

Constrained creativity: A digital presentation of Mozart's *Die Zauberflöte*.

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I would like to dedicate this thesis to my late mother, who due to circumstance could not complete her schooling. Nevertheless, she instilled the importance of the search for knowledge in her children. I will forever be grateful for your encouragement and support.

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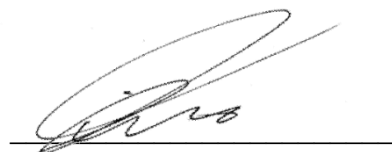
And finally, I am greatly indebted to all those who create and maintain freeware, your tireless efforts allow creativity to flourish even in the face of adversity.

Declaration

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I declare that this research project is my own original work. Where secondary material is used, it has been carefully acknowledged and referenced in accordance with the requirements of the University of Pretoria. This project has not been submitted for examination at any other university.

I understand what plagiarism is and I am aware of university policy and implications in this regard.



Abraham Marthinus Spies

3 December 2021

Date

Ethics statement

The author, whose name appears on the title page of this dissertation, has obtained, for the research described in this work, the applicable research ethics approval.

The author declares that he has observed the ethical standards required in terms of the University of Pretoria's Code of ethics for researchers and the Policy guidelines for responsible research.

Abstract

This practice-based thesis investigates the processes involved in the creation of a digital opera production under constrained conditions. In the wake of the World Health Organisation declaring a global pandemic in early 2020, stringent lockdown restrictions were implemented to help curb the spread of the coronavirus disease (COVID-19). The subsequent closure of all performance venues greatly impacted the performance of opera. Academic activities on university campuses were also suspended with immediate effect. This caused the indefinite postponement of the annual production of the Classical Voice and Opera Studies programme at the School of the Arts, University of Pretoria, Gauteng, South Africa. It was imperative to find a way that would permit the students to still perform in a production. In consultation with the singing lecturers and programme director, it was decided that we would endeavour to create a digital presentation of Mozart's *Die Zauberflöte* KV 620. This opera was selected for its suitability as a student workshop production. In addition, its fairy-tale setting would lend it well to a digital interpretation. Adopting a practice-based approach allowed for the investigation of both the practice as well as the artefact created through said practice. The research design proposed by Steele (2016) was used, as it corresponds to the different phases associated with the creation of an artefact, namely planning and preparation, practical studio action and reflection. The actions taken and techniques developed during the first two phases are presented with image examples that highlight the progression of the design and creation of the opera. Both the planning and preparation and practical studio action phases posed many challenges requiring unique and creative interventions. Also included is a discussion of the different freeware and shareware applications that were utilised in the creation of the audio and visual elements, as well as in the final compilation of the production. The digital component of the production is contextualised as an integral part of the creative expression and not simply as a means to present the performance to an

audience. Footage of the participants, with background removed, was layered onto digital scenic elements, creating the illusion of a performance on a virtual stage. All recordings were made on the participants' own devices, in their own homes. Therefore, the results of the research presented in this study indicate that there are several sustainable solutions for the design and development of a digital opera performance, even under severely constrained conditions.

Keywords: *Die Zauberflöte*, COVID-19, digital production, Emanuel Schikaneder, iterative web cycle, lockdown, opera, practice-based, Wolfgang Amadeus Mozart.

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CHAPTER 1

Introduction and overview

1.1 Background

During my musical life as a student, performer and, later, opera director, W. A. Mozart's (1756–1791) *Die Zauberflöte* [The Magic Flute] KV 620 has made an indelible mark. When I was an undergraduate student, my teacher remarked that singing works by Mozart was advantageous for any aspiring classical vocalist, particularly so for a young tenor. Therefore, the first opera aria given to me to study was that of Monostatos, “Alles fühlt der Liebe Freuden” [Everyone feels the joys of love], from Act 2, Scene 3 of *Die Zauberflöte*. In 2014, when I made my professional debut, I had the opportunity to perform the role of Monostatos in acclaimed South African director Kobie van Rensburg's (1969–) production of *Die Zauberflöte*.

I was introduced to the art of directing by Elizabeth Lombard (1964–2020), South African mezzo-soprano, voice teacher and stage director, when I assisted her with a pastiche opera, named *Mozart Reports*, for one of the annual productions staged by the Vocal Art Department of the Tshwane University of Technology. During the 2014 production of Van Rensburg's *Die Zauberflöte*, I offered to act as assistant director in addition to singing the role of Monostatos. As part of my duties, I helped to construct stage properties and manned backstage machinery. Van Rensburg's production was staged with a *Star Wars* theme. Digital projection technology was used to create interiors of spaceships, moving star fields and dancing stormtroopers. I was intrigued by the effects he was able to produce on stage with this novel approach.

