Art and Design higher education curriculum design: Integrating a lost stop motion method in higher education

Melvyn Ternan
Senior Lecturer in Animation

Sheffield Hallam University
Email: M.Ternan@shu.ac.uk

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Biography
Melvyn Ternan is a Senior Lecturer in Animation at Sheffield Hallam University, UK. Specialising in teaching stop motion animation as well as pre-production and production for animation, he has received inspirational teaching awards across 4 academic years. Melvyn's first book, Ternan, M. (2013). *Stop motion animation*, London: Apple, focused on simplifying stop-motion methods for beginners to enthuse a new generation of future animators. His current research areas cover lost methods, curriculum design, and animation identity.

Abstract
This piece discusses considerations for what might inspire Art and Design higher education curriculum design as well as published concepts that argue potentially unavoidable considerations. A unique case study is then offered to reflect upon these discussions. The case study will reflect on integrating a lost animation method referred to as 'shooting blind' in Level four teaching, implemented over five academic years. A history of the shooting blind method helps us understand why this method was replaced after eighty years of utilisation before being forgotten by both industry and education.

Methods of creating animation inevitably evolve when technological advancements offer a simpler, quicker, more cost-effective route for animation production. 3D Animation methods update almost yearly with this animation discipline relying heavily on software and technology for its own existence. 2D Animation diversified with the development of screen-based graphics tablets able to recreate the visual aesthetic of previously utilised 'traditional' hand drawn methods. Stop Motion animation currently utilises a mixture of both software and technology that offers enhanced workflows replicating previous utilised methods.

In my opinion animation methods that were replaced, methods that were practised for decades, and their inherent potential were forcibly lost in an ever changing digital and advancing technological landscape. The simpler, quicker, more cost-effective benefits of current methods utilised by industry seem to be believed to outweigh all benefits of the methods that they replace. However, I believe that there are uncharted educational benefits which have been left undiscovered with these lost methods of animation.

Introduction
This article considers personal influence on curriculum design consideration as a Higher Education lecturer in animation. The discussion quickly broadens to consider what could and what should inform curriculum design for Art and Design (A&D) based subjects. I call upon the concept of unarguable curriculum features through 'Signature Pedagogies' (Shulman, 2005) to consider unavoidable base requirements. The differences between the object of education and the object of industry (Orr, 2017) is used to consider the importance of perspective.

Given the unavoidable requirement of certain tools within A&D based practice, the technocratic approach (Danvers, 2003) is also discussed in relation to the student perspective. A case study of curriculum re-design based on the lost stop motion animation

method of shooting blind is preceded by a history of the method. Common perceptions of this lost method, led by industry, are also highlighted.

The case study details how the lost method of shooting blind, previously used for over 80 years, was modernised, and implemented into the curriculum design of an undergraduate animation course module. The observed effects of this implementation across five academic years helps to shed some light on the conceptual works of Shulman, Danvers and Orr, within a practical context.

Personal Influence

As a nine-year-old, I watched a children's television programme with the presenter in a stop motion animation studio where they were demonstrating 'video assist'. This was a new method for creating stop motion animation where the animator could see how much they had moved what they were animating by way of a video mixer connected to a video camera that was pointing into the eyepiece of a film camera.

With a constant thirst for knowledge on animation, the presentation of this new method with its logical execution stirred me deeply. Imagine what could be achieved by stop motion animators with this new development! Just like the benefit of onion skinning in 2D animation (later explained in the section 'What is the lost method of shooting blind?'), but for stop motion! Subconsciously, my brain hit record as I soaked in every detail from the never to be repeated programmes segment covering this development.

Thirty years or so later, I am teaching animation at university, specialising in stop motion. My teaching is based primarily on my own first-hand experiences, influenced by relevant developments within industry, and their latest outputs. The design and results of my teaching, module by module is scrutinised through a series of internal and external moderation and feedback processes, each offering their own individual viewpoint on what is and is not working.

This ongoing process of reflection after many years of curriculum design development produces a desire to periodically refresh my senses and reconnect with an inner truth that inspired me to be where I am today. Contrary to my own search for that inner truth, an often observed, and very loud point of reference when designing A&D curriculum is to parallel whatever industry is currently doing. After all, if what we teach mimics what industry is doing, our students will end up producing the same, if not better outputs!

