driven thrillers, may benefit from a vertical framing.

3. Vertical Developments

On the Rule of Fifths

Most existing horizontal film theory promotes that students and emerging filmmakers should consider using the 'Rule of Thirds' to assist composition within the frame. A 'Rule of Quarters' is also discussed among feature filmmakers as being sometimes preferable to the thirds rule since it allows for more creative framing. However, in a vertical format the thirds rule does not always work. For this reason, in vertical moving image production a 'Rule of Fifths' can work. This places an actor or a subject closer to the edge of screen and actually allows some of the looking room often lost in the vertical format. This also places the subject close to the edge of frame and so the fifths rule is not for the faint-hearted and it takes both practice and training to achieve.

On Shot Sizes and Wasted Space

In the classical approach to horizontal filmmaking, wasted space appears above the head (or behind the head) in a frame. A poorly framed shot will therefore leave an expanse of headroom above or behind the head in which there is nothing of interest to the narrative. As such, a well framed shot is usually positioned just above the top of the head and usually places the eyes of the subject close to the upper line of thirds. This principle still applies to the vertical frame and should not be ignored except for in creative moments. Something peculiar occurs in relation to 'classical' shot sizes in a vertical frame.

A human is vertical in nature, which means that they fit a vertical frame well and will fill a vertical frame almost entirely. Since shot sizes are traditionally defined by how far down the body the bottom of the frame reaches, this approach needs rethinking for vertical frames since naturally a vertical frame reaches further down the body than a horizontal frame. For example, A horizontal close-up (measured down to the shoulders of the subject) generates a

very close image of the face when replicated in a vertical frame, which even obscures some of the face outside of the frame. In more technical terms, a horizontal close-up will fill approximately half the screen with the subject, whereas a vertical close-up will fill four fifths of the screen with the subject. This type of framing creates a subject size that would better be described as a big or even extreme close-up for filmmakers, since it allows for less movement potential of the subject than a traditional horizontal close-up perhaps should. A vertical close-up, may be better to be framed down to the navel, in the same way that a horizontal frame would measure a medium shot. This would depend on whether the size of the shot is determined by the size of the subject relative to the frame, or if shot size is determined by vertical anatomy. The question remains, do we reclassify shots for vertical filmmaking, or do we simply execute shot sizes in a different way? Probably the latter.

On Camera Height and Cinema Display

One of the significant challenges a vertical filmmaker will face is the consideration of where the audience will be positioned in relation to the subjects on the screen. This in turn has a significant impact on the way in which the film is recorded, particularly in terms of the height of the camera in relation to the subject and the positioning of the subject within the frame. Does the director on set place the actor parallel to the camera at the top of the screen, at the bottom of the screen or centre? Similarly, in high and low angled shots, does the subject's position change depending on the relative position of the audience?

These are creative challenges that depend naturally on the required dramatic content of the scene, but may also be influenced by how the film will be watched. If we imagine a traditional cinema environment with seats at the bottom of the screen, then this means that there will be a significant amount of requisite head movement for the audience up and down in order to follow all of the action. This in turn could be uncomfortable for the audience. As such having an audience positioned in the centre of the screen is desirable. This usually presents no problem for mobile viewers and for those who have desktop or wall screens which easily rotate. For cinema audiences, or large screen display of vertical film, this would require a specialised viewing environment. An augmented use of some IMAX screens may be preferable.

4. Vertically Framed Motion

On Subjects Moving Along the Z or Y Axis

A subject moving towards or away from the screen on the Z-axis poses no problem for a vertical frame. It is particularly useful if the subject itself has vertical dimensions such as a person riding a bicycle or a London bus. Since the vertical frame orientates around the Y-axis, movement up and down is particularly suitable. The motion of a person jumping on a trampoline or the journey of a yo-yo as it ascends and descends the string is perfectly matched with the vertical filmmaking. Movement along the X-axis can be augmented by a change of camera position, so that it adopts a diagonal movement bisecting the Z/X axis.

On Camera Movements Along the Z or Y Axis

Lifting the camera vertically using jib arm, crane or other, is an environment in which the vertical frame becomes its own, perhaps more than any other movement. Now the vertical frame does something that the horizontal frame struggles with, it provides looking room or

leading room upwards or downwards. 'Up and down' narratives are everywhere, if the filmmaker knows where to look. Travelling forwards and backwards on track, Steadicam or other is also very comfortable on a vertical frame. For similar reasons as have just been explained, forward motion of the camera along the Z-axis can have an effect which focusses the eye on the subject at the centre of the screen. As the camera moves forwards or backwards, focus on the central subject will be increased. Since periphery becomes less important, this is a movement which suits the perceived limitations of the vertical frame.

On Rotating Subjects

When an object rotates upon a single axis point it becomes focussed around a centralised position. This lends itself well to all videography, and naturally suits the narrow frame of the vertical film. As such a fast-rotating subject such as a coin spinning on a table, or a gymnast somersaulting can help focus the eye on one particular point.