In 2016, as part of a commission to design and direct *Die Zauberflöte*, I started to experiment with some of the techniques I learned from Van Rensburg. My production,

however, was on a smaller scale, with a much-reduced budget. It soon became apparent that suitable hardware and software that would accommodate my budget needed to be found. In addition to the need for platforms to create composite¹ projections, either live or prior to performance, three-dimensional (3D) modelling software was required, as well as a graphic suite to create the images that would be projected. Acquiring skills in multiple software packages was a time-consuming and steep learning curve. Since then, projections have been included in all but three of the nine operas I designed (stage setting, lighting and digital projections) and directed.

1.2 Research problem

In 2019, the coordinator of the Classical Voice and Opera Studies (CVOS) programme, School of the Arts, University of Pretoria, requested me to design and direct a stage production for the programme. As part of their curriculum, students take part in a production during the annual University of Pretoria Music Festival (UPMF). I was fortunate to be invited back for the 2020 festival.

Due to the lockdown necessitated by the coronavirus disease (COVID-19), the 2020 UPMF was cancelled. This problem was not particular to South Africa and affected the entire globe. Music performances and festivals of all genres were cancelled as governments intensified efforts to flatten the curve of infections which impacted many social and economic domains (Vandenberg et al., 2020). The stringent social distancing protocols and subsequent closure of the university campus further exacerbated the problem. Students would no longer have the opportunity to partake in training on the stage. Other tertiary institutions faced similar challenges (Olson, 2020). It became evident that a way for students to perform

¹ Compositing multiple layers of images or video over each other.

and engage with their art, even under these constrained circumstances, warranted investigation. As for many other performances, a digital presentation of the production would be the only viable alternative. This would, however, pose several challenges. Performers who could interact on stage during a scene would now be confined to their homes, kilometres apart. Students would have to record themselves with any resources that were at their disposal. The compiling and editing of footage would then have to take place in order for a creative whole to be formed.

1.3 Aims of the study

The primary aim of this study is to investigate the processes involved in the creation of a digital opera production under the constrained conditions imposed by the period of lockdown necessitated by the COVID-19 pandemic. The opera in question is *Die Zauberflöte* by Wolfgang Amadeus Mozart, performed by students from the Classical Voice and Opera Studies programme, School of the Arts, University of Pretoria. With the aim of reaching this goal, it is necessary to explore the computer freeware platforms available at this time to facilitate the creation, editing and presentation of the digital performance. To contextualise the study, an investigation must be launched into the effects of the lockdown restrictions on both opera productions and digital presentations of music performances. Furthermore, before such a large and complicated task is undertaken, it is important to understand why and how it would be advantageous for tertiary students to be involved in a digital opera. Finally, the reasons why *Die Zauberflöte* is particularly suited to be presented in digital format will be discussed.

1.4 Research questions

The main research question to be answered is:

Which strategies and techniques can be implemented for the creation of a novel digital presentation of *Die Zauberflöte* KV 620 under constrained conditions?

The sub-questions which will be explored in this study are:

- In what way have COVID-19 and lockdown restrictions impacted opera productions?
- In what way can a digital opera be advantageous to tertiary classical voice students?
- How have lockdown restrictions affected digital presentations of music performances?
- What resources are available to facilitate the audio and video recording, editing and compilation of digital elements?
- Why is *Die Zauberflöte* a suitable opera for digital presentation?

1.5 Research methodology

The creation of a digital opera performance involving classical voice students enrolled at a tertiary institution was investigated in this study, with specific focus on the strategies, processes and actions carried out during this period. A practice-based approach was adopted for the study, allowing the author to be both creator of the artefact and researcher. Practice-based methods fall under the performative research paradigm, which is presented as an alternative to quantitative and qualitative research. Performative research, while distinct from the other paradigms, stems from the qualitative method (Ansari et al., 2014). The iterative cyclic web methodological framework developed by Smith and Dean (2009) was used, as it promotes the documentation of the various iterations involved in the creation of the artefact through the different phases of its development.

The research design adheres to the different phases related to the creation of an artefact as proposed by Steele (2011), namely planning and preparation, practical studio action and reflection. In accordance with Gray and Malins (2004), the data collection integrated the diverse forms of media associated with the progression of each phase. All actions taken and challenges faced during the entire creative process were documented in a practice journal, which was saved as a Microsoft Power Presentation. This technique was adopted, as it allowed notes to be augmented by screenshots and images accumulated during the planning and preparation, as well as practical studio action phases. Keeping a journal was imperative for ensuring reflection-in-action and facilitating reflection-on-action during the final phase of the creative process. Chapter 3 of this study details all the actions taken during the respective phases.