This approach can seem logical, especially in the media arts area of A&D. A common identifiable thread that drives these industry developments can be correlated with technological or software developments. A logical observation then is that technology and software developments inform industry and industry informs the curriculum.

If the industry shoots the news in front of a green screen with digitally controlled lighting, then our broadcast journalism course must also have these facilities. If a piece of publicly acclaimed art was created with a specific virtual reality headset, then our digital art course must also utilise the same VR headset. This is, of course, if acquisition of resources and facilities are not part of the equation which in any education sector, they often are.

However, curriculum design isn't just influenced by resourcing but also by teaching patterns, assessment criteria, cohort size, staffing, level of study, student retention, institution policy, manifestos, and graduate success to name just a few variables. Then there is the lecturer, usually with a simple core desire to see their students develop in a sustainable and natural manner within the subject they are studying.

Considering curriculum design for A&D subjects can manifest so many questions, such as is there a concrete process to follow? Where should we turn for a frame of reference to the teaching we are designing - The industry related to the subject? The most cited papers on the subject? Our own personal instinct and intuition?

Signature Pedagogies

A broader understanding of curriculum design 'signature pedagogies' as defined by Shulman (2005) are the intuitive ideas for teaching a specific profession. Examples of signature pedagogies given by Shulman include teaching law, compared to teaching fluid dynamics, in relation to the use of student seating arrangement for those two subjects.

In this example, the law class is seated in such a way as to encourage discussion and communicative learning. The seating for the fluid dynamics class is forward facing, with the focus on the information being delivered, not to encourage discussion of the information being delivered.

This idea that there are instinctive identifiable 'trends' based on the subject or profession being taught alludes to a general overview of how what we teach can be intuitively influenced by the subject matter itself. Discussing the differences between many different signature pedagogies, Shulman highlights that:

"Signature pedagogies also share a set of common features. These features may help explain the relative durability and robustness of these approaches to teaching and learning. Indeed, I believe these features evolved precisely because they facilitate student learning of professionally valued under standings, skills, and dispositions." *(Shulman, 2005, p. 56)*

Common pedagogical 'features' within A&D subjects may relate to the tools, processes or methods that are unique to any given A&D profession. The Quality Assurance Agency (QAA) for Higher Education benchmarking statements for Art and Design support the idea of using equipment used for traditional processes whilst simultaneously having access to modern equipment. Subjects of Photography, Film, or Animation usually require tools such as a lens or camera. The use of those tools involves a process or method that is required to present a result.

Just the consideration alone as to which camera to use for film production is vast. Does it need to be Digital or Analogue? HD or 4K? Which lens mount? Which battery system? Which capture format? Capture format alone can open another range of considerations such as: 8mm film, 16mm film, 35mm film, audio cassette, video tape, PAL or NTSC, mini DV, mini-DVD, memory card, hard drive or SSD.

Many of the formats listed above are not currently in use by industry due to the advancements in technology which often visually improve the result or help simplify steps in the method being utilised. However, can there be educational relevance in which iteration of technology, software or method is used as the basis for the curriculum being developed?

From the educator point of view, anything earlier than current industry tools or practice may risk being obsolete after all if no one is using it, then why teach it? Understandably, if a student were presented with a 16mm film camera to use instead of its modern-day digital equivalent, there may be some concern around the steeper learning curve on the students' part.

If considered more broadly, the tools both currently and historically relevant to most A&D subjects can present a tantalising range of potential options when considering how to design curriculum. The practical use of each tool is informed by a method which in turn could be an interesting starting point for curriculum design.

The technocratic approach

Describing the 'Ontology of Learning', Danvers (2003) explains that a technocratic approach to curriculum design is often commonplace, where technical skills can override the curriculum design. Learning by direct copy of technique or process can lead to missing the opportunity of education: to enable ongoing questioning by the student long after their education has completed.

Especially within A&D subjects that exist because of, or rely extensively on, the use of technology or software, a singular focus on the tools themselves can be attractive in curriculum design. The sustainability of such curriculum design may also be difficult, especially where software is involved due to yearly software updates, discontinuation or other software types that gain rapid popularity.

