Notes and Observations

Unplugging The Matrix: Putting Practice into Theory

Steve Rafter

In the Wachowski Brother's film *The Matrix* (1999), Neo, played by Keanu Reaves, turns to Laurence Fishburne's Morphus and surprises himself by saying incredulously, 'I know Kung Fu' –

'Show me' replies Morpheus.

We, the audience, having had an insight into Neo's study process, understand that Neo is now in possession of all the knowledge and expertise covering everything he needs to know, not only about Kung Fu, but every other martial art needed for the rather uniquely challenging role of being '*The One*' inside the Matrix. Over a period of 10 hours, Neo endures a digitized data dump of combat and weapons training hardwired directly into his brain via a '*headjack*'.

The concept of high-speed knowledge and skill acquisition is a familiar one in the sci-fi genre; often robots, A.I. and computers acquire a special skillset through a similar convention, usually as a plot device. Although confined to the sci-fi realm until some visionary neuroscientists crack the code, the idea strikes a chord in the real world with many of us. What would it be like to download new knowledge and skills, directly into our heads - to acquire an immediate supply of theory?

It is worth noting that in applying his newly acquired theory in a fight, Neo, when 'showing' Morpheus his skills, falls short and ends up on the floor in a dazzling display of post-production swishes, whooshes and CG enabled wirework. And so, even in the Matrix, it is only through 'practice' or by *doing*, that Neo tests his weaknesses and builds upon his strengths.

Outside of the Matrix, as a freelance Sound Designer & University Lecturer, I find that I am constantly straddling the perceived void between *theory and practice* in my chosen field of sound design for screen. For several years, I worked full-time as a Sound Designer in a busy audio post-production studio that, among other things, catered for international creative agencies working with high profile brands on far-reaching campaigns. While there was not often time to absorb new theory, during this time, I would often conjure up various aspects of sound theory gleaned during my

Masters studies some years before and apply it to the practical issue of a challenging session. Many times I would ask myself, what would Walter Murch do here, or be reminded of Michel Chion's *syncresis* (Chion 1994: 63) when pulling an unexpected combination of sound effects up against an image in order to give a client a new perspective on a shot. I was the only one at the studio with an MA in Sound Design, but I was not the only one using sound theory on a daily basis in my work, although I may have been the only one to acknowledge it.

The use of my own personal background knowledge and grounding in theory was extremely useful to have at my disposal both as a way to get quick results in a session, test ideas creatively, as well as having a language and a way in which to engage with clients about how they perceived their sound on a given project. I would have to say that, during this period in my career of '*applied theory*', I never questioned the direction of travel of my own knowledge. That is to say, theory always came first and it was then applied to practice. As I worked in practice, I used theory to become a better practitioner. It was a '*one-way street*' in which information and method flowed in the same direction from textbook to Pro Tools session and then, finally, to the finished result on screen.

It wasn't until I returned to teaching some years later, that I began to explore the 'two-way street' of theory & practice. I was very fortunate to have the opportunity to start teaching on the Masters course I had graduated from years earlier. I considered my first session with the students very carefully as, rightly or wrongly, I felt as if I simultaneously represented both the outcome of the course the students were currently undertaking and, at the same time, the industry they were keen to break into. So, the first session had to be good.

My idea for a first lecture to MA students was a crash course in industry practice. I wanted to *fast-track knowledge* to the students in a whistle-stop, theorised and condensed version of everything it had taken me several years working in the industry to grasp — . iInformation gainedleaned from working late nights on difficult projects to tight deadlines as well as hard lessons learned from the cringe worthy, cold sweat inducing rookie mistakes I had made in the early days of my career. I had planned to serve up this boiled--down experience in order to give the class a head start that focused on the practical process of working on a soundtrack with paying clients and with all the 'real world' constraints, methods and limitations working in practice involvesaffords.

2

The session covered a range of topics including technical information on delivery specs, tips on dealing with large sessions, editing and mixing and ways to speed up workflows, as well as more esoteric observations on how to best handle both talent and clients during time pressed, often stressful sessions.

It did not occur to me at the time, but in preparing the session and using my own methodology and ideas relating to practice, I had turned my own flow of theory from the '*one-way* street' of textbook to studio, into studio to classroom. In other words, I was extracting *theory* from my own *practice*.

However, I was under the impression that, by simply giving students the *theory* of practice, I would be able to save them the time it had taken me to *experience* the theory, first hand, through practice. It took me a while to work out why this session did not go as well as I had hoped. It was not until I embarked on further study, this time a PG Cert in Education Practice that I was better equipped to reflect on my own teaching style, my expectations of the session and the needs of the students. Although the session was not a total disaster, I was surprised by just how difficult it had been to 'transmit' my own experience of practice as theory to the class. The students did not have the required '*headjacks*' needed for a Neo style data dump I was trying to achieve.