1.6 Limitations and delimitations of the study

The aim of this study is to develop and design a digital presentation of Mozart's *Die Zauberflöte*. The opera will not be presented in its entirety, but in a condensed format suitable to a student workshop.

This study was conducted with student participants; however, no judgment or critique was made on the vocal or dramatic interpretations of participants in this text. The study does therefore not seek to describe the ideal presentation of the opera. This research delineates the complexities and attributes of a digital opera production created during constrained circumstances.

Limitations that affected the outcome of the production were present. The quality of both the audio and visual recordings was greatly dependent on the make and model of each recording device utilised. The home environment of some participants hampered their

musical performance, ability to move around or recording of the material. Participants were further constrained by access to fast and reliable internet.

1.7 Outline of the study

Chapter 1 of the study is introductory. It includes sections pertaining to the background and rationale for the study. The main and secondary research questions are presented. The limitations and delimitations of the study are also discussed.

The literature review is presented in Chapter 2, and contains a discussion on the history of *Die Zauberflöte* and digital presentations of the opera. This is followed by sections on the origins of digital music and the various platforms for the creation and distribution of digital performances. It also examines the effects of COVID-19 on singers and their training.

In Chapter 3, the methodology underpinning the study is discussed. This chapter includes sections describing the research approach, research design and data collection, sampling and ethical considerations.

In Chapter 4, the first phase of the creative process, planning and preparation, is outlined. This section includes a discussion on the cuts made to the score and the dialogue. An overview is given of the materials supplied to participants to aid in their preparation process.

The second phase, practical studio action, is discussed in Chapter 5. This is done by way of an explorative narrative detailing the creation of the artistic artefact, as well as any problems encountered and interventions implemented to mitigate these obstacles.

Chapter 6 features a discussion of the third phase of the process. A reflection on the two preceding phases is included, and the primary and secondary research questions are answered.

CHAPTER 2

Literature Review

2.1 Introduction

When staging an opera, the point of departure should be studying the score and libretto. Although opera is a form of entertainment, in skilful hands, it can evoke complex emotions. It has been used to elevate monarchs to the status of gods, and to challenge social norms and conventions (Kotnik, 2013). The maxims enshrined within an opera may speak to one audience and pass unnoticed by another (Nedbal, 2009). Operas are dynamic works of art; how they are perceived changes with the passage of time. Therefore, it is important to explore all the facets of the work before a clear decision can be made in terms of its presentation. Every generation finds a way to shape and mould opera to suit its own creative agenda. The current global pandemic has made it impossible to stage operas in theatres, leaving many singers with no performance platform or access to their audience (Vandenberg et al., 2020). Resilience has allowed the art form to endure for more than five hundred years, and in order to survive, opera has to reinvent itself once again (Kotnik, 2013). This is of crucial importance not only to keep the art form alive, but also to create performance opportunities for those who have already embarked on a career in the industry.

In the case of the present study, literature should be viewed as a broad term spanning more than just the body of written research. Scholarly research into a multi-faceted subject such as opera necessitates the inclusion of sources that, traditionally, may not be viewed as academic. Visually oriented platforms such as YouTube, Instagram and Pinterest have become the meeting ground for creatives from all kinds of disciplines. YouTube, in particular, has become a platform through which modern opera creators share their audio-visual representations. It is also an important source of tutorials seeking to encourage the

creation of new media through the open dissemination of skills development. This review makes reference to several YouTube videos, including vignettes or full performances of operas; interviews with directors, composers and designers; as well as conference presentations on the subject of digital opera performance.

The literature review starts with a brief discussion on the composer and the history of the opera, followed by a section on the staging of *Die Zauberflöte* for student productions. Modern productions of the opera are then reviewed, with emphasis on stagings that incorporated digital elements. Further sections examine digital music performance and its origins, digital platforms utilised by artists, the evolution of digital material and the use thereof in opera performance. Lastly, the effects of COVID-19 on tertiary creative studies are evaluated, particularly in terms of its impact on opera studies and voice students.

2.2 *Die Zauberflöte*

Die Zauberflöte is often regarded as Wolfgang Amadeus Mozart's most enigmatic stage work (Steen, 2013). Countless scholars (Buch, 2008; Chailley, 1982; Grattan-Guinness, 1992; Wallace, 1999) have attempted to lure the secrets from its libretto and music, acting under the premise that a hidden meaning exists within the opera. Cowgill et al. (2010) posit that this assumption may be attributed to Mozart's stature as a composer. It seems natural to expect that such a genius would have ensconced wisdom within esoteric symbolism and bewildering twists and turns, in order to convey Enlightenment principles to his audience. An exhaustive analysis of the opera is therefore beyond the scope of the current study. Provided in this thesis is a brief discussion of the opera.

