

THE ‘AUTONOMIZED PERFORMER’: OPERATIC VOICE AND LOOPING

Heather G. Keens

ARCM, Dip Opera RCM, MAVS RCSSD

**Master of Research
Department of Media, Music, Communications and Cultural Studies
Faculty of Arts
Macquarie University
Submitted on 25th February 2019**

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ABSTRACT

“Autonomized” (Hughes 2015) performance describes the “multi-faceted solo performer” enabled through modern music technology. Digital looping, a key technology in autonomized performance, captures, repeats, and processes live recordings, and is a creative instrumental and rhythmic performance tool used by many contemporary and popular artists. As composer, arranger and instrumentalist, the looping singer is empowered to create new and experimental modes of performance, adding new reflective knowledge after the event. This thesis examines autonomized performance in the context of new opera practice, in contrast to the traditional approach performed in main stream repertoire. Through practice based research and the analysis of current looping artists, it explores vocal looping as a creative and compositional tool to extend operatic performance and composition. A major component of this thesis includes original creative work that incorporates looping and autonomized operatic singing, culminating an analysis of the creative component and implications for artists exploring autonomized vocals with looping technology.

Statement of Originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Signed:

Date: 25/02/2019

For Frank, Emmeline, Brodie and Banksy

Acknowledgements

I wish to extend my grateful thanks to my supervisors; Dr Sarah Keith, Dr Andrew Robson, and mentors, Associate Professor Diane Hughes, Kevin Davidson and Professor Roderick Millward. In addition I wish to thank members of the Faculty of Arts, Department of MMCCS and Professor John Potts, Macquarie University. Love and thanks also to my amazing family and friends.

CHAPTER 1: INTRODUCTION

1.1 Background

There is still much debate about the technologizing of classical operatic singing. The natural venue acoustic versus the digitally enhanced acoustic. The live versus the recorded experience. The venue acoustic recording versus the amplified recording. As opera companies begin to utilize technology for reasons relating to sales and vocal health, the use of technology is increasing in opera performance in a variety of ways. It has long been used in stage and lighting design and is now being utilized for voice enhancement, chorus, off stage chorus, and occasional solo work, as compositional tool and for streaming content of performances globally. A number of “new” operatic works have been produced in Australia in recent times¹ incorporating looping and experimental vocals.

My creative research performance project aims to explore ideas and approaches to mediated operatic voice looping, using and controlling looping technology to perform, construct, (Webster, 2002), compose and arrange in ‘real time’, (Holmes, 2002, Hughes, 2015). Looping technology presents singers with an opportunity for empowering virtuosity, to develop their singing with technology and to have more control over their sound and expressive compositional/performance outcome. The term “autonomized performer” (Hughes, 2015), describes the high levels of musical

¹ An example of this is “Howling Girls”, a world premier with the Sydney Chamber Orchestra (2018), composed by Adena Jacobs & Damien Ricketson, Carriageworks, 18th March-7th April 2018. Soprano Jane Sheldon used a full range of mediatized sounds, including the operatic projected voice.

and vocal autonomy that singers now experience through the use of technologies. Singers are able to be both band and lead vocalist by working solo with ‘in the moment’ technology use.

This practice based research study explores what it is to be an autonomized operatic vocal performer, and the relationship between voice and looping in autonomized, technologized performance, using looping pedal technology. The analysis of other looping performers combined with my own reflection on process and practice is the basis for my research. The rationale for this research emerged from previous team research undertaken in the UK, ‘The Visual Voice’ (2008–2013), a series of five pieces around vocal performance with technology devised and performed by Millward, Keens and Rubin. The aim of the last piece, a one - woman show ‘Conversations with my Voice’, was to explore the adjustments required in cross-over styles of singing using technologies. Keens, H., Millward, R.F., & Rubin, J. (2012).

Conversations with my voice. [Video]. Retrieved from <https://vimeo.com/195150196>

The software programs MaxMSP² and Ableton Live³ (Perison, 2002, pp.109-112), were used. The show was controlled by two audio-visual technicians. Repertoire included the contrasting vocal styles of opera, jazz and popular culture musics (PCM) (Hughes, 2010). Differing singing styles require differing vocal muscle group set-ups, sub-glottal vocal fold air pressure, and approaches to vocal quality and styling (Kayes, 2000), (Soto-Morettini, 2006), (McCoy, 2004), (Bunch-Dayme, 2005).

² Max MSP is the name of a visual software programming unit for music and multimedia.

³ Ableton Live is a digital software music sequencer for computer.

1.2 Aims

This research is aimed at exploring a number of ideas and approaches to mediated voice looping, using and controlling looping technology. The methodological approach of this project is informed through a Practice as Research (PaR) process (Bannerman, 2004; Nelson, 2013), including personal component, analysis and theoretical exegesis, combined with an appropriate auto-ethnographical focus, as outlined by Aszodi:

This kind of research (practice as) requires a methodology that is both bespoke and banal. Utilizing elements common to autoethnography, artistic research and professional practice. A mixed-methodology has been reached through experimenting with methods until reaching an approach that seemed most fit to purpose (2019; 2016, p.2).

The aim of this research is therefore to explore current innovative approaches to vocal looping including the analysis of my own operatic voice and repertoire looped practice. This research examines what the main difficulties and advantages with looping operatic singing in performance are. Discussion includes intimate vocal approach, for example, and whether it constitutes opera singing, or if the repertoire requiring a particular vocal approach makes it so. Within this topic, the relevance to digital voice mediation is discussed as the use of looping technology involves the use of a public address system (PA) to include a microphone.

1.3 Significance

To fulfil the above outlined aims, analysis of current looping practices will be undertaken in order to contextualize my own practice. There are few, if any, solo looping opera singers performing operatic repertoire, therefore artists from other style/genre specific approaches will be observed. The research outcomes are explained in chapters 3 and 4.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The research literature on the topic of classical singing and technology is sparse. When collaborating on ‘Conversations with my Voice’ as discussed in chapter 1, the primary findings were that when working with various vocal looped styles in performance the operatic vocal set-up was the most challenging to hear, mix and perform on microphone connected technology.

The findings revealed that:

1. The higher pitch range on projected vocal classical sound did not always translate efficiently on microphone, due to the required change to microphone technique from the performer when using and adapting to cross-over singing in other styles of more intimate sound.
2. The audio feedback onstage and the adaptation of technical approach created technique and pitch tuning concerns, particularly with audio feedback through bone conduction, monitors and any added effects.

The operatic vocal set-up in point one above, including the level of air flow (subglottal pressure/energy) at vocal fold level (Williams, 2013; Chapman, 2006,), involves an enlarged larynx space where the source of vibration and sound is made. It also involves the breath flow from the lungs in combination with balanced vocal fold closure, resulting in a louder sound, or projection of high frequency tonal input (Miller, 2008, p.114). The technologized voice, a term described by Hughes (2015, p.165), to describe the singer using technology and developing vocal

technique as appropriate to the microphone, outlines clearly the adaptations made by the singing voice for microphone voice enhancement. This brings into question the need and approaches used to adapt high frequency singing such as opera. With regard to audio feedback, the ‘operatic set-up’ and singer may need to adapt to not only microphone technique, but also their audibility of voice on stage, through hearing their mediated voice through technology. These issues are discussed by Hanrahan (2012): “Would singers change the way they sang if the auditory feedback were altered? The answer is yes. Pitch, formant frequencies, vocal fold contact, and intensity all exhibited changes as feedback changed” (p.149).

Hanrahan discusses how high frequency feedback likely caused singers to decrease breath flow and vocal fold contact, often resulting in intonation issues. Pitch is compromised in the extremes of low and high vocal range, as Hanrahan explains:

[...] the subjects were all either sharp or flat, with no individual subjects demonstrating accuracy. This may suggest that these frequency areas, frequencies below 400 Hz (800 Hz for females) for the Lows protocol and between 2500 Hz and 3500 Hz for the Singer’s Formant protocol, may play a role in securing and establishing pitch [...]. Brancucci et al. suggest that the vowel formants or vowel quality seem important in determining pitch. It may be that the suppression of portions of the vowel formants caused the pitch inaccuracies (p.149).

2.2 Operatic singing voice

The vocal production and the aim for pure tone in the trained operatic singer is discussed in the chapter, ‘Hearing and Singing’, Fourcin (2006). In the specially designed concert hall, Fourcin outlines where the singer becomes sensitized to a particular kind of feedback of sound. With the on-stage digital vocal feedback, via the monitor speaker to the singer, there is an adaptation required from specialist opera projection to a technologized approach, adapting

continuous pure vowel production and/or the muscular set-up that produces heightened resonant tone. Issues of projected voice due to air flow changes at the glottis through vocal fold vibration are discussed by Chapman and Morris (2006), who state that “vocal fold closure and subglottal air pressure are balanced to create full closure with appropriate valving for the vocal tasks” (p. 62).

Operatic performance of both traditional western art music and new works is an established part of performance culture and relevant to this research due to its growing relationship with technologized performance. With developments in technology, opera as a music form is still much debated. As Western society acknowledges multi-cultural influences and diversity, arts practice likewise embraces new ideas, celebrating differing cultural musics. Vocal artist, Cathy Berbérian, was one of the first singers to question Western music vocal traditions in the 20th Century (see Karantonis, Placanica, Verstraete & Sivuoia-Kauppalä, (2016). Described as starting the era of ‘New Vocality’, Karantonis et al. (2016) discuss Berbérian’s vocal experimental virtuosity:

Berbérian’s example is significant here, as she was a singer/composer for whom a solid classical vocal technique was vital, yet she used that basis to explore multiple kinds of vocalities that dissolved international borders (p.173).

Berbérian was one of the first classical artists to pioneer the term ‘polyvocality’ (Karantonis, et al., 2016) thereby incorporating a number of music styles, genres and spoken voice approaches into her work with vocal mediation. To date operatic singing is an established form and has not been subjected to much experimentation with particular emphasis to changed vocalisation. New opera performance is increasingly incorporating both new technology and ‘polyvocality’. Technology is being used more widely as a creative tool and operatic vocal set-up is for the projected, non-technologized voice. Emerging artists such as Nora Fischer (2018) are described

by Tvwow on YouTube as “bursting the classical music bubble”, singing with microphone and using predominantly early classical music repertoire, arranging it with electric guitar and PCM ensemble.

Operatic voice is explained further by Sundberg (2001) and Titze (2015), as a particular acoustic phenomenon (p.5). According to Sundberg (2001), the singers ‘ring’ or ‘formant’, at a particular sound frequency (Hertz) has the ability to carry un-amplified across a symphony orchestra (pp.601-602). Titze likewise outlines his theory that lower acoustic levels with amplified singing are more likely to translate in a mediated voice situation. Another definition of operatic singing is the level use of vibrato in singing and vibrato rate, noted to differ between the vocal use of music theatre and popular singing (Larrouy-Maestri, Magis & Morsomme, 2014, p.332). The hyper-emotive organization of score and music, according to Frith (1996) determines the “instrument-like tonality” of classical voice, as opposed to the PCM singer who is more expressive on a personal level of text and affect utterance (p.186).

In 2004, Horowitz described how the Italian opera cognoscenti expressed concern when the musical version of *Puccini’s Tosca* was performed using amplification. This outlined how a new generation of opera audience would become used to ‘artificial voices’, feeling disappointed when hearing a ‘natural’ operatic sound again, (p.1). Classifying singing into styles and genre, rather than as one voice producing many stylistic sound qualities and approaches to repertoire, is of importance here. The traditional approach is, that the technique and repertoire of operatic singing are a combined area of specificity. Such theories of classification as outlined by Lovetri (2007), suggest that due to the new demands on vocalists for more versatility across style and genre the

contemporary opera singer is expected to be able to adapt his or her voice to the repertoire. Lovetri states:

Vocal function = vocal technique. Neither has anything to do with classical literature [...] Classical is not “a thing”. It is a varied approach to teaching singing that relies upon some kind of resonance and breath support, but that seems to be different with each teacher. There are many kinds of “classical singing” so saying, “I was trained classically” means nothing (par.2).

The ability to train the voice to sing all styles is described by Lovetri (2007) as ‘functional training’ (par.2). Williams (2013) refers to this as ‘cross training’, a term taken from sports training (p.114). Another description is ‘cross-over’ singing, not to be confused with Berbérien’s ‘polyvocality’ (Karantonis, et al., 2016). ‘Cross-over’ alters according to vocal use and ‘set-up’ in a mixed stylistic song/repertoire program, as opposed to using changing vocal approaches continuously, in one piece. Although not the main focus of this project, it is important to acknowledge this in relation to the current inquiry and the use of the Lovetri’s (2006) terminology of ‘chest’, ‘head’ and ‘mix’ registers, for simplification, as PCM singing registers differ from classical in terms of tessitura use (p.29). McCoy (2004) states, “Few aspects of voice pedagogy are as perennially controversial as registers” (p. 64). Kochis-Jennings, Finnegan, Hoffman and Jaiswal (2012) discuss trained PCM singing and classical singing in terms of registers:

Although there is some argument [...] as to the existence of these registers, the trained singer learns to transition from chest voice to falsetto [...] hence the terms “middle” or “mixed” voice have evolved in an attempt to describe this type of phonation [...] the perceptual quality of the transitional area often seems different for the female classical singer than for the female commercial singer; thus, the terms “headmix” and “chestmix” have recently come into use to differentiate type of “middle” voice” [...] “classical singers tend to transition to headmix and head voice at relatively lower pitches in their range” (p. 182).

See (Miller, 1996, p.114) and Miller, Harm and Schutte (2005, p.291) for further discussion of voice terminology.

2.3 Popular culture musics and singing

Approaches to operatic writing have been changed throughout the history of Western opera with the demands of societal trends and compositional approaches (Larrouy-Maestri, Magis & Morsomme, 2014). However, in general the vocal technical approach has remained consistent. In contrast, looking at the technological voice the definition of PCM has been much debated:

It seems that a satisfactory definition of popular music must encompass both musical and socio-economic characteristics. Essentially, all popular music consists of a hybrid of musical traditions, styles, and influences, and is also an economic product which is invested with ideological significance by many of its consumers. At the heart of the majority of various forms of popular music is a fundamental tension between the essential creativity of the act of “making music” and the commercial nature of the bulk of its production and dissemination (Frith as cited in Shuker, 2001, p.7).