On Point of View (POV)

A Point of View (POV) shot being taken by looking through film prop such as a telescopic sight or a rifle scope, suits all types of frame due to the circular shape of the optic. Having a fixed boundary to the circular field of view makes the wider frames largely irrelevant. Similarly, a POV shot from the perspective of a person riding a motorbike, or skiing, or running very fast suits the vertical format, just as it does with any aspect ratio, since the motion helps focus the eye forwards. When filming a POV shot from the perspective of a person moving quickly, the periphery becomes blurred and only the subjects in the distance remain in sharp focus.

5. Vertical Equipment

On Lenses

Though not always necessary, it can be a clever trick to use a lens which supports a long depth of field for some shots. Two-shots and conversational shots can be staged so that one actor is upstage and the other downstage, allowing easier framing. This idea can be further experimented with and while of course a pull focus effect is dramatic, for some situations the long depth of field will be preferable, particularly if there are multiple focus points or status targets in the scene. It can be extremely powerful to use a long lens while shooting for vertical video. This can thin the background and intensify the narrow imagery.

However, the greatest challenge for vertical filmmakers is to create width and space, as such, a wide-angle lens is going to be used most often. With a very wide angle, it even becomes possible to create two-shots and conversations without any barrel distortion. Since humans are the most common subject for filmmakers, and since humans are vertical animals, it is important to find a way in which we can show both a human and their environment. This is best done with a wide-angle lens.

On Cameras

Since no professional film cameras are currently developed specifically for the vertical filmmakers, the only cameras that are optimised for vertical recording are those found on mobile devices. For this reason, most vertical video for social media is currently shot on good

quality mobile phones. Professional cameras are capable of recording vertically if the camera is turned on its side and most of the higher budget vertical recordings are made this way. Turning a camera on its side raises issues of stability and also requires extra pieces of equipment in order to rig the cameras securely and manage cabling effectively. Since filmmaking equipment is still optimised for horizontal production, new technologies are anticipated in the near future if demand increases as expected.

6. Vertical Difficulties

The natural trade-off between a horizontal frame and a vertical frame is to adopt a square or orbital frame and for this reason some advocate the use of such formats. However just as the horizontal frame has something extra to offer and audience in width, so too does a vertical frame in height. Vertical video has strengths which should be underlined in the areas in which it is well suited. Naturally there are other areas of film composition which are preferable to the horizontal frame. Some of these have been mentioned already, but it is important to consider these further. Most of these should be undertaken with caution or sometimes avoided during a vertical shoot.

On Looking Space for Actors

In a single frame it is good to position the actor in such a way that if they are looking to the side, there is space in front of their eyes and nose. This is called looking room and works because the audience connects with the on-screen actors by watching their eyes. It is comfortable for the audience to be able to see what is in front of the actor rather than what is behind them, since a human will mostly face that which it interacts with. Looking space also helps with editing. It helps make sense of how one actor is positioned in relation to another to the audience perspective and is particularly effective during conversations and the ensuing close-ups. Traditionally if an actor was looking to the left of frame, the cinematographer would position them on the right-hand line of thirds. However, if a filmmaker tries to use the rule of thirds to create looking room on a vertical frame, they will struggle, particularly in close-ups. For this reason, (among others) it is important to consider a wide-angle lens and a rule of fifths when shooting in a in a vertical frame.

On Camera Movements and Subjects Moving Along the X-Axis

If there is a significant amount of horizontal movement that is fast paced and perhaps moves to and fro along the X-axis. This is difficult for a vertical frame. For example, recording a football game or a tennis game from the side-line is very challenging. This is perceived as a significant limitation of the vertical frame, since so much of human activity is associated with horizontal movement. However, horizontal action can easily become diagonal action by moving the camera position so that the angle of view bisects the Z/X axis.

If the motion has to be shot flat along the X-axis, then moving the camera along with the subject is preferable. With any camera movement it is good practice to create some lead space ahead of the main subject in the direction of the movement. This is more comfortable for the audience to watch and it allows them to see something of the direction of travel. This effect is akin to providing looking room or looking space within a single frame. Since the vertical frame is narrow, again adopting the rule of fifths and using a wide-angle lens is advisable to help overcome this problem.

On Two Shots, Groups and Conversations

Due to the narrow nature of the vertical frame, having two people positioned next to each other horizontally is difficult without obscuring much of their face. Vertical filmmakers can still achieve two shots, but they need to be more creative in staging or perhaps by combining images in editing. Since it is difficult to capture two faces in one vertical frame if they are staged in a natural position of being horizontally next to each other, then shooting a conversation also becomes difficult. It becomes difficult to establish the conversation in a wide shot and cutting from one close up to another can look jumpy if looking room is not created. A conversation between three or more people gets very difficult. However, it is not impossible, there are creative ways of establishing a scene and staging the drama.

On Establishing Space, Landscapes, Panoramas, Tableaus and Establishing Shots

One of the most important cinematic storytelling devices involves the creation of wide-shots. Something which is made very difficult by the vertical frame even with a wide-angle lens. By showing a broad expanse in a horizontal frame, a filmmaker can show the audience a lot about the environment in which the drama is about to be played out. Establishing a battlefield or revealing an expansive wilderness is well suited to the horizontal frame and so filmmakers using a vertical frame will feel restricted. However, all is not lost, because with a different camera position, as opposed to shooting perpendicular, width can be shown.

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