The same high regard for the composer and his music is not awarded to the librettist Emanuel Schikaneder (1751–1812). The libretto has long been judged for its various contradictions, misogynistic assertions and depictions of racial tropes (Brown, 2012;

Howards, 2014; Robinson, 2002; Wallace, 1999). The profound and the absurd are portrayed within the same serious opera, juxtaposing a self-satisfied buffoon, Papageno, with the godlike personification of the Enlightenment, Sarastro. There is also a clear shift in the character of the Queen of the Night between Acts 1 and 2, who progresses from a doting and grieving mother to the raging embodiment of Darkness (Brown, 2012). These paradoxes have also given rise to doubts regarding the authorship of the libretto (Crain, 2004).

The opera has been described as a political allegory of eighteenth-century absolute monarchy (Cowgill et al., 2010; Nedbal, 2009). Buch (2004) discusses twentieth-century readings of the opera, summarising modern interpretations as finding links to “Rosicrucian mysticism, alchemy, numerology, Gnosticism, or even a fully worked-out numerical code of hidden messages based on Cabalistic gematria” (p. 201). Egyptian ritual, however, is depicted in the libretto from the initiation rites of the priest to the worship of the gods Isis and Osiris. These ceremonies portrayed in *Die Zauberflöte* were also to become fundamental to Freemasonry (Fisher, 2001). This may have given rise to the theory of the opera being a means to disseminate Masonic maxims (Chailley, 1982; Grattan-Guinness, 1992). Buch (2004) confirms that Mozart, Schikaneder and their intellectual circle were influenced by Freemasonry. However, the composer and librettist were indisputably influenced by the elements of fairy-tale opera, while inferences to Masonic themes remain speculative (Buch, 2004).

Ritualistic symbolism may be lost on a modern audience, but the portrayal of opposition is evident (Crain, 2004). Within the characterisation of the leading roles, the universal narrative of the battle of Good versus Evil and Light versus Darkness is intertwined with gender roles and stereotypes. These opposing forces are principally displayed in the

relationship between Sarastro and the Queen of the Night. Sarastro and his priests,² who possess the only knowledge to spiritual transcendence, represent Light. The Queen of the Night and her Three Ladies³ are seen as the personification of Darkness (Bartel, 1999).

2.3 Staging of *Die Zauberflöte* for student productions

Ferrara and Ferrara (2014) seek to offer a practical guide in terms of directing scenes from Mozart's operas for college or university opera workshops. *Die Zauberflöte* is one of four operas discussed in the book. The authors selected specific scenes for their performance value for both solo and ensemble numbers. Although the selected scenes are well designed, they are intended for recital or vignette programmes, and are not meant to be staged as a whole.

In her doctoral thesis, Crain (2004) similarly discusses the performance of *Die Zauberflöte*, as well as that of *Così fan tutte*, for college or university opera workshops. Crain's main objective, however, was to present a condensed version of the opera. The time allotted for the performance was two hours, and cuts in the opera were made in conjunction with the conductor and musical director. Further cuts were also made to the dialogue. Crain provides a concise description of the cuts. To aid others in their decision-making when adapting the score for performance, Crain offers practical advice. Her first suggestion is that there should be a balance in light and dark episodes in order for both dramatic and comedic scenes to be displayed aptly in the opera. Secondly, the chosen scenes should highlight the

² This denotes all the priests of the Temple, including soloists and choir members.

³ There is some debate regarding the capitalising of the Three Ladies (in contrast to the priests noted above). Brown-Montesano (2007) promotes the inseparable nature of the Three Ladies, although distinct in nature, as was intended by Mozart and Schikaneder. This is consistent in relation to the Three Fates of Greek mythology and Shakespeare's Three Witches from *Macbeth*. The same will apply to the Three Genii

characters and their progression in the story (Crain, 2004). Finally, she emphasises the importance of the finales:

The importance of the Mozart finale cannot be understated. The finale gathers all the dramatic and musical threads and provides the continuity necessary to move to reconciliation. When reducing these two operas that I have described, one must ensure that the finale remains emotionally intact and free of unintelligibility (Crain, 2004, p. 74).