For clear definition within this thesis, I will refer to PCM as anything vocal that is non-operatic and or classical. For this research, the styles used for singing in PCM incorporate “pop, rock, rhythm and blues, jazz, hip-hop, country and heavy metal” (Hanlon, 2012, p.1)⁴. Soto-Morettini (2006)⁵ describes styles for singing as “the series of vocal choices made by the artist”. She further

⁴ Hanlon actually refers to Contemporary Commercial Music (CCM) instead of PCM.

⁵ Soto-Morettini refers to Contemporary Popular Music (CPM) instead of PCM.

states, “however, I always recognise that there are no real categories (style), and that musical evolutions and fusions will always defy any attempt to put things into rigid boxes” (p.13).

With PCM singing there is a lot more choice regarding vocal approaches. If we were to subtract the previously outlined definitions for classical operatic sound from all the other options the voice can create, we do not necessarily arrive at PCM singing. Therefore, it would seem that repertoire of music, style and technology use, in addition to possible commercial viability, currently define singing in PCM.

2.4 The mediated voice

Hughes (2015) outlines the performing singer as requiring coordinated use of body, body as voice, and musicianship skills. With the electronically technologized voice/singer, she outlines how the requirements are the same. “The same inclusive principle can be applied to the use of technology with the singing voice, as vocal processing also requires coordinated integration of acoustic and mediated properties of sound (e.g. amplification)” (Hughes, 2015, p.165).

The mediated voice or technologized vocal can be described as anything vocal that uses analogue or digital enhancement. Hughes and Monro (2014) explain that sound reinforcement is a processing system that transforms the “acoustic voice to be converted to electrical signal” with that aim of reproducing that original sound and making it louder (p.2). The first point of entry of the mediated voice is through the microphone (see Hughes and Monro, 2014). Again, Hughes (2010) outlines the importance for the correct equipment of microphone, sound system, mixer and fold-back equipment to be used, stating, “Singers should also become familiar with hearing the

voice through sound reinforcement and monitors” (p.254). The vocal approach that Hughes describes as ‘technologized vocal’ deals specifically with the process and sound reinforcement of the holistic singer. After radio and film, the technologized singer emerged in music performance in the genres of rock, pop and jazz. Genre is described by Hugill (2008), as a relatively little-used term until the explosion of digital culture, which includes mediated voice (pp.53-159).

Although much of her inquiry has been based on spoken voice, Newmark (2010) discusses how voice has returned to the theoretical agenda due to technology and the questioning of what the digital age implies, and the distinction between the human voice and the machine or mediated voice. Newmark states:

There is a theoretical dichotomy between art performance with digital media in order to discuss and theorise the role of singing in the current digital culture and the possible loss of “true” voice on a variety of levels (2010, p. XV).

The notion of ‘true’ voice has drawn a number of philosophical theories relating to spoken voice, theatre, live art performance, music performance, singing style, genre, amplification, acoustic and electroacoustic variables. Newmark (2010) states that the voice of the machine, like voice itself, is still in the early days of inquiry (p.95). In addition, Cummings (2017) states:

A classical singer incorporating a microphone into her creative practice challenges what it is to be a classical singer. That is; vocal technique (how we sing), aesthetics (how we interpret), acoustic space (where we sing) and repertoire (what we sing) and all these performance elements speak to each other, creating new connections between genres, composers, performers, works and performance styles (p.6).

Titze (2015) outlines strongly how amplified singing is made with predictable and controllable sounds of low acoustic power, not requiring a strong acoustic output similar to the non-amplified singer. He discusses briefly the differences in training approaches which do not take into consideration the increasing use of amplification across all styles of singing. What is not discussed within this context is the creation of an original sound field choice (Titze, 2015).

2.5 The ‘autonomized performer’: autonomy and authority.

Hughes (2015) describes the autonomized vocalist as the creative empowerment of the looping singer having vocal autonomy in performance. Hughes states, the “facility to loop in real time has established a new paradigm in contemporary vocal performance in which the solo or lead singer may simultaneously function as musical director, arranger, engineer, accompanist, band and backing vocalist/s” (2015, p.177). There are several approaches to autonomy with looping technology and sound enhancement, two of which are here outlined pertaining to vocalists. These are the combined use of instrument and voice and, the voice as solo instrument, similar to the approach used by CPM looping artists Theo Bleckmann, Cleveland Watkiss and Grace McLean (4.1). The second approach has resonance for singers who do not play instruments, wherein the technology itself is, or becomes the instrument. Performers learn to control or ‘play’ the looping technology in a similar approach to learning an instrument, physical, intellectual and vocal co-ordination, (Bunch-Dayme, 2005) and the “body and mind, ‘neuropsychobiological’ self” (Thurman & Welch 2000, p. xxiii).

In relation to a vocal performer’s autonomy, the topics of authority and vulnerability surface pertaining to performing and technology use as solo endeavour. On the topic of authority and

‘self’, Frith (1996) outlines how in the “ever more socially and technically complex processes of pop production, so artistic authority is re-discovered – in the person of the producer, the engineer, the image maker, the deejay” (p.244). Frith refers here to the whole package in the recording of the performer. As a similar comparison, the looping performer authority lies within creative ideas, writing, recording and singing in ‘real time’, improvising and performing. In a YouTube interview given by Watkiss (2011), he outlines how he wanted to hear his voice again, and to strip everything down by working with solo voice looping. Watkiss wanted to re-discover his voice through autonomized creative play.

Hughes (2015) states that the “autonomized performers” storage is “in real time” (p.177). Looping technology on its own as solo instrument is used primarily by contemporary popular vocalists. The autonomized vocalist in real time performance can be said to be not only emancipated as artist but also able to develop more profitable performances constituting a ‘one-person-band’ in terms of economic autonomy.

2.5.1 Autonomized vocals and authority

Learning to ‘play’ looping technology similar to the approach to instrumental learning, contributes to authority in looped performance and the control of autonomous performing. A single performer controlling voice, ideas, music language and technology simultaneously, is reaching a level where they are able to combine all fluidly and with success. Technology in music exists in a number of historical contexts and covers both non-amplified and amplified music. The following three technological music phases are outlined by Frith, (1996):

- The ‘folk’ stage

- The ‘art’ stage
- The ‘pop’ stage

The ‘folk’ stage is defined as technology stored in body and mind and retrieved through performance (p.226), while Frith describes the ‘art’ stage as music stored as notation and retrieved through performance. In the third ‘pop’ stage, music is stored on disc, record, tape, or some form of digital storage and can be retrieved anywhere (Frith 1996, p.227). The ‘pop’ stage reference covers all genres of music and currently covers ‘popular’ versions and arrangements of classical music. This research inquiry conjects a fourth ‘digital’ stage of development, that of the technologized ‘autonomized performer’ – when storage is ‘in the moment’, with real-time playback capability.

Attali’s discussion of the ‘cultural economy’ (1999, p.159), supported by Szekely (2004, p. iv), addresses the topic of non-profitable performance trends, due in part to the changing relationship between music trends, society and technologies. A ‘compositional utopia’ was philosophized by Attali, relating to developments in technology and the alienation of the artist from the societal perception of increased entertainment, familiarity and estrangement. Looping technology used on its own as solo instrument is the precursor to the autonomized vocalist in real time looped performance, who is not only emancipated as artist, but able to employ a profitable performance technique with authority over their output.

2.5.2 Autonomized vocals and vulnerability

The philosophical metaphor of “vocal consciousness” (Dolar, 2006) outlines an area of consideration and engagement with voice looping; that of the mirroring nature of looped voice

providing the opportunity to listen back. Dolar discusses how hearing oneself back as acoustic mirror in a space is an “elementary form of narcissism”, a “minimal definition of consciousness” the “self and autonomy” (p.41). His reference here to narcissism relates to the initial hearing of one’s childhood voice in comparison to others. The act of vocal looping encourages deep listening to one’s output, with a combination of elements both consciously pre-formed and sub-conscious relating to intuition and training or experiential lineage.

An area of autonomous vocal looping and performance vulnerability to be considered in this thesis is that of intonation. An audience listener with a critical musical ear tends not to value poor intonation from vocalists when tuned accompaniment is provided. With an unaccompanied approach, such as that of solo looping artist, poor intonation may be the norm as there is no secure form of pitch reference. In their discussion on vocal intonation, Mauch, Frieler and Dixon (2014) outline interval drift as an overall cause of vocal intonation, which is passed on through previous note realisation, and more likely in unaccompanied singing (pp.409, 410).

2.6 Looping technology and historical developments

Although not the main area of inquiry within this project it is important to note the historical influences and development of the current looping technologies, framing developments in performance approach. Repetitive cyclic patterns of form, phrase, texture, harmony and rhythm, as discussed by Proksch (2006), could be said to exist in all forms of global music cultures, including the classical period of Mozart and Haydn (p.258).

2.6.1 History of Looping

“Looping technology has advanced profoundly since the development of analogue and digital media in the twentieth century and is approximately fifty years old as a musical approach,” (Peters 2018, p.1). The post WW2 “sounding paper” (McMurray, 2017), followed by German and American technological inventions of reel to reel taping have influenced current developments in looping (p.25). Additional earlier attempts at recording sound were made by Poulsen, cited by Paine (1957). According to Peters (1996-), the origins of tape looping are unclear, although reel to reel tape cutting, splicing and looping most likely originated in radio and film. As outlined by Holmes (2016), “Tape loops pre-dated the use of magnetic tape and were borrowed from the lock grooves created by early turntablists, including Paul Hindemith and Pierre Schaeffer” (p.179). Holmes further outlines how digital sampling can mimic the creation of the loop, whether repetitively (at the same volume) or, like the echo effect, diminishing (p.179).

Turntablism, as described by Holmes (2002), was a late twentieth century example of looped approaches used by Varèse, Cage and Schaeffer. (p.266) Kahn (2003) also includes Christian Marclay as a notable practitioner (p.17). Having worked with the cutting and splicing of analogue tape, Jeffrey Kaiser (2013), discusses how the audio digital format in the 1980’s of compact disc (CD) in 1982 developed into musical instrument digital interface (MIDI) in 1983, creating new opportunities for the recording artist (p.1). Kaiser further states how these developments now look archaic in comparison to current computer looping programs (p.2).

2.6.2 Looping technology

Looping technology is available in both hardware and software formats, i.e., in the form of a computer program or a separate hardware unit, and is used for a variety of creative music making, including live instrumental and vocal looping. Media Music Now, *What is a Loop*, (2014) outline:

Typically, the purpose of a loop section has been to provide rhythmic patterns or to create rhythmic interest, to highlight samples (for example, a sample of sound that is generally reconstituted), or to underscore a composition or musical arrangement. In live performances, looping and layering usually occurs in real time.

In contrast, some DJ's and composers, creating tracks, may use pre-recorded loops. An example of this discussed by Lambert (2012) is the score written by Danny Elfman for the show 'Iris', performed by Cirque du Soleil (p.44), which has looping fundamental to the score.

Looping technology, as explained by Hugill (2008), can be programmed to repeat the vocal input or tone signal, building layers of mediated vocal sounds and effects. This is often referred to as over-dubbing (Hugill 2008, pp.53,54). Digital audio effects, outlined by Sarti, Zoelzer, Serra, Sandler, and Godsill (2011), "usually refers to all those algorithms that are used for improving or enhancing sounds in any step of a processing chain of music production;" they continue, "...today these algorithms are widely used in professional or home music production studios, electronic or virtual musical instruments, and all kinds of consumer devices" (p.1).

Due to the developments in technology and simplification of use in performance, the Boss RC30⁶ dual track looping pedal, outlined by Charupakorn, (2011), is used in this research. This has been

⁶ The Boss RC30 looping pedal is a company product name for a floor placed looping pedal primarily used by guitarists and pop instrumentalists.

chosen because of its simplicity of use and consequent ‘user friendly’ opportunity for the re-positioning of the vocalist as self-sufficient musician. The Boss RC30 dual track looping technology has a longer recording memory, making it ideal for the repertoire presented for my autonomized live looping vocal performance, as the harmonic structure on which the songs are based varies, sometimes requiring the whole song length of 62 bars, to be recorded and layered.

2.7 Looping practice

Looping, as outlined by Peters (2018), refers to a pre-recorded sample of sound that is repeated either in live performance or in a multi-track studio situation (p.1). Looping in real time is currently popular amongst a number of vocal and instrumental artists. Performers such as Laurie Anderson; Theo Bleckman ; Jacob Collier; Imogen Heap; Kimbra; Madison McFerrin; Ed Sheeran; KT Tunstall; Reggie Watts; Cleveland Watkiss ; Keller Williams; and Grace McLean, exemplify some of the current artists combining looping technology, instruments and voice in performance. The performances of Watkiss (2011), Bleckman (2009), and McLean (2016), on YouTube/Spotify for example, demonstrate a particular approach to autonomized performances using voice and looper technology occasionally as instrument, omitting additional played instrumentation. In performance, Hughes (2015) describes how vocal looping performance has “relational transparency” (p.177), whereby looping is transparent in process, providing audiences with additional sensual stimulation. The following video example shows the looping pedal in action, during rehearsal for the creative component of this research, with visible pedal work. ([Link: Sung example Boss RC30 #1](#))

2.7.1 Introduction

Looping is similar to acapella singing, where a group sing both melody and as accompaniment. An excellent example of this, using microphones only, is the album ([Euroartschannel \(2015\)“Circle Songs”](#)) by Bobby McFerrin (1997). Here McFerrin works with a group of singers creating cyclic pieces of vocally creative atmospheres and styles.

Instead of a number of voices with differing qualities of tone it is possible to create interest with only one voice through the use of audio effects. Digital audio effects are outlined in detail by Howard and Angus (2001) as “electronic sound processing and manipulation of sound” (p.327). McFerrin’s daughter Madeleine McFerrin (2017) has extended her father’s practice on ‘Circle Songs’ by using solo voice and looper technology with digital effects.

2.7.2 Technology as creative tool

Contemporary popular singers are more likely to utilize mediation for creative intimate expression in comparison to the operatic approach, which uses technology for sound reinforcement and less as a creative tool. The mere fact that the technology is available for vocalists to have the ability do this is opening up a variety of opportunities for creative voice, song construction and improvisation. These creative opportunities and approaches are discussed further by Hughes (2015). She outlines how the artist Kimbra talks of ‘translation’ instead of ‘arranging’, alluding to the transformative potential of the singing voice with the applied technologies rather than to the actual musical arrangements that the technologies facilitate (p.170).