It was not until I began to look at ideas about teaching methodologies and pedagogy through my PG Cert studies that I started to understand a little better why this method of teaching, of simply transmitting information, may not have been the most effective or satisfying approach either for myself as the tutor or the rest of the class. Jean Piaget's (1967) theory of *constructivism*, a learning methodology, states that most of what we learn is built upon our own experiences (Piaget) and that most of what we learn is stored in terms of constructed *meaning* rather than individual box files of information stored in our heads gathering dust. In *constructivism*, the learners are active in creating meaning from the information presented to them or through their own experience (it is worth noting that experiential learning can also include more *passive* activities, such watching / hearing films and listening to lectures.) Students build upon existing knowledge in order to facilitate new learning.

An interesting example of the concept of building upon our existing knowledge to inform new understanding can be seen in the 1973 study by William Chase and Herbert Simon, '*Perception in Chess*' (Chase & Simon, 1973). Building upon the work put forward by chess master Adriaan de Groot in the study of chess

players and their cognitive behaviour, Chase & Simon created an experiment where expert chess players and novices were each shown a snapshot of a chessboard mid-game for five seconds. The players we then tasked with recreating the layout of the board shown in the snap shot, recreating as accurately as possible the position of each chess piece on the player's own chessboard. The results demonstrated that while the novice players could often accurately position up to four chess pieces, the expert players could consistently position over twenty chess pieces in the correct position. It emerged that the experts had the advantage over the novices not through superior skills relating to memory and recall, but in the ability to construct meaning from the image of a snapshot of chess game mid flow. The experts had more knowledge of the game itself and could, therefore, understand the thought processes behind the various positions of the chess pieces in a deeper way and, with this insight, could 'see' the strategy involved in the snapshot of the game.

The idea was tested further by another study where the experiment was repeated using only randomly placed pieces on a board rather than actual gameplay positions. The results of this showed little difference in the ability of the experts or the novices to position their pieces correctly. As the experts could no longer derive meaning from the snapshot of the board, the playing field was levelled and the experts lost their advantage.

If I can relate this idea back to the MA students from my first session, I can identify that, where the session was not as successful as it could have been, the students had not benefitted from building their own knowledge of the topic through *experiential learning* and therefore, found it hard to relate to the advanced detail as presented, as it appeared out of context within their own experiences of practice. In a similar way to Chase & Simon's novice chess players, without the practice to underpin the theory, some students found it hard to grasp certain ideas and were, therefore, not as engaged in the session as they could have been.

I now feel that this is an important consideration in most areas of practice- based learning. We build on knowledge by creating meaning from our own experiences and relate this to new knowledge in order to understand it, therefore constructing our own knowledge through experience. Sometimes you have to learn by doing, in order to construct your own knowledge, even if it does take several years.

The process of 'reflective practice' in my own teaching led me to this conclusion. Although I did not realise I was engaged in it at the time, *reflective*

4

practice provides a very useful way to keep the flow of knowledge going in both directions.

'Reflective practice is the process of learning through and from experience towards gaining new insights of self and of practice (Finlay, 2008, p1)

> **Formatted:** Font: Not Italic

The MA Media Production Framework at Bournemouth University, where I am Programme Leader part and part of the teaching team of the teaching team for the MA in Sound Design for Film & Television programme, puts reflective, critical analysis of practice at the heart of the learning experience. Through reflective, critical and contextual analysis students, hopefully, gain a deeper understanding, not only of the theory applied to their own work, but also to a wider context in which their own practice sits. Gaining a solid understanding of how their practical work fits into the wider context of sound theory and practice within the industry.

By accompanying most practical or production work with critical reflection and other reflective methods, students have the opportunity to reach what Jenny Moon describes in her book, *'Reflection in Learning and Professional Development: Theory and Practice'* (1999) as, *Transformative Learning*, or Stage 5 in her five stages of learning. Students at stage five have 'reached the point where they can formulate ideas of their own' (Moon: 1999).

This process arguably makes fenables or students who havegain a deeper understanding of their subject, a wider understanding of their own and others's applied methodology and processes, as well as a developed insight into their personal strengths and weaknesses throughout the process. Students also create the opportunity to develop new ideas and theory from the practical process; in other words, students at Stage 5 are able to extract *theory* from *practice*.

This is good for the student, but what about the practitioner?

The same obviously holds true. By being self-aware in our professional practice and reflecting on the work we do in a meaningful way, we can gain new insight into both our own methods and our industry in a wider sense. Two notable examples of 'Reflective Practitioners' from the field of sound design are, of course, Walter Murch and Randy Thom,. Two leading practitioners who are both highly skilled and influential in the area of sound design and who share the ability to

5

critically reflect upon their own work and practice, as well as the work of others in a historical context and contemporaneously.