Aligned with Crain's suggestions, the current study aims to stage *Die Zauberflöte* with a group of students and will be presented in a condensed form. The number of participants, as well as their suitability to the vocal requirements of the roles, neither allows for all the characters to be cast, nor for all the music to be performed.

2.4 Modern productions of *Die Zauberflöte*

Die Zauberflöte remains a popular opera to stage. According to operabase.com (Operabase, 2021), it was the most performed opera in the world between 2004 and 2019. With 490 performances, it towers over other operatic warhorses such as Georges Bizet's *Carmen* with 392 performances; Giacomo Puccini's *Tosca* with 385 performances; and Giuseppe Verdi's *La Traviata* with 352 performances.

Technological advances of the twentieth and twenty-first centuries have allowed directors and designers to bring the opera's fantastical setting to life in an unprecedented manner. In order to gain a better understanding of the visual designs utilised by prominent directors, several video recordings were consulted. The productions by Jun Kaneko (San Francisco Opera, 2012), William Kentridge (Art21, 2011), Barrie Kosky (Deutsche Oper am Rhein, 2013; LA Opera, 2013; Minnesota Opera, 2013a, 2013b, 2013c) and Kobie van

Rensburg (Theater Krefeld und Moenchengladbach⁴, 2018; Theater Münster, 2014) were of great interest as all four directors made use of digital elements in their stage productions.

Brief descriptions of these productions are provided below.

The Japanese visual artist Jun Kaneko (1942–) had already explored the use of digital elements in his productions of *Madama Butterfly* (2007) and *Fidelio* (2008) (Vincent et al., 2017). In 2009, he was commissioned to design a new production of *Die Zauberflöte* for San Francisco Opera that premiered in June 2012 (San Francisco Opera, 2012). Vincent et al. (2017) describe Kaneko's designs as "abstract sculpturalism" (p. 162), where live performers and digital elements, whilst remaining independent, are layered through visual correlation. The projections and animations consist of colourful, overlapping geometric shapes and lines. Kaneko's scenography seeks not to be a visual representation of the narrative, as the digital imagery is rarely connected to the dramatic situations on stage; rather, the inspiration for the design is Mozart's music itself (Vincent et al., 2017). At the time, the production posed substantial technical challenges, as the three-hour production consisted of 1200 pieces of individual media and 160 minutes of animation, all of which were projected onto nine screens. In order to attract as much publicity as possible, San Francisco Opera focused on Kaneko's digital designs by billing their production of *Die Zauberflöte* as the company's first "all-digital" opera (Vincent et al., 2017).

William Kentridge (1955–) is well known for his drawings, prints and animated films (Art21, 2011). Kentridge sets his opera on the African continent during the age of European empires. A complete analysis of the opera can be found in *The dance of the rhino: William Kentridge's Magic Flute* by Guarracino (2010). White-on-black animations projected onto

⁴ It is noted that the correct spelling of the placename is "Mönchengladbach". However, the American Psychological Association (APA) seventh edition referencing style requires the YouTube channel name to be maintained as it appears on the platform.

the stage dominate the visual theme. These images become metaphors for a blackboard and photo negatives, representing the camera. This creates visual references to the theme of light versus darkness and tools of colonial dominance. A white rhinoceros is introduced as a visual, referencing the tragic ending of the female character in nineteenth-century opera. During this time, leading ladies were relegated to only playing sacrificial victims, and so the rhinoceros becomes a silent character portraying a visual counterpoint to the opera's misogynistic themes (Guarracino, 2010).

Barrie Kosky (1967–) chooses a visual theme merging 1930s German expressionism and 1920s silent movies (Deutsche Oper am Rhein, 2013; LA Opera, 2013; Minnesota Opera, 2013a, 2013b, 2013c). The stark, hand-drawn images in black and white, with accents in bright colours, are animated by Paul Barrit. The production aims to seamlessly merge live stage actions and simulated movement. This is achieved by masking certain parts of the singers' bodies and projecting moving limbs on top of the screens. Examples of this technique may be seen in the opening scene, where Tamino is pursued by the serpent (Deutsche Oper am Rhein, 2013) and in the Queen of the Night's aria "Der Hölle Rache kocht in meinem Herzen" [Hell's vengeance burns within my heart] (Minnesota Opera, 2013a).

Kobie van Rensburg (1969–) presents a *Star Wars*-inspired production (Theater Krefeld und Moenchengladbach, 2018; Theater Münster, 2014). Sarastro is depicted as a Jedi Master, and the Queen of the Night appears in Act 2 in Darth Vader garb, proudly proclaiming, "Pamina, ich bin deine Mutter!" [Pamina, I am your Mother!], mimicking the well-known scene from *The Empire Strikes Back*. The struggle between Light and Dark is aptly displayed as the battle between Jedi wielding "the Force" and the forces of the Dark Side. Other contemporary references include a galactic "Facebook" used by the Three Ladies, and ET flying in a bicycle handlebar basket with the Three Boys. The images and animations,

also created by Van Rensburg, differ from the previously mentioned productions, as they are created with digital 3D software.