2.7.3 Composition and arranging with looping

Although not the main focus of this project it is important to reference composition, arranging and song writing in relation to this inquiry due to the performance approach outlined in the methodology (see 3.1), using the Boss RC30 looping technology, (2011, p.1). In this regard there are two main areas of approach within this project:

- 1) Structured performance material; creative decisions of intent, with form, text, harmony, texture, timbre, pitch, tempo, tonality etc. and:
- 2) Unstructured performance material; creative improvisational approaches ‘in the moment’ using text, harmony, texture, timbre, pitch, tempo, tonality etc.

The structured approach of 1), composing ideas and notating those ideas in some form is a pre-performance activity that can be adapted in process and rehearsal and realised in performance. As outlined by Collins (2005):

... since the act of writing music is a product-based form of creative problem solving, stages in the process are additive, and, furthermore, linearity can alternate with recursive process; the analysis of the verbal protocol indicated quite clearly that the composer was involved in a reflexive feedback process with the emerging composition (p.211).

Structuring the performance material provides a certain level of security with relation to performance outcomes allowing time for the problem solving as referred to by Collins. Musical structure and the listener are also of consideration, as discussed by Hugill (2008): “...musical structure can range from the highly ordered to the chaotic, from the formulaic to the randomized. The job of the composer is to make decisions about the structuring principles in order to achieve an effective musical experience for the listener” (p.106).

Hugill links the term ‘structure’ with chaotic and randomized musical expression, using the term ‘structuring principles’, (outlined above) as an effective move towards performance outcome. Within the act of looping there is an element of in-built structuring through over-dub, however the activity can still become chaotic and randomized with or without intention. With the creative and ‘in the moment’ improvisational approach of (2) above, Masters (2009) states:

Despite its importance, creativity remains one of the most difficult of human behaviours to analyse [...] the unconscious and unpredictable nature of much creative processing and the observed persistence of such features as intuition (hunch), inspiration and sudden insight provide innumerable problems for those who seek to investigate creativity under controlled conditions (p.2).

Masters also states:

...musical improvisation is defined as a creative musical process where, on the basis of some form of knowledge and in conjunction with a stimulus or referent, an original work is conceived, generated and performed simultaneously in “real time” without notational reference, as a particularly fundamental expression of the improviser’s uniquely personal creative identity (p.47).

The form of knowledge that Masters (2009) refers to is outlined in her statement that “with age and thus musical experience [...] that suggested inherited factors might also have a part to play in creative musical generation” (p.239). The differing processes outlined by Masters in approach to performance and voice looping, invite exploration with structured and non-structured writing and ideas. This highlights Csikszentmihalyi’s (1999) theory, that “a change that does not affect the way we think, feel, or act, will not be a creative endeavour” (p.316).

2.8 Conclusions and research questions

In his composition pedagogy proposal for music education, Keyes (2013) states that there is a radical pedagogical period of change that has moved electro-acoustic music from a fringe subject to a genre that is now commonplace in music teaching. Instead of favouring one rather than two separate approaches of ‘doing’ and factual knowledge, this requires both to be taught. Keyes considers this approach appropriate due to the advancements in neuroscientific research and the way we learn creatively (p.190). His insightful 2013 paper on teaching, learning, technology and neuroscience was as a result of discussion of writing with technology. Keyes outlines how students can learn to work and play technology on their own, however when it comes to compositional aspects, they need help. He states, it’s not “how you do it, but”:

- *When* to do it
- For *how long* to do it
- What to *combine* it with
- What to *contrast* it with
- What to *layer* it with, and
- How to *develop* it. (Keyes, 2013, p. 190).

Composing with digital technologies is a new endeavour to be considered for most classical and operatic vocalists. With the rapid evolution of user-friendly, reasonably priced hardware and software for constructing music, singer/musicians from all trained and non-trained background have the opportunity to create original works both with pre-determined and ‘in the moment’ live performance. In PCM we have the ‘singer songwriter’. Why not the ‘operatic singing opera writer’?

With relation to ‘in the moment’ live performance, an operatic singer working with vocal looping technology is therefore exploring a number of approaches to singing performance not used in the traditional Western art sense of ‘operatic singing performance’. However this area of technological experimentation and opera can be seen in the works of Malcolm McLaren (1984) with his single ‘Madame Butterfly’, where the full emotive but less intimate sound of operatic voice was recorded with instrumental and technologized sampled sound.

There are therefore a number of main concepts and ideas that arise from this review of literature. In this research I aim to explore new approaches to operatic singing performance combining my own skills as an opera singer using technology. The research questions for this inquiry are:

- How does the relationship between operatic voice and the creative looping tool extend possibilities for innovative approaches to the repertoire?
- How can musical and vocal autonomy be expressed and achieved by an opera singer using looping technology?
- What are the main difficulties and advantages with looping operatic singing in performance?

CHAPTER 3. METHODOLOGY: THEORY AND IMPLEMENTATION

3.1 Introduction

As stated by Nelson (2013), methodological approaches in the social sciences and arts have been in much debate “since the amalgamation of the academy/conservatoire and the university research model” (p. 11). Resulting from this amalgamation are several terms that include ‘practice-based’ and ‘practice-led’ research. Candy (2006) states, “Practice-based research is an original investigation undertaken in order to gain new knowledge partly by means of practice and the outcomes of that practice” (p.1). Candy (2006) further asserts that ‘practice-led’ research is described as being “concerned with the nature of practice and leads to new knowledge that has operational significance for that practice” (p.1). Smith and Dean (2014) prefer the term “research-led practice as it “suggests more clearly [...] that scholarly research can lead to creative work” (p.7).

The ‘practice as research (PaR) model’ of Nelson (2013, p.3) is the chosen methodology for this research, mixed with a self-analysis approach for documentation of process and performance product outlined by Aszodi (2019; 2016), as “reaching an approach that seemed most fit to purpose” (p.2). This approach provides clarification of both creative-work developed and explored, parallel to investigative writing.

3.2 Practice as Research (PaR)

PaR is a relatively new practice in terms of documenting process outcomes. Many theorists have attempted to define this approach. The aim will be to inform and create musically

generative self-analytical data, as relevant to the subject matter. For this project my methodological approach is informed through a 'PaR' (Practice as Research) process (Bannerman, 2004, Nelson, 2013), through creative component, analysis, process evidence and theoretical exegesis. The practice-led research approach as previously discussed is viewed in a slightly different approach by Nelson (2013). The challenges of performing arts research and PaR are described by Nelson who writes that "the ephemerality of the performing arts poses particular challenges to their inclusion in an already contested site of knowledge-production" (p.3).

3.2.1 Performance as research structure

Nelson suggests PaR as being a more appropriate model for the performing arts. This is described by his colleagues as "exceptionally clear and persuasive" (p.7) and outlines a research design for PaR as a 'multi-mode inquiry' with the practice at the heart of the methodology, and the inclusions of product, documentation of process and 'complementary writing' terms outlined by Nelson (p.26). In this research, the 'product' is a twenty-minute performance of three contrasting songs using looping pedal and operatic singing only. 'Documentation of process' includes video evidence to support the process, and includes any relevant music/song scores, miscellaneous support materials and observations of current looping performer singers, with the addition of 'complementary' analysis of the product.

This investigation will comprise the aforementioned PaR approach to include the analysis of performances and rehearsal process and in addition, the documentation of actioned ideas and observations of current looping performer singers, chosen in part due to the newly developing interest and investigation of looped performance along with my personal interest in exploring

current trends in PCM. My own approach is influenced by more traditional training and makes for interesting comparison to the approaches used in other genres/styles.

A PaR approach allows exploration of my own practice and findings in comparison to that of current artists using related descriptors by Hughes (2015) as “technologized” (p.163) and “autonomized” (p.165) vocals, fundamental to the experimental aspects of this research with regard to the the singer using their own technologically created accompaniment in their own solo performance .

Nelson’s PaR approach (2013) outlines the aforementioned complexities of a project as “requiring more labour and a broader range of skills to engage in a multi-mode research inquiry in order to achieve the equivalent rigour of a more traditional process” (p.9). In this instance, the broader range of skills include performance with technology, an area of research that is becoming necessary, due to the increasingly technologized nature of current singing performance and teaching, in all areas of music, including opera. In addition, the broader range of skills includes subject research and reflective writing. Barrett (2014) discusses PaR as a practice led research approach: “The emergence of the discipline of practice led research, highlights the crucial interrelationship that exists between theory and practice and the relevance of theoretical and philosophical paradigms for the contemporary arts practitioner” (p.1).

The analogy of the surgeon, used by Bannerman (2004), in his validation of a PaR approach by professional artists, moves towards a clearer understanding of the importance of PaR as research: “Very few academics would wish to undergo surgery from the expert who had written numerous

books on the social, historical and contextual aspects of the operation, but who had never actually done it, or indeed trained to do it” (p.67).

Performing and creating works self-informs and informs others. An approach to self-analysis with digital technology aids in the regeneration of one’s own skill base, making sense of changing practice. As an opera singer with a professional performance background my skills have been developed through a teaching and learning approach – subject based research and training, with little or no use of external digital technology. As more demands are made on the performer and teacher in all areas of music through the on-going development of these technologies, there is more need for the updating of my knowledge of technology. It is by the ‘doing’ that I inform my performance and teaching. As the technology changes, so too the methodology for finding the most appropriate methods for inquiry, tailored to the research being undertaken.

Smith and Dean (2014) remind us that “there are many rich and innovative ways in which creative practice can constitute, or contribute to, research in the university environment” (p. 1), and that “research carried out in conjunction with the creation of an artwork, can be both similar to, and both dissimilar from, basic research”. They further state that “the complexities involved with this practice can be useful in promoting and developing that practice, when thoughtfully considered, with effective research as the outcome” (p.4).

From a technological perspective, by reason of the ‘human’ factor, Harrison (2014) examines “technologies of music making as special kinds of structures, that both make and are made by the agents who operate within them” (pp.3,4). A robust structure, as previously outlined by Nelson,

with meticulous documentation and reflective writing, allows the adjustment from skilled practitioner to skilled practitioner-researcher (Nelson, 2013). O'Reilly further states that she understands the reflexive approach as having validity and development of rigour, by citing Jones (2007), who favours “the growing use of tools from the arts and humanities for investigation and dissemination of social science research” (p.3). Learning to use these tools can be a vulnerable experience for the researcher as one is using a new skill much connected with their established skill base.

In the context of reflective researcher as music performer, the following quote by Wiggins (2011) outlines what it is to make oneself vulnerable in performance terms:

...part of music making and music learning involves the vulnerability of baring one's musicianship, one's musical understanding, one's whole musical identity to others, often in the context of seeking validation from those one respects. There is vulnerability in knowing about and comparing oneself to musicians who have come before or to standards set by respected others. There is vulnerability in being a musical decision-maker and making one's musical ideas or interpretations public (p.358).

This vulnerability is not only about self-revealing actions as performer/researcher but may also be as contributor to new areas of research. There is a personal area of vulnerability involved in this chosen research methodology, based on gender, age, initial skills training and the use of new technology, or technology 'new' to me.

Within the context of this methodological approach, extracts of manuscripts and audio-visual evidence will be included.

3.2.2 Research Phases

This investigation will comprise six phases that align with the three main sections outlined by Nelson. These include:

Documentation of process

- 1) A search of literature based on the current research findings around the topic of looping technology and other practitioners of that technology.

Current writing and performance around the subject of looping, according to O'Reilly (2012), “locates the topic within a wider context, demonstrating why the study you propose (or have done) is timely and important” (p.37). This wider context provides a strong underpinning for phase two.

- 2) A collection of performance practice data, in practice as research autoethnographic approach.

An informed and self-informed PaR autoethnographic approach requires collating reflections on the day to day practice and use of the technology and written representation of musical ideas (notation) and the collection of performance practice data, including analysis of looping history and current looper performers, relevant audio-visual and associated documentation, such as music manuscript, text and performance ideas. This will assist continuous self-evaluation leading to development of process and ideas.

- 3) The analysis of approaches taken by current autonomized looping artists.

Nelson's (2013) discussion of the articulating and evidencing of a research enquiry states that, when multi-modal, the corresponding documentation and writing are in addition, likely to be multi-modal. In this enquiry the use of music and performance analysis of others provides another form of evidence within the framework of a topic around which there has been very little research.

Product

4) A “one woman” looping performance with invited audience, performing material devised in practice processes.

The product comprises a twenty-minute looped performance, structured around self-initiated activities and discoveries, and influences from previously researched ideas and findings in order to inform performance ideas and future performance ideas of communication. Bochner and Ellis (2016), suggest “Communication is a process consisting of sequences of interactions, and studying these sequences and performances is itself a dynamic, communicative activity” (p.52). The pieces include an operatic aria, a composition of my own writing, and an improvised piece.

Complementary writing

5) A PaR-based written analysis of phases 2, 3, and 4, which leads to:

6) A summation of both data and performance outcomes in PaR based format.

This project will include reflective outcomes, analysis and theoretical exegesis, a conclusion of findings, where appropriate, and complementary writing in thesis form. With my experience as both singer, performer and teacher I will locate my practice in both operatic and PCM lineage.

3.3 Performer comparison analysis as research

There are a number of current vocal artists using live looping in their practice. Nelson’s (2013) PaR inclusion of complementary writing includes “locating practice in a lineage of influences and a conceptual framework for the research” (p.26). The approach of current looping artists will be considered and analysed, as it is an important framework for my current performance practice. My own performance and teaching experience lineage compared with the more recent looping lineage of approaches by current singers, differs through the use of digital technology. It

is important to note that within the singing with technology framework, I am developing expertise with technology, whereas performers with a looping lineage developed over a number of years, such as KT Tunstall, are from this authors perspective, at expert level. However our skills differ but are all developed to a high level in our own fields of expertise. Performer analysis in an area of expertise different to my own can provide information about new techniques and ideas to incorporate into my own practice, informing my creative process.

3.4 Conclusions

As outlined above the ‘one woman’ twenty-minute looper performance will include three contrasting songs, performed for further reflexive analysis regarding musical processes. An area of inquiry will include singer as:

- Arranger (aria from the Western classical canon)
- Composer (own composition) and;
- Improvisor (free form singing).

The following requirements have been outlined for the chosen pieces:

1. Being a short operatic aria with two verses.
2. Having ‘loopable’ harmonic structure (aria).
3. Familiar to my repertoire and voice.
4. A contrast to other choices for the program.
5. A challenge to loop, however, offers a possibility to do so.