This ever-shifting software landscape requires frequent revision of curriculum design and may also lead to a blinkered, monotone understanding of a specific area within A&D. A student may learn or understand how a specific piece of software works in that given moment or period, but how does that help them develop their adaptability and resilience to change, when that change inevitably comes? Danvers goes on to say that:

"Our learning is always informed and guided by earlier learning, by our needs, intentions, and expectations, and by our beliefs and values. Each perspective needs to be considered on its merits, as shedding light from a different angle, and in relation to other perspectives, as providing a more rounded picture. No perspective should be considered as definitive or as representing the final word on a particular topic."
(Danvers, 2003, p. 51)

What industries and individuals have learned rarely comes from a stagnant viewpoint, rather a series of stepping stones leading us to our understanding of the here and now. Regarding revision of theories and opinions, Danvers states:

"...Views, theories and opinions are subject to revision - to seek out alternative perspectives that are challenging and revitalising."
(Danvers, 2003, p. 52)

It is this revitalisation, this different perspective on how we learn that can keep us engaged with what we teach and offer our students a second point of reference. Referencing only absolute current industry practice in curriculum design may stifle the resilience and engagement of students, helping them to only replicate rather than understand.

In the wake of industrial development, there are many discarded technologies and methods. These methods can become lost through their understanding and relevance, being long forgotten. Much like a hastily scribbled thought, assumed to never be forgotten, becomes unintelligible the more time that passes as newer thoughts emerge.

Understanding the purpose of the chosen tool, its reason for existing and how it fits in with the area of A&D it is designed for, we can start to understand the student perspective. With a chosen tool at their disposal, what are the students going to do with it?

The object
Orr (2017) argues that pedagogy doesn't always mirror current practice but instead encourages development and growth, useful beyond Higher Education. Orr further explains that:

"In education the object is to enable learning, whilst in creative industries, the object is to produce a product, performance, artwork or service. This object of activity in higher education helps structure the emphasis of the activity on the learning taking place rather than the outcome or product of creative practice." *(Orr, 2017, p. 99)*

Industries' chosen object, when taken as inspiration, can obviously influence curriculum design and therefore the educational experience. Studying animation pre-production there may be some expectation that the student output replicates industries output such as character designs, storyboards, or animatics comparable also to the skill level seen in industry.

However, taking stop motion animation specifically as an example, there is also a need to consider the 'levelness' of the object. An animation of three dancing puppets might be more aligned to Level 6 output rather than Level 4 due to the development required before attempting such a complex piece of animation.

Students single-handedly attempting to replicate the work of a blockbuster feature film encourages disappointment when the work created by one student doesn't replicate that created by teams of industry professionals. Breaking down professional industry work into constituent parts, processes, or methods may be more realistic for students to achieve.

The tools to be used and a relevant, achievable output require careful consideration with the student's journey and experience at the forefront. Industry will always do what it needs to survive and whilst curriculum design shouldn't aim to mimic industries object, it could aim to be influenced by the journey of industries' own development.

If industries' object should not be the focus of curriculum design, if we shouldn't make tools the absolute highlight of what we teach, but we can't escape using those necessary tools, where else might we turn for inspiration?

The case study soon to follow, explains the observed effects of utilising an industry lost method as part of Higher Education A&D based curriculum design and the observed effects of doing so in relation to the concepts discussed above. The subject is animation, the level of study is four with a module focus on an introduction to stop motion animation. The lost method is 'Shooting Blind'.

What is the lost method of shooting blind?
Modern day Animation as a creative practice seems to have been born out of technological advances that led to the birth of photography, film, and animation. Eadweard Muybridge's passion to famously settle a bet **[1]** stimulated the development of new materials and techniques for capturing and reviewing moving imagery of real-life subject matters. Muybridge's new materials, methods and techniques helped initiate the development of methods for creating early animation.

Throughout history, technical advances such as Muybridge's have directly influenced the methods that are utilised, in turn these new methods and processes can directly influence how practitioners connect with the work they are producing or the ideas they are exploring.