Die Zauberflöte has also been adapted for the screen, most notably by Swedish film director Ingmar Bergman (1918–2007), whose adaptation was released in 1975 (BFI, 2018). The Northern Irish actor, director, producer and screenwriter, Kenneth Branagh (1960–), has presented it in a World War II setting (Emerging Pictures, 2013). There are also fully animated adaptations available online as educational films for children. The BBC version (Sapozhnikova, 2009a, 2009b, 2009c) remains true to the original score, while the *Große Oper für kleine Leute* [Big opera for little people] (CHOR GESANG - Das Musikmagazin, 2015a, 2015b, 2015c, 2015d) version contains spoken text throughout with melodic themes from the opera featuring as background music.

2.5 Digital music performance

In early 2020, the world was irrevocably impacted by the outbreak of COVID-19. With governments introducing lockdown protocols in quick succession, theatres were closed and performances cancelled (Vandenberg et al., 2020). This necessitated moving performances to digital platforms.

Below I will describe the creation of digital material for music performance, after which I will discuss several strategies utilised for the creation of projects explicitly intended for digital platforms. Lastly, I will focus on opera content created specifically for digital productions.

2.5.1 Two-culture debate

The two-cultures hypothesis initially stems from a lecture, *The two cultures and the scientific revolution*, presented by C. P. Snow in 1959. He postulated that there are two distinct spheres

of thought in western intellectual culture, namely natural science and humanities. The two sides struggle to embrace each other, causing them to evolve in isolation (Snow, 2012). After Snow presented this seminal lecture, his theory has been critiqued and debated by many scholars. New editions have appeared with contemporary discussions on a current application of this theory, with the most recent being published in 2012.

In the modern world, where the lines of technology and art are increasingly blurred, this notion may seem unimaginable. At the advent of the computer age, Becker and Eckel (1995) examined phenomena in which the arts and technology coincide to mutually solve a problem. They showed that, historically, art has been influenced by technological advances, citing the invention of iron tools and its subsequent impact on sculpture. This caused technology to be seen as an additional resource in the creative process. However, the authors highlighted the interrelation of the two domains. Certain artistic ideas are indeed reliant on the development or invention of tools to facilitate the process, but the opposite is equally true in the sense that technological advances stimulate experimentation by artists. Finally, they posited that art and technology have become more closely synergised with the introduction of computer and media art; technology transcends its previous position by becoming the medium through which art is contextualised. This is of vital importance to the current study. The digital platform should not only be the vehicle through which the production is to be presented, but should also form part of the artistic expression thereof.

Bridging the divide between the two cultures is also explored by Espinosa (2007). She expands on Snow's (2012) notion that music has the means to unite the two worlds. In her study, she postulates the interrelation between music and several other disciplines, including psychology (by means of symbolism and allegory), mathematics, computer programming, history, sociology and philosophy. Espinosa (2007) highlights the fact that opera, in particular, is well documented to have heavily influenced the humanities. She is of the

opinion that shifts in political paradigms should be considered in tandem with what people viewed in the theatre, as entertainment is often a metaphorical mirror on society. However, she also examines the negative effect that technology has had on music, referring to the increasing sophistication of sound recording technology. Although advances in audio recordings have allowed for a closer approximation of live performance, these improvements have also increased the pressure on performers to attain artificial ideals. Splicing and auto-tune software have made it possible to revise musical or performance inconsistencies in commercial recordings. These doctored audio files are comparable to airbrushed photos; both set a standard of perfection that is unattainable in reality. Therefore, a fine balance between art and technology must be struck to create a quality product.

While perusing the sources on digital presentations, it became evident that there are two distinct approaches regarding the components of a digital performance. The first is to use video material that is presented on a digital platform. The second technique consists of the use of video footage combined with other digital materials to create a multi-layered digital production. This highlights the differences in approach to the use of technology, as described by Becker and Eckel (1995).