The above points are outlined in order to explore aspects of form, style, period, duration (appropriate to concert length), musical and vocal innovation, memory application, pitch,

microphone technique, balance between style and technology, authority with technology and to address the initial research questions (see section 1.1).

As previously stated (2.6.2) the Boss RC30 dual track looping technology has been chosen for this performance as it has a longer recording memory, making it ideal for the repertoire presented for my autonomized live looping vocal performance, as the harmonic structure on which the songs are based varies, sometimes requiring the whole song length of 62 bars, to be recorded and layered.

CHAPTER 4: PERFORMER PRACTICE ANALYSES

4.1 Introduction

This chapter will analyse vocal looping in PCM performance to investigate potential uses within classical operatic singing. As previously stated in current vocal approaches of contemporary looping artists in performance are mainly found in the Popular Culture Musics (PCM), (Hughes, 2010) area of singing. According to Cox and Stevens (2010), classical music established the analysis of music by the end of the eighteenth century. Developments in appropriate PCM analysis, meanwhile, are more recent.

Hill's paper (2011), contains detailed analysis templates developed four years earlier addressing the process and sonic outputs of differing recorded PCM genres and the useful analytical tools relating to this area. The examples below are "encompassing a range of various musical parameters in a concise text-based form" (p.135). Hill's guides to the analysis of PCM recorded performance has been useful within the analytical listening part of this thesis, as he outlines in detail his reasoning for the need of a differing approach for the analysis of performance and genre. Hill's describes:

...a range of musical elements such as sound objects, effects processing, spatialisation and interaction, alongside more conventional elements such as rhythm, harmony, melody, texture and form. There method requires the extension of more traditional aural skills to these other elements (p.135).

In their introduction article "Genres and Categories" Emmerson and Landy (2016) discuss an initial reasoning for the difficulties in electro-acoustic performance analysis:

...part of the reason why structure (and form) has proven so problematic in much electroacoustic music analysis has to do with the fact that a fair share of this music is what

might be called “bottom-up composition”. With this approach the building blocks are the small-scale sound materials, often painstakingly assembled without a pre-formed structure common to many forms of traditional music (p.10).

This statement outlines the usefulness of analysis of current looping singers and their approaches. Exploring current uses of bottom-up composition or writing upwards from the bass line, for example, in comparison to arranging and/or composing with a more traditional approach, is of interest. There are approaches to voice analysis to be considered and combined with looping artists analysis, due to the specificity of the subject of singing in combination with looping outputs. With the availability of newly developing technologies, new analyses approaches are in ‘rapid expansion mode’ describing keeping abreast of new technological innovations and writing about them. Many vocal looping artists combine pre-recorded layered sound with live layers, the analysis of their pieces includes the complex analysis of technology use, creative accompaniment or soundscape and creative vocal freedom.

The following looping artists were chosen for analysis: Theo Bleckmann; Kimbra, Grace McLean; Ed Sheeran; KT Tunstall; and Cleveland Watkiss. The following criteria were considered when selecting the artists for analysis, to maintain a balanced approach with the performer analysis section of outlined methodology :

1. Vocal as featured instrument with looping technology
2. Gender balance
3. Cultural influences
4. Looping technology software/hardware
5. Genre variety and creative looping approaches

6. Use of an autonomous approach playing instrument or voice only
7. Historical lineage of looping (20th & 21st century)
8. Live performance, where possible

The criteria and pieces chosen for analysis provide for a variety of approaches with examples of arrangement, improvisation, composition, rhythmic and vocal variety and song structure for live looping. As a small sample, these examples are for brief reference and analysis only. Where possible live performance is included for comparative assessment of these criteria.

4.2 Performances

This research is made possible by using operatic singing engagement with looping technology in performance. Analysis of approaches taken by current looping artists is undertaken to provide information about techniques and ideas to incorporate into personal practice, informing creative process. The jazz approach by Watkiss (2011) in song form, or Bleckmann's (2015) classical stylistic mix and arranging, vary to my own in terms of use of operatic voice and repertoire. The following exploration is of the main similarities and differences in approach to inform my own practice, and to provide a contemporary frame of reference. Examples of operatic looping are few. Bleckmann (2018) arranges classical song for looper but does not use operatic vocal quality per se.

4.2.1 Performer evaluations

The analysis of looping artists aims to create a reference for the genre and stylistic comparisons and techniques similar and dissimilar to my own practice. The following criteria are a combination of Hill's (2011) criteria for PCM, and provide a structured breakdown of analysis:

1. Artists & Works (songs - compositions - arrangements-improvisations)
2. Technology
3. Style - genre
4. Vocal range - pitch - quality
5. Rhythm
6. Vocal play - textures - qualities - mic technique - structure
7. Average bars per loop - pulse - metre
8. Instrumentation - autonomy
9. Creative vocal approaches - default quality.
10. Accent / dialect and phonetic language / vocal expressions

The work of the following looping artists and their approaches has been explored in the following sections.

4.2.2.1 Theo Bleckmann

Theo Bleckmann (2008), vocalist and composer, was born in Dortmund, Germany in 1966, and now resides in America. He creatively engages in original improvisatory compositions and the arranging of other artists compositions in both classical and non-classical styles.

Pieces.

- 1). ‘Douce Dame Jolie’ (2018) (Sweet Lovely Lady).

In *‘Douce Dame Jolie’*, composed by Guillaume de Machaut (circa 1300), Bleckmann’s performance is in a live stage situation ([earrelevantmusic 2008](#)) using an ‘Echoplex’ and ‘JamMan’ (2018) rack mount for looping. Willis-Lynham (2015) describes Bleckmann’s crossover stylistic

approach is that of early folk styling and jazz (p. i). '*Douce Dame Jolie*' is a medieval song traditionally played by an early music ensemble and vocalist. Bleckmann begins with a simple humming drone of four bars on G3. He builds loops using a horizontal ascending harmonic approach. Bleckmann utilises 'music box' and soft '*glockenspiel*' sounds in accompaniment. His vocal de-fault styling is a light PCM folk style chestmix (McCoy, 2004, p.117) using *legato* phrasing. The initial tempo is around 50 bpm, increasing to 63 bpm later. The simple droned loop on G3 allows for pitch stability and tempo manipulation. Bleckmann's use of the French language colours the voice in a warm tonal approach, due to a predominance of lip rounding in the language articulation. He creates binary form verses and instrumental moments using fricative sounds on the breath and lip/tongue rounded harmonic 'overtone singing'. His sense of layered harmonic texture in the looped accompaniment increases. The song melody moves between F#3 and G4 pitch range. Bleckmann introduces subtle vocal fricative rhythms towards the middle of the song, using and maintaining a faster tempo. Overtone singing is used at the coda, stopping the loop whilst continuing this vocal texturing.

2) 'Dido's Lament' (2013).

This work combines Dido's Lament (composed by Henry Purcell, 1688) and Teardrop by Massive Attack (composed by De Naja, and Fraser, Marshall and Vowles 1998). It was a live stage performance ([Earrelevantmusic 2013](#)). Bleckmann uses the Electro Harmonix 4-track 2800 looper. He uses both the classical aria with a PCM piece, arranging and adopting approaches vocally, that cannot necessarily be categorised according to classical or PCM styles, until the transition to Teardrop which is a more PCM chest-mix voice quality and feel. His vocal range in the Purcell section is positioned between G3 and G4. In Teardrop, it is positioned lower at around C3 and

Eb4. After a brief harp introduction, he continues with autonomous vocal on looper, then transitions, using harp, keyboards and drum samples later in the piece. Bleckmann's initial loop is 4 bars of common time which is standard throughout the pieces. When re-enforcing the vocal harmony of the ground base, he re-enforces the perfect cadences with a suspended 4th ending. There is an interesting falling chromatic figure as *ostinato*. On the final loop he uses simplicity with tonic and dominant notes.

Bleckmann dominates with phonetic lip rounded sound, 'ü' and low resonant 'dòm', following with original text from both pieces. There is a clean stop transition in the pieces, before the musical PCM 'feel' begins for the next song. The coda to this performance is performed as a freely improvised chaos with a clear finish to the looping and instruments/voice in unison. He uses a wide-ranging palette of vocal textures, from both originals, moving fluidly between styles.

4.2.2.2 Kimbra

Kimbra is a PCM vocalist and actor, born in New Zealand in 1990. She has written three albums to date, currently, and uses looping technology in a number of her live performances. Advancements in technology and looping technologies provide her with new approaches to composition.

Pieces

1). 'Settle Down' (2010).

In 'Settle Down', performed live at Spotify House ([Segundo Paladino 2012](#)) Kimbra is using the Voice Live Touch 2 TC Helicon unit and a tablet, mounted at hand height. She begins with a

simple rhythmic ostinato of gentle vocal beatboxing, on a four-bar loop at approximately 84 bpm, using plosive and sibilant fricative voice qualities to build excitement. From the top down, she loops horizontal harmony layers between A3 and E5. She introduces a ‘thin fold’, higher pitched wail quality, using a scalar descent on this sound to fill the middle harmonic area adding textural variety. The accompaniment is rhythmic with a syncopated groove. She stops and starts the loop track to accent binary forms and improvised sections. She builds the vocal by improvising on established melody, introducing stronger emotive vocal qualities including cry and belt at louder dynamics. Kimbra returns to improvised parallel vocal patterns around E5, with top down, high to low harmony lines, for the coda. Her physical movements reflect the general ‘groove’ of the song. She ends the looper and sings one short note after the accompaniment has stopped, best described as a musical full-stop. This performance was a live outdoors performance.

2). ‘Plain Gold Ring’ (2010).

In ‘Plain Gold Ring’, performed live at Sing Song Studios, Melbourne ([kimbramusic 2012](#)). Kimbra, as lead vocalist, uses a small live band of drums and guitar. Her vocal looping approach is sparse, utilising various digital effects. She begins with a simple loop of two bars in the key of A minor. The pattern is sung on chords one and five across the triad. Kimbra uses the phonetic sound ‘oh’ (ò) between the pitch range A3 and E4, resulting in a fundamental looped pattern throughout the song. Her vocal style is PCM with a light glottic onset in chest-mix. The guitarist joins, mirroring her vocal loop, playing it as a parallel melody line. The drummer plays a steady light rhythmic groove on beats 2 and 4. After the bridge passage, Kimbra begins adding harmonies in parallel up to an A4 in pitch, layering further with descending blues styled patterns to add

texture. She moves into more primal ‘belt’ vocal sounds, adding scat like passages to A5 pitch, in a ‘call and response’ form, ending with a short two bar phrase after stopping the loop and the band.

4.2.2.3 Grace McLean

Grace McLean (2018), was born in the USA in 1991. Her performances to date have been with folk group ‘Grace Mclean and Them Apples’ and live solo looping appearances.

Pieces

1) ‘Natural Disaster’ (2016).

In ‘Natural Disaster’, performed at the Lincoln Center ([Lincoln Center 2016](#)). McLean’s looping technology is the EXH 4 track looper (2018). She begins with a fast ‘*ostinato*’ line accompaniment of scat melody at 120 bpm, on an aeolian mode scale. McLean uses a vocal range of two octaves, F3 to F5. This method of scat as rhythmic guide works well, providing a strongly guided looped accompaniment to sing with. McLean plays with phrase elongation between half time, returning to double time bar lengths over the *ostinato*. Her articulation use is repetitive using plosive bilabial ‘boh’ (bœ) sounds, nasal ‘n’s’ and dental ‘d’ sounds. An additional loop line is created, simple melodic lines based around the root and fifth of the key of Bb, moving Bb3 -F4- F3. The piece is a simple binary form with an altered melodic coda. The vocal in musical theatre style, is similar to a ‘patter-song’ written in operetta by Sir Arthur Seymour Sullivan (1842), for example. McLean then facilitates repetitive short melodic phrases to create rhythmic and harmonic interest and variety. Her live performance is theatrical and humorous, making use of pauses to re-introduce looped lines.

2). 'Reckless' (2015).

'Reckless' is performed in a room/studio setting ([Grace McLean 2015](#)). An original piece, it is unclear if McLean's improvisational approach is pre-structured or not. Her looping technology (EXH: 2018) can be clearly viewed. McLean uses a short two bar phrase in 4/4 time to loop at approximately 100bpm. A simple verse chorus form is used with the first three loops on similar phonetic vowels ooh (u:); ah (a:); and oh(ò), using a gentle glottic attack for stronger rhythmic and tonal clarity. The vocal range is between F4 and Db4. The second and third layers are harmonised using a similar approach, between Ab3 and Ab4, moving into a higher range. She starts the verse and adds a beat-box vocal on beats 1 and 3 of each bar. There is a pre-chorus section where she adds high harmonies. The main chorus has a melody to Db4. Mclean then introduces short repetitive melodic vocals to Eb5, leading into an unaccompanied coda. This song was more serious and less theatrically delivered, due to the ballad style of the song and intention.

4.2.2.4 Ed Sheeran

Ed Sheeran (2018), was born in England, UK, in 1991 and is a singer, songwriter, guitarist, record producer, and actor. He released his first independent tracks as a solo artist in 2004. He is one of the largest selling artists internationally.

Pieces

1). 'Shape Of You' (2017). Studio setting.

'Shape Of You' is a standard pop ternary form of verse, chorus and bridge passage, using pentatonic minor, and sung in a live interview situation ([Music updates 2017](#)). Sheeran uses a custom-built unit called a 'Chavvie Monster' (Sheeran: 2017) with a Roland FC300 MIDI

controller. He creates a four-bar loop pattern materialising as accompaniment of sixteen bars per section. The plug-in software is Mobius 2 VST hosted by the Ableton Live software. Sheeran begins by establishing a rhythmic pattern on the guitar followed by a simple single line melody on synthesized keyboard. He adds two layers of parallel vocal vowel melody and harmony using the phonetic vowels ooh (u:) and ahi (ai). Sheeran layers a second track with a bass strum at lower guitar pitch. Sheeran sings the song over the established loop. He varies the two tracks, with the full version under the chorus and the simpler bass strum loop under the verses. His vocal approach is standard PCM head/chestmix using verse chorus format with text repetition at the chorus. He uses pitches from A3 to E4.

2.). ‘You Need Me, I Don’t Need You’ (2012).