Randy Thom's 'Designing a Movie for Sound' article (1999) is a good example of an end product derived from effective *reflective practice*. In the article, generated from a lecture given at the School of Sound symposium in April 1998, Thom reflects upon the current status of sound within the Hollywood film industry and describes a fairly bleak picture. However, through critical reflection, he is able to not only describe the problems impacting his practice, but also offer, 'some suggestions for improving the situation' (Thom, 1999). These solutions offered culminate in a call back to Walter Murch's vision from histhe early days of at *American Zoetrope* where he imagined cinema sound gaining an equal footing alongside the visual image in cinema. Both Thom and Murch argue for, at the very least, an equal distribution of attention, time and resources in the storytelling process given to sound as is afforded to the image.

Through reflecting on my own practice as it runs alongside my teaching, I have extracted several guiding principles that inform both my approach to sound design as a practitioner and lecturer. These principles are not, by any means, presented as law definitive, in fact I invite students to come up with their own additions and variations to these principles. It also has to be said that these ideas may not be utterly new, as I, like most others in the field, stand on the shoulders of industry giants such as Walter Murch, Ben Burtt and Randy Thom as the pioneers of the industry. However, I hope collectively they offer a fresh point of view from my perspective that may be of use to others. With this in mind, here are just a few, starting principles I keep in mind when either working on a project or teaching the subject of sound design.

'Sound & Image image Not are not a mMarried cCouple'

Technology has made the challenge of capturing image and sound in synchronisation effortlessly transparent. So much so, that I think it is often worth reminding students and filmmakers that our DSLRs and camera phones are actually comprised of two recording devices in one. In capturing sound and image by pressing a single record button, modern cameras and phones give the illusion that sound and image are tied together in away that, say, the original, silent Super 8 cameras did not. Therefore, for the amateur film enthusiast and low budget filmmaker of the late 1960s

and early 1970s a soundtrack had to be considered and constructed in a way many of us take for granted in an era where every image captured is accompanied by it's own soundtrack.

Encouraging, not so much a divorce, but more of an 'open' relationship between sound and image is a starting point for sound design. Sound and image are combined in order to emulate the way in which we experience the world in everyday life, but that is not to say that this is the best way to experience a story or an emotional, cinematic experience, therefore, by freeing sound from the image we can fully explore potential of sound as an emotional storytelling tool.

'If iIt sSounds rRight, It it iIs rRight'

This phrase is borrowed from the pioneering and highly experimental, 1960s record producer, Joe Meek. While Meek's contemporaries were donning white lab coats and approaching music production as a science in pursuit of fidelity and clarity, Meek was pushing technical and creative boundaries in pursuit of the perfect sound in his 'home studio' at 304 Holloway Road, London.

Whilst sound design and filmmaking are both technical *and* creative disciplines, to borrow from Meek's concept and approach fosters experimentation and allows oneself to be freed from the 'correct' way in which to do things. Ben Burtt's use of a broken microphone helped create one of the most recognisable and iconic sounds in film history by forming the sonic signature to George Lucas's lightsabers in the Star Wars franchise. The broken microphone hum, in particular helped anchor the movements of the lightsabers in a physical space and made the weapons all the more convincing and believable by applying real world physics to their sound construction. The natural Doppler effect Burtt achieved by swinging his broken shotgun mic in front of a television, in sync with the character's movements on screen would have been hard to recreate in any other way at the time. Burtt could have easily overlooked his discovery or, worse, repaired the microphone, but it was his recognition of the 'right' sound and his experimental approach that led to his success and, in this case, the creation of an iconic and emotionally resonant sound effect.
It is important to note that this ethos does not exclude any technical rules or established workflows, norms and processes. However, this approach encourages creativity, experimentation and fosters a way of thinking that places the emphasis on the creative rather than the technical as a driving force for decision-making.

'Sound Design as Production Design: cCreating cCredible wWorlds'

The role of the Sound Designer working in film is to bring order and meaning to the soundtrack to support the film's narrative. One of the fundamental functions of sound is to help create and give weight to the on-screen world in which the story takes place. This could range from establishing worlds that have never been seen before in the case of science fiction, bringing to life a bygone era of a period drama or, capturing the nuances of our own, familiar, contemporary world and echoing it back to the audience in a convincing and plausible way. What these and all other story worlds have in common from a sound point of view, is that they must all pass by the audiences' ear unquestioned and unchallenged in order for the film to even begin to engage the audience with the story on an emotional level.

Because of this, the Sound Designer must apply the same level of detail to the sound of the on-screen world as the Production Designer and Props Buyer in order to create a believable and authentic environment for the story to play out. You can even think of certain types of sound effects fulfilling these two functions. Backgrounds, room tones, cityscapes and atmos tracks can be thought of as set design in theatrical terms and hard effects such as phones ringing, gun shots and Foley elements could be thought of as 'props' that with which the characters interact with.