2.5.2 Digital platforms

Since 2010, renowned choral composer Eric Whitacre (1970–) has directed a virtual choir performing some of his most well-known pieces. In the blog post *The Virtual choir: How we did it* (Whitacre, 2010), he describes the process of forming a virtual choir. Firstly, a performance piece was selected, after which a prior recording of the piece was sent to participants. All participants were then asked to record their respective voice parts whilst singing along to the preselected track. The recordings of all the participants were then compiled to form a cohesive product. This performance proved to be unsatisfactory, as it

lacked collaborative musical nuances within the participants' singing. Whitacre subsequently experimented with filming a conductor track (video recording of himself conducting the piece whilst mentally hearing the music) followed by a recording of the piano accompaniment, guided by the conductor track. Participants were then asked to make video recordings of their various voice parts. The footage was compiled and presented as a virtual choir, with the faces of the participants visible on a grid of 8 by 38. The presentation also included panning shots across the choir, as well as close-up footage. No evidence could be found of the compilation process or the software used.

In their June 2020 position paper, *Virtual Choirs in Higher Education*, the National Collegiate Choral Organization (NCCO) also discuss the process of compiling virtual choir material. Concurring with Whitacre (2010), the authors advise use of a conductor or accompaniment track. The report further highlights practical challenges, the first of which is the amount of time needed for the preparation, recording and compilation of the material. It is suggested that the production of a five- or six-minute video requires the same amount of effort as that of a live performance of several works. One should also be aware of the steep learning curve associated with familiarising oneself with sound and video editing software. Project funding is another concern, as the software needed for the editing and compilation may be expensive. Finally, choral directors should ensure that all choristers have equal access to resources (NCCO, 2020).

Another useful guide to the process of virtual choir recording is provided on the website of the Task Force for Innovation of the Western Region American Choral Directors Association (WACDA). On the Task Force's webpage is a link to Technology Resources. The document outlines various institutional aids and provides information on audio software for rehearsal and recording purposes, as well as information on audio/video editing and production software (Western Region American Choral Directors Association, 2020).

In collaboration with Tapestry Opera, the Schulich School of Music at McGill University presented nine opera projects by living Canadian composers and librettists in November 2020 (Schulich School of Music, 2020a, 2020b). In the programme notes, Hansen (2020), Director of Opera Studies at McGill, explains that the series of productions were created for a digital platform, their annual opera season for 2020 was cancelled due to COVID-19 restrictions. The *Digital Opera Projects* initiative formed part of the performance season named Opera McGill 2.0/2.1, that would include 20 opera titles. The productions would be presented on various platforms including webcasts, YouTube watch parties, Zoom video conferencing, and prepared audio and video recordings made at the Pollack and Tanna Schulich Halls on the McGill University campus. The productions for the *Digital Opera Projects* were rehearsed via Zoom sessions, with coaches and singers participating remotely from Canada, Germany, Namibia, Sweden, United States of America and the United Kingdom. Hansen (2020) further explains that, after the initial rehearsal period, the productions were moved to the Pollack Hall for artists to rehearse performing together. During rehearsals, all participants were required to wear masks and to adhere to strict social distancing protocols (Schulich School of Music, 2020b). The filming of the operas took place on the larger stage of the Tanna Schulich Hall. One of the nine operas was filmed remotely, as singers were unable to be in the same locale at the same time (Schulich School of Music, 2020a).

2.5.3 Digital materials

Digital music is rooted in the experimental compositions of composer John Cage (1912–1992) (Silverman, 2012). During his 1940 lecture, *The Future of Music: Credo*, Cage noted that, in the future, composers would have the ability to use electronic instruments. These electronic instruments would allow all audible sounds to be utilised for musical

purposes. According to Silverman, Cage started experimenting with re-recording electronic sounds whilst teaching at The Cornish School in Seattle (now the Cornish College of the Arts). The United States' first radio school was established at Cornish, and this school had the latest recording and broadcasting technology available at the time. Cage's childhood fascination with radio broadcasting had drawn him to the institution. Whilst teaching and researching at Cornish, he composed *Imaginary Landscape No. 1* in April 1939. This work is now believed to be the first electroacoustic music composition (Silverman, 2012). The performance of this composition was intended for live or pre-recorded radio transmission. Cage composed the piece for a small ensemble consisting of a muted piano, Chinese cymbal and electronic sounds. The electronic sounds were produced by variable-speed phonograph turntables playing recordings of test frequencies (Sebastian Ars Acoustica, 2017).

During the 1970s, there were further advances in the production of digital music. David Behrman, John Bischoff, Rich Gold and Jim Horton first experimented with creating music performances on connected computers (Akkermann, 2014). In November 1978, these artists formed The League of Automatic Music Composers. Horton initially started experimenting with the first personal computers of the time, the KIM-1 (Keyboard Input Monitor). Behrman was also instrumental in shaping the group's work by developing pieces in which electronic circuits would interact with live performers. The group started experimenting with machine interconnections in which one machine would detect and emphasise a harmonic event produced by one or more of the other machines. This was an early experiment in artificial intelligence, as the group viewed half of the band as human (the composers) and the other half as artificial (the computers) (Akkermann, 2014). This experiment therefore allowed for synthesis between the analogue and digital environment.