‘You Need Me, I Don’t Need You’ is an earlier live looping video performance undertaken in a recording studio (Hinge Studios), ([The Warner Sound 2011](#)). He uses the Boss RC30 looper pedal with a similar ternary pop song format to the one used in ‘Shape of You’. He begins by four-bar loops with two-bar vocal ‘whoops’. A drum sample is added to the loop followed by vocal ‘beat boxing’, ‘yeh’s’, guitar chord progression and melodic strum. Sheeran then performs a vocal rap in chest-mix voice between Eb4 and Eb5. He adopts accent change between ‘estuary English’ and influences of a Jamaican accent, reflective of the multi-cultural influences of his community in the UK. Sheeran stops the loop intermittently, defining form sections within the song, adding vocal harmonies when returning to looped accompaniment. He stops the loop towards the end of the piece using only live mediated voice and guitar. His work is autonomous as in voice and self-played instruments.

4.2.2.5 KT Tunstall

KT Tunstall was born in Scotland in 1975. She was one of the first singer, songwriter performers to use vocal and instrumental looping as her brand of preferred ‘liveness’ in her shows, Richardson (2016, 88-89).

Pieces

1). ‘The Wee Bastard’ (2009).

In ‘The Wee Bastard’ Tunstall is demonstrating her looper pedal, aptly named the Wee Bastard, in a studio situation ([kttunstallofficial 2009](#)). This was a group improvisation of vocal textures only. Tunstall begins with a two-bar looped guitar body hit at approximately 102 bpm, on each beat of a four-beat pattern. She uses a fricative ‘ts’ snare drum sound on the off-beat. Five male participants then layer this loop with: click and cheek slap; low chest mix (F3) ‘yum-oh’ on the anacrusis of each bar; syncopated in mid-range ‘on-ow-st’ phonetic sound using a nasalised texture; ‘duck’ on beat 3 in a nasalised ‘twang’ sound; spoken ‘oh-yeh’ on the anacrusis; and finally Tunstall finishes the improvisation on high vowel sounds around F5.

2). ‘Black Horse And The Cherry Tree’ (2006).

In ‘Black Horse And The Cherry Tree’, performed on the Jay Leno show ([Marcus.W 2014](#)). Tunstall begins a simple two bar loop with a guitar body thump on all four beats. She proceeds with layering using a syncopated, light guitar string rhythm followed by a ‘vowel dominant’ – ‘woohoo’, on the anacrusis of the two-bar loop at G4. She claps on the four beats of the bar, continuing a layered loop which underpins the song. The form is ternary with an improvised PCM

bridge over sixteen bar sections. The vocal texturing uses chestmix speech quality with occasional high range improvisations, more vowel based in approach.

4.2.2.6 Cleveland Watkiss

Cleveland Watkiss (2018) was born in England, UK, in 1959. As a highly successful jazz singer, Watkiss has integrated looping into his music genres, compositions and performances. He often favours an autonomous vocal approach with a variety of ensemble instrumental players, including classical orchestra (Watkiss-coriensun25, 2008).

Pieces

1). ‘Improv 1’ (2010).

In ‘Improv 1’, performed at The Wardrobe, Leeds ([Ashley Karrell 2010](#)). Watkiss uses a microphone mounted TC Helicon Touch looping module. This module is specifically designed for vocalists. It can be controlled in a higher position than a pedal and has vocally user-friendly affects. He begins with a free style vocal improvisation on microphone, which lasts for approximately two minutes and fifty seconds before introducing looping. He uses quiet dynamics with very subtle African drum styled rhythm. In the (NWE: 2018) he said: “The most frequently used form in African musical traditions consists of the use of *ostinato*, or repeated short musical phrases with the accompaniment of melodic-rhythmic patterns” (Par 9). Watkiss uses short syncopated melodic patterns that reference the pentatonic scale. Vocalisations are achieved by using plosive ‘b’ and nasal ‘m’ and ‘n’ sounds. He varies his tonal registers between a light chestmix followed by *falsetto*. Watkiss uses vocal guitar imitations using gentle ‘twang’ sounds, tightening certain pharyngeal vocal tract areas for brighter resonance. It is difficult to pinpoint bars, time and tempo

due to the use of pause, silence and rubato in the free-form approach to improvisation. He layers short melody lines using top down pitches in a contrapuntal manner. There is a stronger sense of cut common time in a tempo of 80 to 100 bpm as the looping begins.

2). 'Torch Of Freedom' (2010).

In 'Torch Of Freedom', performed at The Wardrobe, Leeds ([Ashley Karrell 2010](#)). Watkiss begins a short two bar loop of scat around the pitch of A3, using dental 'dong' and 'dek' sounds. The tempo is approximately 112 bpm. The song form is eight bar binary form. He builds the harmonies bottom-up from underneath, and then above the melody line. He adds a sustained descant melody in male *falsestto* range around Ab5, similar to soprano range. Pre and leading into the coda, he adopts a harmonically complex scat pattern utilising intervals of major 6th and 7th's around *Aeolian* and *Dorian* modes. There was some 'harmonic bending' incurring dissonant intonation in the overlapping loops. He ends the loop track abruptly and cleanly with the last word of the song.

4.3 Summary of artist analyses

As outlined by Connor (2016):

It may seem that the real or "natural voice" is in danger of being lost amid this cacophony (from Greek, "bad voice") of dubbings and doublings, enhancements and augmentations, voice-overs and undertones. But these devices can all be thought of as extensions of the powers that are already implicit in the voice, the human feature that holds the sweetest and most intoxicating promise of self-transformation (Connor, 2016, as cited in Kayes and Fisher, 2016, p.16).

The analyses determined that the approaches to the works performed varied greatly. However, in all cases, the devices used, as outlined above by Connor, were indeed extensions of the powers

that are already implicit in the voice, as stated above. All evidenced agency within their looping performances, with reference to the virtuosity with which they approached the skill of technology use, voice, song writing, arranging, improvisation and vocal texturing and expression. The looping technology used was varied according to taste and performance requirements, solo or band performance, and possibly for user-friendly and/or economic reasons. Some preferred pedals, others, hand height units. Depending on the situation, looping technology was used in tandem with other units such as tablets with stored soundscapes, for example. Without the feedback from interviews in this instance, it was not always easy to assess which technological effects were used. In general the preference was for effects on the accompanying looped sound track, leaving the solo or main performance voice reasonably free of effect enhancement other than reverb, doubling of harmonies or pitch enhancement. All the artists used short initial looping patterns, usually of two, four or eight bars duration.

In general there was a default vocal quality of speech quality singing and light chestmix, a fundamental of PCM singing style. This is logical as more intimacy, affect utterance and textural clarity could be attained on the microphone. Most of the vocalists played with range. The mid-range area was favoured, keeping the extremes of high and low pitch to a minimum for added impact, improvisation and emotive development tools. Kimbra, McLean and Tunstall used more dynamic range variety, moving into strong high energised belt quality at times. In contrast, Watkiss and Bleckmann used the pure tone throughout the range (2.1) outlined by Davis & Chapman, (2006), with *falsetto* use.

Watkiss used the most vocal range similar to that of operatic singing. It was difficult to discern if the G2 pitch was digitally acquired, however, after listening carefully it seemed that he had a natural '*basso profondo*' utility that moved smoothly through his range to a well-developed *false*setto. Watkiss (2008) worked with orchestra as solo vocalist, however did not always utilise looping technology. All the singers employed impressive uses of range. The use of sustained melody line in high pitch/tessitura more frequently attributed to operatic singing, was not as common. Other than personal taste or an issue of training and stylistic acceptability, this may also be due to the issue of hearing ones' voice back during looping. The extremes of range tend to be more difficult to hear and harmonise whilst looping, due to the high frequency resonant feedback. There was a consistent approach to using low pitch bottom-up layering of loop harmonies and vocal effects.

4.3.1 Rhythm and phrasing

Rhythm can be defined in a number of ways. There is the notated rhythm of song predominantly found in the scoring of music and the interpretation of rhythmic style and genre, such as simple, compound or poly-rhythmic approaches. In many instances vocal rhythm consists of manipulating lyric and text to define rhythmic contrasts, textures and emotive expression. In Neely's (2017) YouTube blog, he outlines the difference between classical musicians who 'react' to the pulse of music, as opposed to PCM performers who 'feel' it. He discusses rhythm in terms of 'phase locking' with a distinct onset of sound. In contrast classical vocalists/instrumentalists favour a transient or soft attack, often attributed to the types of instruments found in the orchestra. When using this concept in the analysis of the above outlined performers, it was the jazz oriented styles of Watkiss and Bleckmann that used both approaches. Bleckmann expressed a variety of styles including classical as 'autonomized performer'. Although all performers played with a

variety of rhythmic patterning, Kimbra, Sheeran and Tunstall worked more with rhythmic dissonance (flam) as a de-fault approach.

There was consistency in the use of short loop recordings, generally in common time of four beats per bar, or cut-common time with a feel of two beats per bar. Predominately there was a two, four or eight-bar loop established with these time signatures. The indication was of the utilisation of simple chord progressions (vertical) with more complex use of harmonies within the chords (horizontal) on the melody line or as improvisation. A variety of pulse/meter was used by all. However, Watkiss and Bleckmann were more likely to use pauses and rubato. This is less easy to do with looping technology when using a pre-recorded set rhythm.

The phrasing approaches used by all artists varied according to style, genre, tonal onset, glottal and textural weight, emphasis and breath use. Overall sustained phrasing was explored more by Bleckmann, McLean and Watkiss. Soto-Morettini (2006), discusses how PCM singers use less sustained phrasing, saving it for the big emotive moments. This approach is more commonly used in ‘power ballads’ and songs using ‘belt’, similar to the approach taken in operatic singing whereby the use of melodrama is a more utilised feature. Interestingly, with embedded loops for ‘vocompaniment’ (a self-devised term) the use of vowel sustaining in phrasing featured more frequently. For further information on vocal phrasing see (Soto-Morettini, 2006, pp.63-64)

4.3.2 Vocal play

The vocal play of texture, dynamics, pitch, vocal quality variety and vocal structuring of the changes in form within the songs was highly utilised. This was less apparent when an

instrument could provide additional rhythmic and textural support. The use of ‘affect utterance’ and phonetic nuancing was used more by the jazz stylings of Bleckmann and Watkiss. Kimbra used tonal vocal tract resonance colouring, “vibrating air in the spaces of her mouth” (faceculture, 2012). Temporal consonant use varied greatly between singers and style, contributing to the textural sound of the lyric or phoneme. In addition the subtlety of the quantized consonant sounds, in some instances created rhythmic variety. Kimbra uses them with great variety as ‘interplay’ within the song.

4.3.3 Autonomy

Vocalists looping voice only, or looping whilst playing an instrument, with the addition of digital programming, is an example of performance autonomy. With his use of band Bleckmann still utilised moments where his voice looping was vocally autonomous, re-introducing the instruments later. In general the performances of voice only looping seemed to encourage more creative play and variety vocally. In the case of Mclean, her accompanying loops were simple whereas the song would be more complex. In contrast Sheeran would spend time building a fairly complex looped accompaniment and the song less complex in vocal texture and form.

The variety in creative vocal play and approach between each singer was immense. There were some approaches such as beat-boxing, for example, that varied, possibly in relation to the performers default genre but also in response to tempo and style. Watkiss uses a gentle form of beat-boxing, tonally like a tom-tom drum. In contrast Sheeran’s approach used a strong drum kit flam styling where the listener can differentiate snare or bass drum. In addition the differences in rhythmic use influenced rhythmic choices including the folk stylings of Tunstall, playing on all

four beats with an emphasis on the first beat. Syncopated rhythm was most commonly used by all. A more complex polyrhythmic approach was used by Watkiss.

One of the strongest features of PCM looping approach by each artist, was the use of consonant variety and rhythm. As with Neely's 'phase locking' and 'flam' distinctions of onset of tone, the use of consonants in the differing rhythmic approaches of the artists outlined exposed phonetic temporal and quantal dictional variety. The energy and length of consonant sounds/phonemes in lyric or text improvisation interacted and affected the rhythmic structures of the loop. The quantal energy used could be at both articulatory and/or vocal fold adduction levels. In contrast vowel articulation was a mixture of natural (like speech) and generally less open in vocal tract shaping, unless using 'belt' or *'falsetto'*.

4.4 Conclusions

My overall subjective impression of the approaches taken by the selected looping vocal artists is one of creative movement away from that which is genre or style specific. Looping technology of all types has afforded the vocal artist a new palette of creative tools with which to mix and express what influences them and their creative ideas, through autonomous vocal play. The following quote by Kaiser (2013), sums up my impressions so far:

The technology interfaces with the human user as does the user with the technology. This multi-directional flow has a role in the fluidity of musical identity: the artist's conceptualization, articulation and expression of their artistic individuality as well as ideas of cultural, genre, community and lineage affiliation they might share with others with whom they similarly identify (p.9).

As stated in the introduction of this thesis, singers are being presented with an opportunity for empowering virtuosity, to develop their singing with technology and to have more control over their sound and expressive compositional/performance outcome. The use of technologies such as loopers encourage more vocal play. The findings/observations made of current practitioners work has provided useful material to reflect upon in terms of my own practice, outlined in the following chapter. There were a variety of approaches and options adhering to stylistic comfort zones and/or exploring creative vocal and musical options through innovative play, providing a rich source of data for my own practice.

The following observations were made in summation of outlined looping artists:

- With intonation and vocal texture, the sound qualities chosen by the individual artists gave the overall texturing and nuancing with each piece.
- Choices were made of vocal weight, such as thin fold, thick fold adduction, with mix and dark, mid or bright vowel use. Articulations of vibrato, straight tone and consonant use were used for enunciation of rhythm and emotive content.
- Using attack, sustain, release and decay as paralleled to vocal onset, influenced by instruments, rhythm, drums, cultural background and aesthetic choices.
- Rhythmic effects and choices of vocal orchestration varied. Tunstall used the high-mid-low pitch aspects of a drumkit, whereas Watkiss tended towards the emulation of mid low-pitched African drum stylings. Bleckmann used tonal variance with '*messa di voce*' dynamic changes. Kimbra aimed to 'convey the record' aesthetics with use of effects. In addition Bleckmann, Kimbra and Watkiss used the modernist notion of exploring discordant moments. Kimbra described them as melodies with tension that resolved (faceculture, 2012).

- Watkiss performed with a more predominantly purist vocal aesthetic, less used by the other artists. His vocal approach has a more minimalist basis for devising solo voiced ideas. He used more variety in his phrasing, combining rhythmic variance as more commonly used in PCM singing with a more classical legato approach.