2D animation traditionally utilised paper and ink with ‘onion skinning’ provided when the paper is placed on a lightbox, letting the animator see the previous and next pose whilst drawing an in-between pose **[2]**. Today, the method is similar when creating 2D drawn animation except the paper and lightbox have been replaced with software and a monitor-based graphics tablet.

Stop motion animation was traditionally shot on celluloid film using a film camera with a frame advance control. Today the camera is digital and capture software running on a computer replaces the celluloid film **[3]**. 3D-CGI animation was originally created by processing numerical data filled with coordinate information of individual points and polygons **[4]**. Today a graphical user interface lets us see what we are animating as we animate it.

On the surface of it, the core method for any of these three animation disciplines doesn’t seem to have changed that much. For the most part, it appears as if digital technology and software have simply ‘upgraded’ the tools we use. However, for stop motion at least, the change in technology has also changed the method that is used. Before, the result of the animation being created remained unknown as we animated whereas today the animation can be progressively viewed as we work.

It is understandable that anything making our profession easier, without detriment to the result, is desirable. The nine-year-old me watching an introduction of the video assist method for animation on TV understood the exciting benefit of being able to see the stop motion animation as it was created. Before this ability to see the animation as it was created, for around eighty years, stop motion animators used the ‘Shooting Blind’ method.

To illustrate this desire during the shooting blind period, to ‘see’ how much they had moved something before taking a frame, some animators utilised a ‘surface gauge’ **[5]**. The surface gauge, a knitting needle like object, would be mounted on a heavy base. Between frames, the animator would place the surface gauge on the set, pointing the tip of the needle to a specific point, for example, of the puppet being animated. As they moved the puppet, the animator could see how far it had moved from the tip of the surface gauge. Then, the surface gauge would be removed from the set before the frame was taken.

Video camera technology developed to the point that CCD sensors and accompanying lenses could be inexpensively housed in a small enclosure and fixed to the viewfinder of a film camera **[6]**. The video feed from the CCD enclosure could be enhanced and fed into a video monitor to essentially view what the film camera could see, earning the name ‘Video Assist’ **[7]**. Whilst this method and the technology needed for video assist had been around since the 1940’s and used in live action film making, it wasn’t until much later that it was considered widely for use in stop motion.

This video assisted method for stop motion hit peak relevance when the video feed could be fed through a video mixer that had the ability to retain one video frame in memory. The video mixer could then be toggled between the previously taken frame in memory and the live camera feed. If the mixing level was set at a halfway point, both the previous frame and live feed could be seen together, giving a similar visual result as seen with onion skinning in traditional 2D animation.

Today digital SLR cameras have replaced the small CCD and lens enclosure and are connected directly to a computer running capture software such as Dragonframe **[8]**. The video mixer is replaced by on screen controls in the software that can switch between the previous (or any) frame taken and the live camera feed. At first glance, these technological developments seem like a 1:1 replacement for what went before, except with greater ease offered to the stop motion animator.

However, with new tools offering easier and quicker practice, the method of shooting blind tumbled into the abyss. Further out of sight it went, propelled to greater distance as the video assist technology became more accessible. In the celebration of a revolution in the world of stop motion, shooting blind was no longer practised and people forgot about it.

Common perceptions of the shooting blind method

Ray Harryhausen is an historic and influential figure in the world of Stop Motion Animation. His work on films such as Jason and the Argonauts (Chaffey, 1963) and The 7th Voyage of Sinbad (Juran, 1958) have inspired generations of animation enthusiasts and animators alike. Co-founders of the animation studio Aardman, David Sproxton and Peter Lord also drew inspiration from Harryhausen's work. Today, Aardman animation studios has a growing collection of stop motion work that thrills and inspires stop motion animators around the world.