The parallels between Production Design and Sound Design are arguablye closer in film production than they are in theatre production where sound's closest collaborator is often lighting. Therefore, it may be useful, when thinking in these terms, to borrow some approaches from our colleagues in the Art Department when tasked with creating believable, credible worlds through sound.

Production Designers think about colours, light and textures as well as the emotional impact of scene when designing a set or choosing a location. They also think in terms of depth of field and often, camera angles. Sound Designers can think of their own sonic environments in a similar way, by using layers of sound texture to add depth, detail and credibility to the environment whilst, at the same time, supporting the functional demands of the story such as reinforcing the time of day of a scene, a sense of space and location, as well as supporting the mood and feel of the narrative or characters or both.

In other words, when a script calls for a beach location, the Sound Designer has a lot more to do than reach for a beach atmos sound effect in order to fulfil the

8

needs of the film. In the same way that the Production Designer must ask further questions and find clues within the story to inform their design, so too must the Sound Designer. Therefore, depending on the answers to those questions and clues, the Sound Designer might choose to build the environment of the beach by layering low frequency textures for distant crashing waves, eerily reverbed, laughing seagulls in the mid distance, wispy wind blowing granular sand through clumps of grass in the foreground. All these elements blend together seamlessly in order to construct an uncomfortable and unsettling beach backdrop that sets the scene for heightened tension or dramatic impact. This is just one hypothetical scenario and one approach to the sound, but for every shot change and new angle, the sound should provide a sense of perspective, place and continuity of time providing the story calls for it, whilst at the same time not drawing attention to itself as being a 'design' element of the production. By thinking in these terms when designing sonic environments, we add richness, depth and most importantly the credibility of a real world on-screen.

These are a few examples of some of the approaches to thinking about Sound Design that I have adopted over time through reflection on my own practise. These principles help inform my teaching as well as guiding me through my own practise. Therefore, in conclusion and to return to the Matrix analogy once more, those of us in practice have a choice to either take the *blue pill* and continue to go about our practice without questioning or reflecting on our craft and rely on a one way flow of theory to practice. Or, we can choose the *red pill* of reflective practice, open our eyes to our own craft and follow Neo down the rabbit hole in a bid to better understand how we can improve not only our own practice through experiential knowledge and critical reflection, but also create new ideas and theory in order to improve our craft and industry in a wider context.

Theory and practice in the subject of Sound Design are intertwined, but are also a 'two-way street', by heightening our own self-evaluation skills and by reflecting, critically on our own practice, we can underpin existing theory and develop new ways of thinking about our subject as both Walter Murch and Randy Thom have shown. We can't all be *The One*, like Neo, but by engaging in the process of reflection, we can become better Sound Designers, Teachers and Students.

SOURCES:

Chase, William and Simon Herbert (1973), *Perception in Chess*, USA: Academic Press.

Chion, Michel (1994), *Audio-vision: Sound on Screen*, New York: Columbia University Press.

Finlay, Linda (2008), *Reflecting on 'Reflective Practice'*, London: PBPL Paper 52, The Open University.

https://jean-piaget.wikispaces.com/Constructivism accessed 28th September 2016.

Moon, Jenny (1999) *Reflection in Learning and Professional Development: Theory and Practice*, London: Routledge

Thom, Randy (1999), *Designing a Movie for Sound,* Film Sound,

http://www.filmsound.org/articles/designing_for_sound.htm accessed 28th September 2016.

The Wachowski Brothers (1999), *The Matrix*, film, USA: Warner Bros.

CONTRIBUTOR'S DETAILS

Steve Rafter is a Sound Designer & Lecturer whose work spans a number of creative fields including film, TV, theatre, live events, sound installation, advertising, music and education. He has worked on a range of high profile projects for the world's leading brands including Pepsi, HSBC, Emirates, Visa, Unilever, Panasonic, Sony, and international agencies such as; Saatchi & Saatchi, Leo Burnett, JWT, FITCH, BBDO & DDB as well as many high profile projects for the Dubai Government. Steve began his Sound Design career in theatre and worked on many shows and live events in London, Edinburgh and across the UK and Europe. He is the director of BOMO Audio, a boutique sound design studio and has worked nationally and internationally on a number of feature films, shorts, animated TV series, advertising campaigns, theatre and live events. SteveHe is also the Programme Leader of the MA in Sound Design for Film & TV course at a Lecturer in Sound Design at Bournemouth University and teaches teaching on the MA in Sound Design forSound Design on a range of undergraduate and postgraduate courses Film & TV as well as other undergraduate courses within the highly respected Faculty of Media & Communication.

srafter@bournemouth.ac.uk