CHAPTER 5: CREATIVE WORK, DEVELOPMENT AND PERFORMANCE

5.1 Introduction

My performance development began by exploring a number of song/repertoire options, making my final choices later in the process. Initial work with song arranging, composition and free-form construction was dictated by my aims with each piece. By following the guidelines set out by Keyes (see 2.7), I was able to plan structures for approaches to song arranging, composition and free-form song quickly. The process was manageable due to my previous music training experiences, building skills with music theory and analysis training.

The development and composition stage began six months prior to the performance. The initial aim was to explore how to replicate an operatic aria using looping technology, created from vocal orchestral/piano accompaniment and faithful to the original arrangement found in *Ricordi* (1973). To add interest within the harmonic structure, simple vocal music motifs were explored. A number of arias were considered, including Purcell's 'Dido's Lament' and 'Cloris Sigh'd' (anon), before choosing a *Donizetti* aria, '*Convien Partir*'. The aim was to interpret as close a version of the original aria as possible. Additionally, text options were explored, settling on a previously self-written poem to use as text for the composition. In addition, to improvise/create/construct a piece in the moment was considered a good contrast to the other two choices, as discussed below.

The looping technology used in this research process and performance is The Boss RC30 dual track looping pedal hardware technology (see 3.3). In a review of this looping pedal, Charupakorn (2011) states that it has a large recording capacity of three hours or ninety-nine phrases. This was longer than that found in other free-standing looping units explored such as the TC Helicon Live

Touch 2 unit (a unit specifically designed for the singers use). For example, the chosen aria ‘*Convien Partir*’ has a number of differing harmonic progressions, requiring the binary form of the aria length of 33 bars, to be recorded and over-dubbed in order to perform the melodic line of the piece, as originally composed by *Donizetti*. The longer recording memory of the Boss RC30 was ideal for the classical repertoire presented for the planned autonomized performance.

Although computer programmes such as Ableton Live have, theoretically, endless loop time options, and an “intuitive performance interface”, (Perison, 2002, p.109), the Boss pedal suited the current research purposes for a shorter autonomized performance with immediate ‘in-the-moment’ response, without pre-recorded sound other than overdubbed tracks on the looper in real time. Multi-track looped recordings could have been used, however due to the limited scope of this investigation the autonomous ‘live’ approach was explored.

The space performed in was built specifically for mediated performance, with resonance acoustic damping. The looping technology was connected to the in-house sound system with the addition of foldback monitors. The configuration used two Shure SM 58⁷ contact vocal dynamic microphones, one set up for looping vocal accompaniment and the other for song performance. For further discussion on microphones see (Holmes, 2002, pp.27-29). A video recording was made of the performance, with invited and public audience to observe.

⁷ The Shure SM 58 is a professional cardioid dynamic microphone commonly used in live vocal performances.

The creative performance element of this thesis took place in the MMCCS Drama Theatre, Macquarie University on Wednesday 25th July 2018 at 12.45pm. It was titled 'Flipping and Looping the Operatic Script' (see appendix 1a, 1b). In this exegesis the exploration of artistry as operatic singer with looping technology was to research how musical and vocal autonomy could be expressed and achieved by an opera singer using looping technology, in contrast to the established approaches taken by PCM singers. The relationship between operatic voice and the creative looping tool extends possibilities for innovative approaches to the repertoire.

As previously outlined in section 3.3, three pieces were selected for performance. In line with the initial research questions the songs explored aspects of form, style, period, duration and musical and vocal innovation. Other considerations were around pitch, microphone technique, sound balance between style and technology and authority/autonomy in technology performance use (see section 1.1).

I have chosen to cover the findings for each piece rather than separate areas of rhythm, vocal play and autonomy, as used in the analysis of current looping artists, due to the analysis of my own looping practice being related to the research questions aimed at my own practice.

5.2 Song one – '*Convien Partir*' (Donizetti)

Song one is an operatic aria of repeated binary form, with a modulation into coda with second time cadenza. *Convien Partir*, as described in *Kobbe's Complete Opera book*, is from the opera '*La Fille du Régiment*', music by *Gaetano Donizetti*; text by *J.H. Vernoy de Saint-Georges* and *F. Bayard*, 1840. The lead character, Marie, is farewelling the regiment that she has known

and grown up with from childhood, with a lament. (1976, p.465- 466). This traditional repertoire was selected in response to the genre description of opera.

5.2.1 Arranging process

Final song selection was initially a process of elimination from a number of selected pieces. Aria choices such as ‘Dido’s Lament’ (Purcell 1683–1688), did not fulfil the above outlined five main objectives (see 3.3), as appropriate looping material. As a ‘ground base’ composition, it already contained cyclic compositional elements in the bass line. I therefore deemed it unsuitable to the research aim of using the original notated structure to arrange for looping due to its compositional cyclic pattern.

The guidelines of Keyes, previously outlined in 2.7, were used to construct the arrangement, considering:

When - its place in the program; *how long* - should the whole aria be looped, or could appropriate cuts be made; What to *combine it* with – which effects would work with the piece; What to *contrast* it with –whether to parallel the harmonies or use a counterpoint approach; What to *layer* it with – within harmonies and vowel choice/use, as appropriate to the ‘*legato*’ style of the Italian language aria; How to *develop* it – what additional motifs or counterpoints to develop the drama and natural arc of the aria build. I chose to name the solo voice layered accompaniment the vocompaniment, outlined on page 49.

The process began with the analysis of the harmonic, melodic and rhythmic structure and form, experimenting with ideas on the technology. This was followed by ideas of notation taken from listening back to audio visual recordings of my own practice. It was possible to write a temporary

score in treble clef, transposing all the accompaniment melodies for appropriate soprano voice range. The form of the finished piece was a repeated binary, as with the original aria, using a similarly written *cadenza*, to the aria, at the *coda*. In order to loop an equal number of bars the length of the *coda* was cut by two bars. The keys remained the same, beginning in F minor and modulating to F major in the B section.

5.2.2 Performance

The initial rehearsals and final dress rehearsal worked to plan. PA and microphone levels were balanced. According to required outcomes the looping pedal was successfully operated. The chosen effect [4. Tempo delay] was selected and appeared after the initial loop, as playback. This was to create a more theatrical styled environment for extra emotive atmosphere. ‘*Rubato*’ was used to avoid having to stop the loop, for *coda*’s and *cadenza* moments. The initial loop was on an ‘ee’ (i:) vowel, loop 2 was ‘ooh’ (u:) followed by loop 3 on ‘ah’ (a:). The variety of vowel use was to create textural interest. The performance is available at the following link: [Performance 1 “Convien Partir” Donizetti](#).

5.2.3 Findings

The tuning and entries were hesitant as the use of ‘tone onset’ was not as successfully synchronized as in rehearsal. In performance, the song began with a slower tempo than rehearsed. The use of vocal textural variety to build vocompaniment interest and emotive arc worked as intended. Lack of dynamic equalization leading into the emotive *coda* resulted in the *coda* becoming reliant on volume to create impact. Some hiatus was experienced between tempo and subsequent ‘over-dubs’, due to lack of secure synchronicity between looping pedal and tempo. The

use of *rubato* balance with each consecutive layer worked acceptably, but required more practice. In the performer analysis, (see previous chapter 5.1) where ‘stop-loop’ using silence as an effect, instrumental support moment, or to trigger an alternative looping channel, could have been employed. On observing the performance video the voice was at times un-balanced on microphone, needing further exploration with microphone technique and onset energy awareness as discussed by previously by Hanrahan (2012), (see 2.1). The musically sparse interpretation was interesting as the hesitancy of performance contributed to an increased feeling of vulnerability. Further subtle layering of harmonies could have been applied without losing the sense of the sparse atmosphere aimed for.

I used a falling *ostinato* pattern in the aria, similar to the approach used by Bleckmann in his version of Purcell’s ‘Dido and Aeneas’ aria. Lack of resonant tone in my aria was due to a combination of lack of mic balance/technique and a distrust of the resultant sound in the foldback speakers. When singing ‘*Convien Partir*’, I held back vocal tone and resonance, favouring a more ‘driven’ tone (increase in vocal sub-glottic pressure) in the upper range. (It was noted that this was similar to Bleckmann’s occasional lack of resonant tone which may have been a tonal colouring choice). The aria coda lacked clear synchronicity between the looper and vocal microphones. Transferring work from practice studio to performance environment challenged listening skills and P.A balance. The final coda was un co-ordinated in terms of ending the overdubs at the appropriate point. In comparison, Bleckmann’s version of his aria was much more synchronised, due in part to his well-practiced skills and cyclic aria ‘form’ compatibility with looping technology. Finding synchronicity of tonal onset and rhythm had been easier during process practice with the addition of vocal rhythmic support.

The decision to loop thirty-three bars was ambitious due to intonation/pitch maintenance. Keeping relative pitch on a short phrase four-bar phrase is more manageable than one multiplied eight times. Interval drift as outlined by Mauch et al. (see 2.4.1) occurred. When rehearsing, the ability to stay on pitch over an extended loop improved consistently. Under performance conditions my tuning was compromised for a number of reasons. Tuning with a long-looped accompaniment increased the need for elite vocal ability with pitching skills. To help solve this issue I should have used two microphones in home studio rehearsal. In summation, I believe it is possible to use extended loops with certain operatic repertoire with some harmonic compromises. I wish to explore this in more depth. Singing and song construction/arranging techniques need to be more balanced with that of working with technology, including the PA and microphones. The main focus in process had been voice, music and looping technology, omitting consideration of how varying environments and PA systems are instrumental to the whole performance outcome. I believe that there is great opportunity for creative vocalisation to be explored in the area of aria singing and looping using improved use of the technology.

5.3 Song two – ‘Magpie Totem’

As with ‘*Convien Partir*’, this constructed looping piece was written later in the process after much experimentation with the technology. There was initial indecision regarding topic choice. Lyric writing ideas led to the use of poetry. Having recently co-workshopped an opera about Australian Aboriginal totems and memories, the decision was made to set a self-authored poem to music. The piece was titled Magpie Totem, (Appendix 2.b) The poem was a section from an opera in development called ‘Magpie Memories’. ([Link: Looping Magpie Memories](#)).

Originally spoken in workshop, the poem translated well to a music setting providing an opportunity to use additional magpie bird-song atmospherics on the looped accompaniment through the use of my mobile phone. The operatic form of 'through composed' score was continued. The approach was similar to contemporary classical art song and opera of the twentieth and twenty-first centuries, whereby the use of a more poetic text using metaphorical references was combined with through composed music using varied soundscapes and more complex chordal/harmonic progressions.

5.3.1 Aims

The aim with 'Magpie Totem' was to explore how looping technology could be utilised as a creative writing tool through both pre-constructed and improvised vocal ideas. The approach to song two contrasted with the aria, where simple harmony lines were looped using traditional romantic period harmonic chordal structures within an existing score. An additional aim was to create a contemporary operatic emotive aria, interpreting the text in combination with an emotive arc development. The approach was more 'polyvocal' (see section 2.1) using a wider range of vocal qualities within a predominantly operatic vocal set-up on the main melody (see section 2.1). The form was fundamentally 'air and variation', as dictated by the strophic verses of the poem.

5.3.2 Composition arrangement process

The composition approach followed the guidelines of Keyes (2013), as was used in the construction of *Convien Partir*, (see section 2.7). *Magpie Totem* began with a chord progression in the key of E harmonic minor, that could be looped. The melody was constructed through vocally improvised ideas, saving recordings of those ideas prior to setting the text. Having decided on a chord progression notational rhythmic and melodic pitch ideas were used to set the text. An echo

and response idea developed between accompaniment and melody, to invoke a sense of memories past, present and future. The sparseness of the looped accompaniment of this aria was a conscious choice, aiming to evoke a spiritual dimension reflecting that of the magpie as guiding figure.

It was possible to write a temporary score in treble clef, transposing all the lines for appropriate soprano voice range. Once established choices had been made, the sounds of magpie song were added to increase atmospheric intensity. Magpie calls were accessed using my mobile phone, playing them directly into the microphone during the first established loop. When observing other looping artists the device of ‘root note ascending layering’ was commonly used, similar to Tunstall and Sheeran. In practice, approaches used by Kimbra and Watkiss (see 4.2) had been explored, layering from the top down. There was a tendency to use a wider vocal range, drawing me to default layering in the higher parts of my range where I felt more secure. Although my lower range was worked in rehearsal process, it felt more cohesive if I used the upper range to create texture, similar to that of the pitching of magpie song. This contrasted with Kimbra’s approach, who in ‘Plain Gold Ring’ (see 4.2) used the whole palette of vocal range. She used her higher range in headmix more as an effect adding ‘stopped breath’ moments for interest to phrase shaping. Kimbra moves more frequently between the lower and mid-range of chest and chestmix. This contrasted with the main headmix or operatic vocal set-up that I used in the performance of my piece.

5.3.3 Performance

Magpie Totem began with simple layering on harmonies as notated. Initially the ‘effect’ button did not respond on the looping unit, and I began again. I was then able to establish synchronisation at the beginning, to avoid another stop/start situation. On reflection, if I’d been

more experienced with the technology, I could have utilised the stop-start approach of Kimbra. Although manageable there was loss of momentum and slowing of tempo when I performed. When the second layer was being dubbed, the effect [*I. Bend down*] which drops two octaves from sung pitch, was momentarily aurally unsupportive in the mix, the volume being low and diluted. The effect sounded more distorted than I remembered in rehearsal process making it difficult to gauge pitch. Due to the differing aural perception of this effect in the performance space the consequent overdubs and song melody were compromised intonation wise. This problem may have been due to foldback levels or the requirement of ‘sub-woofers’⁸ to increase stronger bass effects within the space. An increased aural clarity at the bottom end of the audio spectrum would have been more audible to vocally pitch with. ([Link: Performance 2 “Magpie Totem”](#)).

5.3.4 Findings

More practice and experimentation with looped over-dubs could have been explored in the rehearsal process, experimenting with more choices for atmospheric effects. I would have benefitted from the use of ear monitors, allowing more aural awareness and focus on the vocompaniment during practice. In process, the construction of the song was the main focus rather than creating more harmonic and textural interest. When listening to Watkiss (see 4.2), in ‘Torch of Freedom’, I heard some insecurity of intonation in his over-lapping loops. This is not a negative criticism, as when ‘in the moment’, he is shaping a particular sound, heard as an original texture or quality that has already been laid down, which changes as he overdubs. In contrast the use of a purer operatic tone makes the approach used by Watkiss more difficult to achieve, as it is more

⁸ The colloquial term for an audio trans-ducer that disseminates low frequency sound.

limited texturally and therefore the intonation changes are clearly audible. Watkiss used an ambiguity in the use of blues and pentatonic scales, contributing to the possibility of any future overdubs being played with in this way. He used a multi-modal approach around Dorian and Aeolian modes, where both 6th intervals were minor and major consecutively, setting up an ambiguity of harmonic texture. With more adventurous harmonic choices an ambiguity of sound would have added to interest in my piece. This research however, did not aim to encompass blues-based composition.