During an online discussion of the work of Ray Harryhausen in 2020, Peter Lord commented that

"Anyone doing stop motion today including anyone at Aardman, they record the images as they go along on the computer, so that for every moment while they are animating, they know exactly what they've done" *(National Galleries, 2020, 00:17:02-00:17:16)*

Outlining that video assist is commonly used in today's stop motion production, he goes on to say that:

"So, he [Ray] didn't have these incredible and wonderful supports that we have now to help animators do perfect work, he didn't have that. He was working, we used this expression, we said he was working blind, because he didn't know exactly what he'd done and I can tell you, I've worked his way because I'm old enough to have started out working blind as well. But my younger colleagues at Aardman you know, fall into a faint if I even imagine the way that Ray worked." *(National Galleries, 2020, 00:18:17-00:18:54)*

Towards the end of the discussion the host, Becky Manson says ***"So maybe we'll see a rejection of video assist and people go back to animating as Ray did back then?"*** to which Peter Lord replies ***"That would be a miracle. Those young folk, they would die, they would just die."*** *(National Galleries, 2020, 00:58:52 – 00:59:05)*

This is a common perception of the shooting blind method versus the current method that to create stop motion using shooting blind is a ridiculous notion - too difficult to comprehend by those that have been first introduced to stop motion through the modern method.

How impossible the shooting blind method would be to use nowadays is understandable, but completely unfounded because no one commonly practices shooting blind when there is a modern, better alternative. No one knows how difficult or impossible it is until they try but the idea of even trying seems too difficult to be possible.

Personal influence applied

My desire to introduce animation students to the shooting blind method was born out of multiple experiences and observations when originally only teaching the current stop motion industry method of video assist.

I identified that students weren't fully engaging with the act of stop motion with a notable lack of excitement and desire to understand the work that they had created. This seemed due to the fact students had already seen their work as it was being created.

Only knowing the current method also meant students had less appreciation and understanding of that method's advantage (video assist) over the previous method (shooting blind). Being able to see and correct their work as they went was a 'given' to them.

Students attention when animating was more on the screen, rather than the material they were animating with. To me, the very act of animating stop motion is informed through feeling the motion of the material you are animating - to relate to the material and movement in such a way that personal temporal perception slows down to the speed that you are animating at. Purves (2007) comments on this saying:

"Judging everything by looking at the monitor gives you a very second-hand experience of what is in front of you. I would encourage young animators to look at the puppet and to feel its movement, rather than relying totally on the monitor."
(Purves, 2007, chapter 13)

The initial weeks of formative study on the stop motion module were based around demonstrating three of the 12 animation principles. I would introduce the students to one principle and then ask them to demonstrate that principle through creating the movement in stop motion.

Whilst students would create a passable demonstration of understanding of each principle, the lasting effects of that understanding soon wore off when required to be utilised later in the module. I believed this lack of stickiness was down to the absent connection with the actual act of animating in stop motion.

I wanted to ignite the students excitement and connection with stop motion as well as develop their appreciation and consciousness of the method being used. This desire urged me to redesign their journey in understanding of, and development within, stop motion animation. The product, short animation principle demonstration animations, would not be something specifically aligning to an industry object. However, the understanding of everything required to produce this type of product would be crucial to their development and further stop motion tasks.

Modernising the shooting blind method

The prescriptive model being utilised for this modules design is to split the task work into two parts: Formative and Summative. The formative work, which is ungraded, is there to help build the knowledge, understanding and practice necessary to be able to complete the summative task work which is submitted for assessment and grading.

Following the development of stop motion methods I decided to start students with the shooting blind method in the formative task and then move onto utilising the video assist method in the formative task. This would enable students to uniquely experience that transition first hand, hopefully connecting more with the act of animating before consciously reaping the benefits of technological advancements of video assist.

In an ideal world, the method of shooting blind would have been recreated 1:1 by using actual film in an actual film camera. However, both the monetary and time constraints of doing so would be greatly prohibitive. A modern-day equivalence was needed - one that would align as closely to how the shooting blind method is experienced.

Instead of a film camera loaded with film, a digital SLR camera would be utilised. Curious students may soon realise that they could activate the viewing screen on the camera and even scroll through taken frames as they animate. However, viewing images in this way would be discouraged due to the issue of provoking camera movement.

One plague of any stop motion set up is that of unwanted camera movement - usually provoked by either knocking the camera out of its stationary position mid animation (camera knock) or the camera being subtly moved (camera shake) throughout the entire shot. There were three ways I perceived students could take a frame on the digital SLR whilst both simplifying the technical set up and minimising camera shake:

1. Instantly taking an image at the time of pressing the shutter release on the camera.
2. Utilise a remote-control shutter release attached to the camera
3. Set a two-second shutter delay on the camera

To simplify the technical set up, I opted for option three. A two-second timer delay would be set on the camera meaning that the actual picture would be taken two seconds after the shutter on the camera had been physically pressed. This means the camera isn't being touched while picture is being taken

If the shutter button isn't aggressively pressed, any movement caused at the time of contact between finger and camera will usually undo itself when the finger moves away. This of course relies on the camera being firmly and properly secured to a decent tripod which is placed on a solid surfaced floor. Utilising option three instead of option two also meant that one less piece of equipment would be involved in the process.

The images or 'frames' captured by the camera would require some form of 'post processing', as with film, to play back the completed animation. This postproduction process involved transferring the digital images from the camera to a computer and then using Adobe Premiere Pro to sequence the images in a timeline.

Prior to exporting a movie file from that timeline, students would also be required to scale the large resolution camera image sequence down to fit a 16:9 aspect ratio. To see the full image captured by the camera, scaling them down in size would leave 'pillar boxes' in the rendered 16:9 video.

Digital SLRs do have image aspect ratio options that are natively 16:9. I opted to instruct students to make the camera image aspect ratio native to the camera, keeping the requirement to resize the image sequence down. This actively encouraged discussion around aspect ratios and the fact that those resulting horizontal black bars have a name.

Whilst this step wasn't necessarily required, it afforded an opportunity for students to experience why rather than just be told why. In industry, this step could be seen as a deficiency in production. For educational purposes, it enabled students to identify aspect ratios and understand the importance of image sequence formatting. A difference of 'object' for the sake of giving the student a relevant experience and connection with the method.

Within animation, the phrase 'shooting on ones' or 'shooting on twos' refers to how many pictures are taken each time you move what you are animating. Simplifying the difference between ones and twos: shooting on ones equals smoother movement but can take longer to animate and requires more skill. Shooting on twos equals acceptable but less smooth movement, can be quicker to animate, and can be more forgiving with less skill.

I usually encourage stop motion students to animate on twos instead of ones. Shooting on twos can be more forgiving to initial attempts at creating movement in stop motion and

requires fewer frames to fulfil a second of animation. Animating on ones can lead to frustration of the output since the skill in manipulating the material hasn't been developed enough to do so, when starting out.

To achieve the act of shooting on twos when animating, students would be invited to either A) take two pictures on the camera whilst animating or B) double the duration of each single frame during the postproduction process in Adobe Premiere Pro. The only minor visual deficit to using process B is that any noise on the captured images will be static every two frames. Using process, A, the noise would move if each of the two frames were shot on the camera at the time of animating.

For each animation principle demonstration created, the enquiry of the feedforward session would follow the same pattern. This would start with observing technical quality, followed by demonstration observation:

1. Observed camera shake
2. Camera exposure settings
3. Camera focus / depth of field issues
4. Is the animation principle clearly demonstrated?
5. Notes for improvement on areas 1-4 on the re-attempt

Once the animation principle demonstrations had been practised thoroughly, the summative task would begin. For this, students would be introduced to the video assist method using Dragonframe software.

The possibility of shooting blind - observations

There was no notable wailing, gnashing of teeth, or fainting when students were faced with having to use the shooting blind method. Those who had experienced video assist before may audibly sigh at the backward nature of the method to be used. After initial attempts however, there was a notable acceptance. With the method explained, the process for practising the method demonstrated, students simply got down to animating.

Students who tried to 'cheat' by scrolling through their frames on the camera screen to achieve a pseudo playback of their animation, quickly learned that this was a sure way to introduce camera movement. With the first element of feed forward focusing on camera stability / shake, they quickly avoided touching the camera during animation.

The frustration of only seeing technical mistakes after animating had completed would notably double down the students' efforts to eradicate those mistakes on further attempts. Students increasingly became more conscious of the camera settings when setting up to animate. Students independently adjusted these settings to suit each animation created, a notable enhancement of connection to the act, given that many of these students hadn't previously studied or practised photography.