The freedom of tempo choices at my disposal was underestimated, possibly due to my training default for strict rhythmic and tempo articulations that encompass less ‘groove’ freedom. This habit compromised the general energy changes that could have been made within the established pulse. Problems with continuity of overdubs and composition endings were also observed. My self appraisal was that the piece worked well as a contrasting aria within the performance program and the result in terms of achieving initial aims, was successful. My obsession for ‘polished’ performance as found in rehearsal, meant that I was less conscious of the larger palette of vocal devices at my disposal. Future appraisal of the performance video will inform the song writing and performance further. I had a tendency to keep ‘tweaking’ ideas that in an established operatic work situation would not happen. In general with opera, one turns up to rehearsal with the score close to memorised. Overall when writing this original work, my tendency was to overproduce ideas and then try to unravel to the original aims of construction.

5.4 Song three ‘The Museum of Unexpected Ideas’ – ‘Improvisation’

With the final song, a pre-determined approach of short four to eight bar loops in 4/4 time was used, based on the approaches taken by the PCM performers outlined in section 4.3 of this thesis. The initial idea for this piece was as a ‘free-form’ construction/improvisation, based on the research conclusions of Manning (see 2.6.2) regarding improvisational approaches.

5.4.1 Aims

The intention was to begin a short loop in any rhythmic pattern, overdubbing as the loops progressed, until adding the vocal with text/lyric. The looped accompaniment was established on an eight-bar rhythmic pattern. This was a predetermined decision needing to start with a stable structure in order to feel security with improvising and playing ‘in the moment’ ideas. The tempo/pulse was explored using a faster bpm approach, contrasting with the slower tempos of the other two pieces. Within this rhythmic framed approach exploration of operatic tone was intended, using more dense harmony work, *ostinato*, and to explore the possibilities with balancing an appropriate genre fusion between through composed approach with alternating rhythmic patterns.

5.4.2 Construction/improvisation process

Establishing a faster tempo of approximately 98 bpm, middle pitch layers were used in a downward motion, with more contrasting exploration of vocal qualities. Short looped rhythmic patterns were utilised to test a ‘flam’ (Neeley, 2017) rhythmic and vocal approach. In rehearsal process I experimented with a variety of rhythmic patterns only to find that a default manageable pattern emerged (this again was influenced by my training and experience). In preparing for the improvised element of performance experiments were made with a variety of improvised approaches to include tempo changes, stylistic variety, vocal quality and vocal articulation. Some phonetic articulations were easier to use than others due to the nature of vocal energy interacting

with the microphone. In rehearsal I used McLean's approach in 'Natural Disaster', in which she explored phrase elongation between half time, returning to double time bar lengths over a fast *ostinato*. Phonemic articulations with a lighter chestmix then articulate more easily. My propensity to over-project my sound made bar changing more difficult as I was unable to access a lighter phonation for the task.

5.4.3 Performance

There was a freedom and confidence found in constructing vocal improvisation that I didn't experience with the planned pieces. The use of short four to eight bar loops made it much easier to layer other vocal patterns, building from bottom to top. I concentrated on rhythmic patterning to create interest, finding a story telling lyric that was 'stream of consciousness' in approach. The piece was from a personal perspective, the most successful within the performance because the articulation between mind and body synchronicity retained energy and flow, with reference to 'rhythmic entrainment' (Trost, Labbé and Grandjean, 2017), building ideas more easily throughout the piece. The over-dubbing was easier to control in terms of responding to previous dubbings without pre-determining future ideas. There was a stronger audience response to the humour of the text and vocal play. The looped overlapping was managed more successfully with improvements to synchronised entries. Although fast tempo articulation of both text and pitch on the looper is an advanced skill and needs improvement from my perspective, I felt moments of security within the rendition, managing the overdubbing of several layered ideas reasonably well.

(Link: [Performance 3-'Improvisation-The Museum of Unexpected Ideas'](#)).

5.4.4 Findings

Some authority was experienced in an autonomized approach. The resultant piece was seemingly ‘free-form’ and random, although on observing the video of the performance it was clear that I was influenced by the type of music theatre approach used by Grace McLean. This was a safe stylistic area for me. However I found the vocal dexterity and up-tempo patterning of McLean difficult to perform. In contrast to my heavier sub-glottic mechanism habit, her sub-glottal pressure use being lighter, enabling a much faster tempo to be utilised around 120 bpm.

The intention was for a vocal operatic styled improvisation. This was not fully realised as the faster tempo combined with rhythmic patterning dominated the ‘feel’ of the piece. I was drawn to using a more rhythmic, less *legato* vocal melody, placing my initial vocal qualities in a speech-based area of chestmix. This led to speech quality styled vocals with operatic vocals used in the middle and upper registers as melodic interest around the established ‘theatre’ vocal. The operatic vocal line lacked the subtlety of the other ‘pop theatre’ style that I used in the chestmix embedded overdubs. The higher range required more tonal subtlety, similar to that used by Kimbra in Plain Gold Ring, with a variety of melodic play throughout the range, keeping the head-voice sounds light in sub-glottic energy to create tonal balance and harmonic cohesion.

5.5 Performance evaluation

The performance revealed only developing dimensions of mastery that are required in order to become a skilled looping artist. Within the performance of three differing pieces, the following topics discuss rhythmic elements, vulnerability, authority, autonomy, diction and song construction, as outlined in my initial aims.

5.5.1 Rhythm

As previously outlined, the term ‘rhythm’ has a number of definitions according to differences of style between operatic and PCM performance. The skill and intuitive use of rhythm differs between training, music influences and embodied response to music and movement. The sense of ‘rhythmic entrainment’, as described by Trost, Labbé and Grandjean (2017), applies in part to the activity of looping from the perspective of the notion of “two physical and biological bodies becoming synchronized through interaction”, (pp. 96, 97). The physical body/voice with its unique rhythms of cardiac activity, breath and periodic neuron firing and voicing, for example, are cited as oscillating systems. Trost et al. (2017) further outline how a musician playing (or singing) musical sequences will adapt their body rhythms and movements to the rhythms/pulse of the music being played and sung; “Music is a form of art that develops in time. This development is into several periodicities for most musical styles. Thus, music constitutes an acoustic that often contains different periodicities and therefore can have the properties of an oscillating system at several frequencies” (p.79).

Combined with the looping of several rhythms/pulses of vocal melody I return again to the idea of continuing adaptation from past layer, through present to future rhythmic changes of adaptation and entrainment. When using the classical pulse approach of Neeley (2017), I was able to layer sensing and playing with the *rubato* and *fermata* of the music style. With a more rhythmic tempo use the body came into more visible play. When using my foot with the looping pedal, my whole body was involved in rhythmic response. This cemented the theories of Trost et al. (2017), where rhythm or pulse produced a more cohesive entrainment, after a period of time. In contrast, singing

classical solo or even solo in other genres, the internalised response often dominated, due to my previous training and vocal habit.

5.5.2 Vulnerability

Vulnerability, as theorised by Wiggins (2011), in his discussion of “the vulnerability of baring one’s musicianship, one’s musical understanding, one’s whole musical identity to others, often in the context of seeking validation from those one respects”(pp. 355-367) was applicable. Due to my adaption to a new performance method, levels of vulnerability were much higher than if I had presented a concert of operatic arias, for example. With skill development, feelings of vulnerability naturally become more manageable as one aims for a certain skill level. In terms of one attained skill, in combination with the learning process of another, the original skill is challenged and can be undermined. I became aware of how my skills as an operatic singer were easily undermined when using a new technological approach with a previous classical aria style. All performers new to looping technology need to develop a high level of familiarity with the technology in order to perform convincingly, as with instrument learning.

5.5.3 Authority

Authority, as discussed by Frith (1996) refers to “the whole package of re-discovery in the recording of the performer” (p.244). He outlines how a performer’s sense of authority develops in parallel to their developing skills. Although not recording for commercial reasons, observing process through video evidence was intrinsic to developing my skills with looping and song construction. A sense of authority with process did increase, in the use of creative ideas, writing, recording and singing in ‘real time’, improvising and performing, mirroring Frith’s description of

a whole package. Similar to song learning, performance and looping approaches, authority within a planned performance depends on the self-perceived standard of outcomes of each piece as separate entity. Vocal technology use was not a part of my musical training, and although becoming increasingly adept with the technology, it remains to be seen how or when I will develop authority with looping song construction and performance. This leads to future questions of consideration; how effective is my vocal looping performance in this stylistic area? How would one assess or measure this if required? Although I found a sense of authority with increased practice, some authority was lost in performance due to the feeling of final product ultimately reaching the point of assessment.

5.5.4 Autonomy

The whole process of working autonomously with technology was challenging. A subservient attitude to the technology was experienced (being ‘un-worthy’ to use it) as it has never been a part of my original training. I experienced ‘imposter syndrome’. My use of the looper pedal in a late career stage was as a toy to explore and not necessarily as a serious tool to extend creative vocal opportunity and experience. As with most performances, when working with new ideas and material, the experience is both painful and rewarding at the same time. In line with the theories of both Frith (1996) and Hughes (2015) (see 5.1), the authority of autonomy was found in the process of creating, producing and performing ideas for sung performance. This approach differs to operatic work in that the focus and intentions change. In opera practice, the creating and producing is in the development of character, music interpretation, expression and the ability to create a beautiful sound with the acoustic voice. Without embarking on this journey the discovery

of the creative process of writing a vocal piece with technology and the possibilities for authority with new performance choices, would not have been experienced.

5.5.5 Phonetic diction

The use of phonetic temporal and quantal diction is an approach taken by singers to change expression in text, by lengthening, shortening, varying vowel and consonant stress and playing with the pace of the phonemes (sound segments) found in text. In opera a number of differing languages are used, the familiarity of pronunciation with each requiring certain adaptations when spoken and sung. The creative use of these approaches in PCM singing was equally as challenging as that of language use in classical singing. The differing artistry and approach to text and vocalisation used in PCM styled singing, like the use of technique and vocal quality use is challenged. Seasoned looping artists such those discussed in chapter four, exhibited a high level of skilful use with temporal and quantal diction, using the looping and layering to textural advantage in this area. Looping encourages vocal/instrumental play as the recording and playback of singing provides instantaneous support and foundations from which to work. Scat emulations of differing instruments, or rhythmic play expressed vocally, provide the opportunity for vocal layering using a multitude of creative phonetic word play and textural utterance. This in turn provides a whole palette of individual creative nuances as used by the looping artists discussed in 4.1, offering vocalists another approach to practicing and honing their craft.

5.5.6 Song construction and arrangement

As previously discussed, Kimbra talks of musical ‘translation’ instead of ‘arranging’, (faceculture, 2012), alluding to “the transformative potential of the singing voice with the applied

technologies”, (Hughes, 2015, p.170). Whilst constructing and arranging my performance pieces an awareness of intonation and vocal textural ideas developed, providing data to experiment with. As each loop is over-dubbed, between each loop develops a particular individual texture and intonation. This is vocal constructing and translation as opposed to music construction and arrangement.

5.6 Conclusions

Creating and constructing ideas for performing on the looper leads to insights into artistic practice possibilities for classical singers. As theorised by Cummings (2017) if there is a new vocality emerging, including genre fusion between opera, classical and other styles of singing, then that new vocality includes technology as an intrinsic part. The introduction of technological training into opera training could benefit the emerging autonomized artist in developments of new operatic forms and ideas, and/or new approaches to contemporary opera. As with the aural traditions of PCM styles, developing listening skills through the use of vocal technology can inform new ways of performing and perceiving singing, having more knowledge and security when required to perform with said technology. In addition, the singer develops technological experience and authority with interpretation of new works. There is room for new autonomized performances of both pre-composed and new works using operatic vocal in new opera’s and in operatic recital.

CHAPTER 6: CONCLUSION

6.1 Introduction

In her written contribution to “Voice Studies” (2015) Bonefant stated:

The ways we perceive our own voices, and are perceived by others, are so tightly intertwined with identity and cultural value systems, we are rarely conscious of the vocal assumptions that inhabit us. Yet these assumptions have a massive impact on our everyday lives. Our voices are policed by us and by culture. We set limits about what they are able to do and in what contexts (Tomadis and Macpherson, 2015, (Ed, p.208).

While the quote above highlights how singers and singing may be limited in scope, my research provided the opportunity to question my voice usage and to extend the possibilities for innovative approaches to the repertoire. The following discussion will respond to the research questions posed in 2.8.

6.2 Findings

Findings related to the initial research questions are addressed below:

- How does the relationship between operatic voice and the creative looping tool extend possibilities for innovative approaches to the repertoire?

Looping operatic voice has been an exploration of my own practice and how much my cultural value systems and musical experiences are reflected in my approach to new vocal experiences. I planned to explore operatic repertoire with looping. In doing so, along with researching looping, I came to question how singing styles are changing through the use of technology. In many respects we have been in and working with digital media in many forms of music, crossing style and genre borders since Stockhausen’s influence through his electronic composition, as outlined

by Richardson (2015). Of the performer Diamanda Galás, Johnson (2014) observes that “Galás creates a voice that resounds at the intersection of forms, an ambiguous voice that avoids categorisation and sings (and shrieks) through boundaries, on behalf of those who dwell at them” (p.34, 35). Operatic voice and the creative looping tool extend possibilities for innovative approaches to the repertoire by revealing future possibilities of an operatic performance evolution, whereby the voice and body become performer, character, orchestra, arranger and composer. When once Berbérian and Galás were described as experimental singers, there now exists the mainstream commercial acceptance of writer/performers such as Kate Miller-Heidke (1981), who perform professionally in PCM, opera and music theatre, and are now using what was once described as experimental singing as an accepted commercial new vocality. The same can be said of performer/composer Laurie Anderson (2018), who in 2019 won her first ‘Grammy’ award for classical writing. The approaches of artists such as turntablist Marina Rosenfeld (1968) and experimental voice artist Meredith Monk (1942) are examples of the many performers from the experimental electronic era of Music in the twentieth century who have influenced current vocalists and looping performers. As outlined by Holmes (2002, p. 2) Rosenfeld has had a strong influence on current digital vocal artists.