Technical feed forward on the formative work would notably shorten as each principle was practised. In the final formative task challenge, animating a bouncing ball, almost no technical issues would be evident. A desired effect, helped again by the fact that to diminish those technical issues completely, students had to both consciously set up the camera and be aware of their own physical presence around the camera when animating.

Students also became more aware of one's and two's and found themselves experimenting with doing one or the other. A few students would find a natural comfort, animating on ones regardless of it taking longer and requiring deeper focus and concentration. Some students would shoot two frames on the camera and others would shoot one frame but double them

up in the postproduction process. This decision seemed to simply be a matter of individual personal preference or habit.

Whilst camera shake would be eradicated by the end of the formative task, the dreaded ‘camera knock’ would be constant mostly due to the deeper focus on the act of stop motion animating. Students would be aware of the camera, but not necessarily the tripod which extended down to the studio floor.

Through feed forward, it was discovered that the most common culprit for camera knock was the students’ feet. I suggested students remove their shoes while animating as the brain might have forgotten the shoes were on the feet and not compensated when subconsciously stepping around the tripod legs. Whether a placebo effect or not, those who animated with shoes off suffered significantly less, or no camera knock issues when animating.

The shooting blind method forced the requirement of a rendered video to be created before playback and feed forward could commence. The desire to simply see their animation was accompanied by an equal desire to learn what should be improved in their work.

Understandably, most students would quickly play back their shooting blind rendered video file as soon as they had completed the postproduction process. This virgin playback would be accompanied by cries of delight at seeing their work play for the first time. Cries of frustration might also be heard but either way, that release of finally seeing the movement they created would be clear and obvious.

The anticipation of not seeing the result whilst animating also enhanced the students' separation between practice and reflection, letting the act of practice and the act of reflection have their own individual space and time, affording further concerted focus on routes of improvement in their work.

When shooting blind, a very notable difference during practice was the silence of the studio, compared to when the video assist method was being used. An almost tangible air of concentration could be felt with focus on practice rather than the technology. With the blackout curtains drawn around each animation stage where the students were working, I would sometimes wonder if they had all gone to sleep.

The most exciting moment on the redesigned module was the method transition moment, moving from formative to summative task work, from lost method to current method. Every year that this re-designed module has run, the excitement in the air is tangible as students understand through first-hand experience the gift of the current method.

After transitioning methods, some students would voice their preference of using the shooting blind method instead. Some of those same students would carry this preference forward to their 3rd year study if choosing to specialise in stop motion. When queried why, the most common response was that shooting blind was “simpler”. The curriculum redesign described in the this case study has been implemented across five academic years. My analysis above draws on my observations of teaching and learning related to the level four module during that five year period.

Conclusion

The nine-year-old me could not have known at the time that the programme segment on video assist for stop motion would inspire my work 30 or so years later. A personal journey, experience, or connection with the subject matter being considered for curriculum design may help us build a library of information, absorbed wilfully, rather than forcefully.

Signature pedagogies or tools are intuitively part of the subject we are teaching. In this case, Stop Motion animation requires a camera and a lens at the very least. Practical practice is also required, stop motion can never be fully theoretical, it requires a practitioner to succumb to the act of animating over a period of time. Diagrams, and theories alone on how people animate just won't suffice.

Fully avoiding the technocratic approach in this case wasn't possible – some technology and software was required. The formative task work feed forward appears to focus more on technical issues than the creative issues. However, this was by design. Highlighting the technical issues relentlessly at the start, made them go away quickly – leaving more room for discussion on the creative aspect of their work in the summative task where technical issues were minimal.

Educations object needs to be critically considered especially when compared directly to industries object. Confusing the two or thinking that one should mimic the other is to limit possibilities and potentially miss the point of what we are trying to achieve. Reducing the amount of technology used helped reset students expectations and replaced them with the unknown. The journey and experience of then turning the unknown into the known is what sticks and remains in us propelling us further forwards.

It is not assumed that utilising lost methods for curriculum design is applicable to all areas of A&D. Perhaps the shooting blind method is unique in its educational benefits. However, I hope that this experience of changing up the educational perspective for the benefit of the student inspires others to consider unique possibilities. Perhaps in another thirty years, I'll be designing curriculum to give students the unique experience of the lost method of video assist.

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End notes

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