The analysis of current looping artists has been an important element of this research, due to scant research on operatic looping performance. It was clear that the artists engaging in voice only looping and singing performance either tended to use a more creative vocal approach than those using instruments or felt less influenced by their instruments in their autonomous vocal approach. When working with looped performance, rather than extending current operatic repertoire, my

findings encouraged the idea of making new operatic repertoire, linked to new found confidence with creating innovative ideas for new music on the looper pedal.

- How can musical and vocal autonomy be expressed and achieved by an opera singer using looping technology?

The autonomous vocal approach, from my perception, used a more challenging vocal styling and interest due to the opportunity to re-construct, without accompaniment, the essential harmonic and contrapuntal music forms. The opportunity for this came by using creative vocal nuance and interpretation of both previously written and self-constructed songs. The lack of instrumentation and colouring is replaced by something altogether vocally organic. Without the support of structured instrumental patterning there seemed more space for intuitive voicing and interpretation of traditional music that is possibly more accepted by a classical audience.

- What are the main difficulties and advantages with looping operatic singing in performance?

Consideration must be given to use of technology in relation to classical singing. An operatic singer working with looping technology is reversing how we see traditional pedagogy and technology. Most technologies in the classical singing domain relate to creating the perfect acoustic sound and singers' formants, recording lessons for listening purposes, or, outside of the studio, to enhance offstage and onstage chorus in opera, for example. My process involved knowledge of the use of technology and exploring it at the same time. In order to be free to experiment vocally I needed to

be familiar with the kinaesthetic use of the machine. I also wanted to avoid the pitfalls of seeing the technology as separate from my voice but rather as a new way of engaging my senses. This is discussed by Auslander (1999), whereby conventional belief is that live performance (such as opera) provides a full sensory experience, mediatized performance appealing mainly to the visual and auditory. Auslander further argues that the senses are engaged differently with mediatized performance, however the variety of senses are still all utilized (p.55).

The autonomized vocal looping artist is tapping into the human response to the voice. This comes imbued with embedded knowledge, as in the emotional knowledge of another organic sound, the sound of nature and being human, enhanced by technology. Many of the smaller or quieter affect utterance in singing such as sighs or emotive gasps, are often missed in acoustic performances. It is my belief that operatic vocal looping should be relevant in the developing mediated digital voice world as it provides new palettes of texture. Firstly, and contributing to the overall emotive gesturing, there are myriad vocal gestures not normally aware to an opera audience. These can be enhanced through technological mediation and employed more frequently, as a part of composition. Secondly, as evident in Watkiss' (2010) 'Improv 1' performance, a full range of emotive utterance is evident. The fact that he is using voice only looping allows for extra sensorial expression to be heard and artfully played with (4.2). When transitioning between pieces, his performance becomes operatic in form and emotive communication. Watkiss's approach combines my operatic looping intentions and his own jazz looping, including the search for a more purist vocal approach with technology and simple exploration. The idea of vocal composition with less instrumental influence using vocompaniment and sound translation is of interest.

6.3 Implications and limitations

The looping approach used in this enquiry has its limitations regarding an autonomized performance. Forms are restricted to the lowest common denominator of short looped sections, unless vocalists are willing to use extended looped accompaniments, not necessarily dominated by short repetitive rhythmic patterns.

On reflection, looping is a formative process used as another way of composing song or work, often leading to the process of documenting songs in a recording studio situation. It moves through a number of stages where short looped ideas are saved and then new ones tracked. Tracking is not looping, but rather the establishment of loops to create the body of a song. The limitations of my technical ability informed my main inquiry, removing the complexities of looping involved with programs such as Ableton Live, where quality of intonation and tone can be maintained in a mix with a multitude of over-dubbed looping ideas.

The Boss RC30 pedal is not ideal for solo voice looping. The sound degrades with each loop, distorting it with unintended tones. However, by experiencing this limiting process I was able to appreciate approaches taken by Watkiss, who used a more purist aesthetic in order to re-discover his voice (see 4.4). This is an area of vocal transformation, the transformative potential of the singing voice through technology. This study was limited to a nine-month time constraint, limiting the outcomes. Future research in this area will be of great value, as outlined below.

6.4 Future research

The outcome from this inquiry introduces a new area of inquiry for this researcher: developing expertise with more vocal friendly technology such as TC Helicon Touch 2 in conjunction with programs such as Ableton Live to explore new approaches to previous and new classical repertoire. This would including the construction and writing of an autonomized opera that is both written and performed by one singer. Integrating the form and function of the looper with the opera narrative, the topic will be based on a woman with Alzheimer's Dementia. The looping technology, as compositional and performance tool, reflects the repetitive/cyclic behaviour experienced when suffering with Alzheimer's dementia. Wang, Pai, Hsiao and Wang (2015) describe the repetitive behaviours of AD thus, "...repetitive behaviours include repeating a sound, a word, a question or an action" (par.10). The novel "Elizabeth is Missing" by Emma Healey (2015, UK, Penguin Books) informs the subject matter. The music will be developed on cyclic patterns, repetition and sound scapes, to support the narrative. Finally, this research is also important because the current incorporation of technology training into the teaching and learning of all styles of singing, tends to be dominated in the PCM areas of singing. In consideration of a new digital vocality, expanding operatic and classical vocal training to include digital technologies more frequently, would equip vocalists in the twenty-first century with skills that parallel current performance trends. It is hoped that this research will contribute to further discussion and development in this area.

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LIST OF VIDEOS

HEATHER KEENS MRes Videos –work-in-progress documentations

YouTube URL

| | |
|---|----|
| (Link: Conversations with My Voice) | 2 |
| (Link: Sung example Boss RC30 #1) | 19 |
| (Link: Performance 1 “Convien Partir” Donizetti) | 57 |
| (Link: Looping Magpie Memories) | 59 |
| (Link: Performance 2 ‘Magpie Totem, Keens) | 62 |
| (Link: Performance 3-‘Improvisation-The Museum of Unexpected Ideas’) | 65 |

The following “practice process” videos were made in a home studio setting:

([Simple melody – 5.d](#)).

([Rhythm – 5.h](#)).

([Purcell, opera play – 5.i](#)).

([Rhythm, authority, vulnerability – 5.k](#)).

([Past, present, future – 5.i](#)).

APPENDICES

1.a, Performance poster 25/07/2018

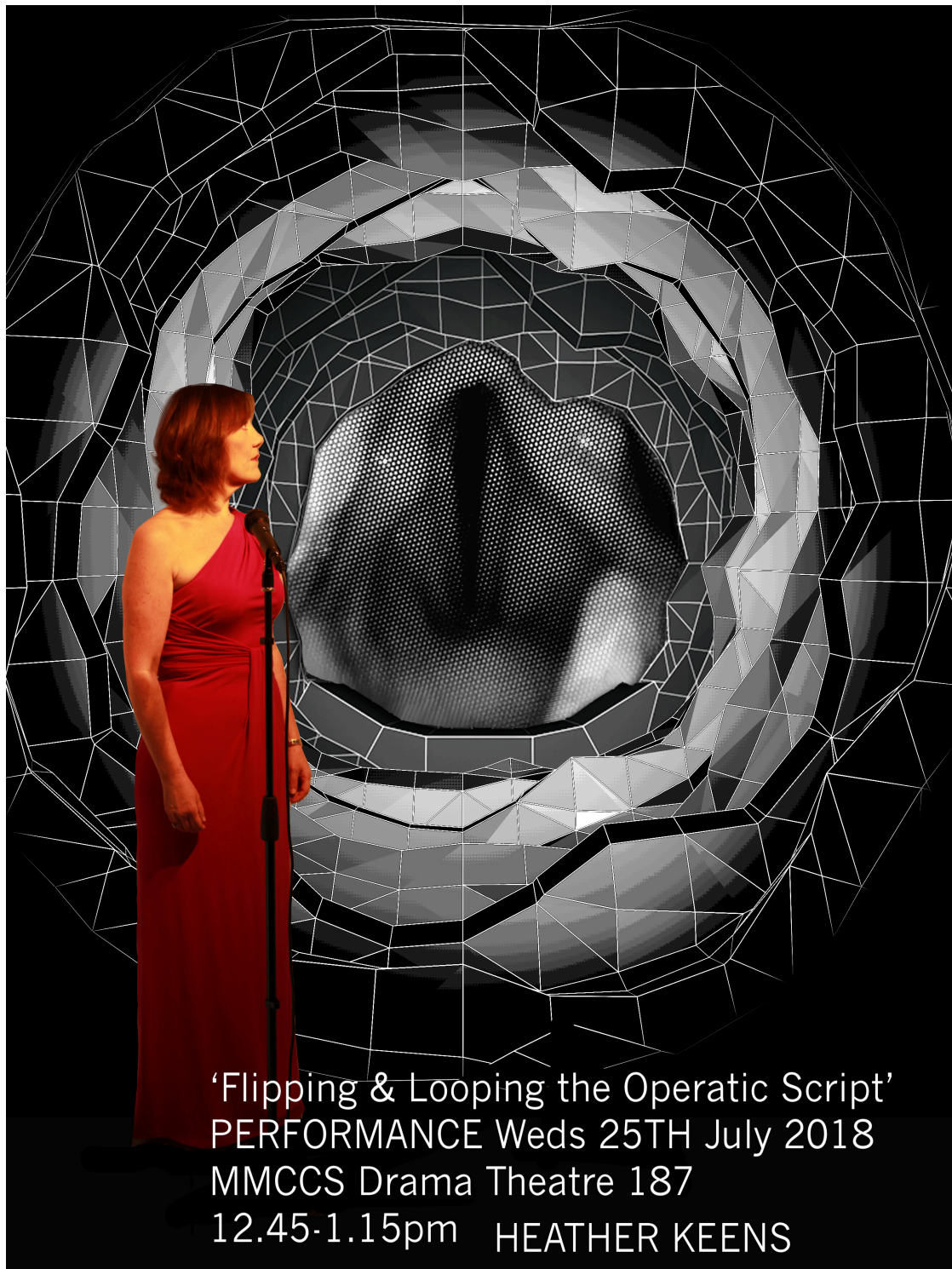
1.b, Performance program, 25/07/2018

2.a, Music manuscript, “Convien Partir” (arr, Keens, 2018) Donizetti (1840)

2.b, Magpie Totem poem, Keens (2018)

2.c, Music manuscript, “Magpie Totem”, Keens (2018)

1.a, Performance poster 25/07/2018



'Flipping & Looping the Operatic Script'
PERFORMANCE Weds 25TH July 2018
MMCCS Drama Theatre 187
12.45-1.15pm HEATHER KEENS

‘Flipping and Looping the Classical Script’.

PROGRAM

| | | |
|------------------------|-----------|---|
| Warm - up | Keens | Voice / Looping. |
| Convien Partir | Donizetti | (La figlia del Reggimento) 1797-1848 Voice and Looping. <i>Arranger : Keens</i> |
| Magpie Totem | Keens | Voice / Looping. (Music and poetry composed by Keens) |
| Improvised song | Keens | Voice / Looping. |

This performance is about the voice and looping process, and is a part of my current research for MRes year 2, titled:

“The ‘autonomized’ performer: voice and looping technology”.

The aim was to explore the process of arranging, composing and free improvising in operatic vocal looping performance.

Acknowledgements:

Sarah Keith; Andrew Robson; Di Hughes; John Potts; Tegan Sadler, and the MMCCS technical and administrative departments. Also: Frank Millward for video and unfailing support.

2.a, Music manuscript, “Convien Partir” (arr, Keens, 2018) Donizetti (1840)

Looping Score

Pedal Setting: Delay

Convien Partir

La Figlia del Regimento

Donizetti 1840
Looped Version
Arranged by
Heather Keens

Larghetto

Pass 1

mp *sim throughout....*

Pass 2

Ooh(u:) *p* *sim throughout....*

Pass 3

Pass 4&5

5

1 *mp*

2

3 Ah *sim throughout....*

4&5

Con - vien par - tir o miei compa - gni dar - me;
Con - vien par tir o dio voi che la mo - re

9

1

2 *mf* *f*

3

4&5

e dora in poi lon - tan da voi fur - gir
sindai pri - man ni a me sta - sta - stein cor

13

1 2 3 4a5

mf

Ma per pe - ta ce - la te ame quel pian - to il
e me co di - vi - de - ste e gio - jee a - fan - ni il

17

1 2 3 4a5

fp

vo - tro co - re per meé supre-mo in can - to
mio fe - li - ce sta to e - in beni - in or mu - ta to

21

1 2 3 4a5

rall *f*

Con-vien par - tir con-vien par - tir
Con-vien par - tir con-vien par - tir

25 *a tempo*

1 *mp*

2

3

4&5

ah! per pie - ta per pie - ta ce-late il pian - to

29 *rall*

1 *Cadenza 2nd time*

2

3

4&5

ad - - di - o ad - di - o con - vien par -

32

1

2

3

4&5

tir.

2. b, Magpie Totem poem

Magpie Totem

Heather Keens

Sleek black and white

Head thrust

Eyes surveying, for opportunity

Translucent

All knowing

Moistening with the dark skies, tears

Sleek black and white

You wait

Sinking into a body of vibrant layers

An opportunist, laser sight

Waiting for that singular vulnerable mollusc

From the earth's peaty sweat

2.c, Music manuscript, “Magpie Totem”, Keens (2018)

Looping Score

Magpie Totem

Words & Music by Heather Keens

♩ = 72

Magpie sample tape throughout

Tape

Pass 1

Pass 2

Pass 3

Pass 4

5

T

1

2

3

4

Sleek black and white

Head thrust eyes sur-vey-ing

For

Sleek black and wh-i-te

mp

ff You wai - t

sin-king in to a bo-dy of

9

T

1

2

3

4

opp-or-tun-i-ty

Trans-lu-cent

mf

mf vi - brant la yers

An op-por-tu - nist

las-er-sight

Magpie Totem

13

T

13

1

13

2

13

3

All kno - wing

Moist-en-ing with the dark skies

mp

4

wait-ing for that

sing - u - lar

Vul-ne-ra-ble moll-usc

p

17

T

17

1

Da Capo Pass 3

17

2

Da Capo Pass 4

17

3

Tears

p

4

from the earths

pea - ty

sweat

N