The early experiments with digital music were considered by detractors to resemble "white noise" rather than traditional tonal music (Silverman, 2012). Digital instruments were,

however, also used in less tonally experimental music. The first digital orchestra used in live performance was created in 1987 by composer Christopher Yavelow (1950–) (Yavelow, 1997). The orchestra created was part of a larger work, his opera *Countdown*, in collaboration with the Boston Lyric Opera Company. It also became the world's first online opera when the production was made available for live streaming in 1994 (Yavelow, 1994). A digital orchestra can be defined as computer generated sounds produced by virtual instruments that mimic traditional instruments, simulating the performance of an analogue orchestra. This should clearly be differentiated from a digital reproduction of analogue instruments.

2.5.4 Digital opera

An example of early digital opera is *Found Voices*, composed by Joe Duddell (1972–), with visuals by Craig Vear (1970–) (Duddell, 2012). The production is a reflection on the effects of climate change. It is not a conventional opera as it does not include characters, but rather audio and visual representations of the sea, ice, glaciers, crevasses, wind, weather, animals, and people that convey the narrative of how humankind has affected the environment. With the advent of COVID-19, the opposite effect may be seen, as humans were adversely affected by nature. A novel reflection on the effects of the disease on our social structure, caused by social distancing and lockdowns, can be found in *Tag 47* [Day 47]. It premiered on 1 May 2020, the 47th day of Austria's hard lockdown. This opera was composed by Gordon Safari (1980–) and was performed by the Kammeroper Salzburg [Chamber opera Salzburg] (Kammeroper Salzburg, 2020). In the production, four protagonists reflect on their lived experience and the troubles they faced during lockdown. They filmed themselves in their real-world spaces where they were isolating. The narrative also focuses on how society will function after the pandemic. To this end, the opera poses three specific questions, namely how couples are affected by distancing; what risks are

associated with isolation; and lastly, how we will bring ourselves to live close to others after the pandemic has passed. The creators of the opera classify it as specifically falling within the genre of digital opera, as it is a digital *Gesamtkunstwerk* [total work of art] in which elements of theatre, music and film are combined.

Another form of digital opera is virtual opera, which is conceptualised as a simulated performance space, whether two- or three-dimensional, in which the opera is performed. This differs from digital opera, as the physical locale, displayed around and behind the performers, does not form part of the actual presentation. This is normally achieved through the use of green or blue screens that are removed post-production and replaced with a representation of the virtual world. An example of this is Vegas City Opera's presentation of *The Cunning Little Vixen* (Vegas City Opera, 2020). Young singers, who were involved in their annual opera academy, were filmed singing their respective roles whilst in different locations. The backgrounds were removed and footage of the singers was superimposed onto two-dimensional (2D) images of various locales that included a log cabin as well as various woodland scenes. In some scenes, video material was also used, but for two different purposes. The opening sequence, featuring a windmill and other nature scenes, was used to set the rural countryside milieu of the opera. Video footage was also used to convey a symbolic narrative; a growing flower symbolising the passing of time is an example of this approach.

Not all endeavours into virtual opera were initiated out of necessity, as there are projects that predate the start of the pandemic. During the 2019 Opera Beyond Conference, Tanja Bastamow presented a talk called *Virtual scenography for live performance* (Opera Beyond, 2020). In this presentation, she shared the work of StarHop Creative named *Mirages*. This project is on the frontier of digital set design that seeks to create an immersive scenography. The 3D setting of this piece is more abstract than literal, yet the production still

incorporates green-screen footage of performers. The overlaying of the footage and 3D environment takes place in real time, allowing for each performance to be unique. The visuals are either streamed to viewers or presented on screens to a live audience. Immersion is achieved by means of motion detection cameras and sophisticated tracking software. Performers are able to interact with digital particles within the simulated performance space. This method is unique, as previous interaction with the digital environment had to be well choreographed and rehearsed. Movements therefore had to remain the same for every iteration to ensure the authenticity of the interaction with digital elements.

The work by Kobie van Rensburg is also important. In workshops during the 2020 National Arts Festival, Van Rensburg presented two talks on producing operas in a digital environment. In *Opera in Virtual Reality – No Stage, No Problem!* (National Arts Festival, 2020a), a practical guide was presented on how to use digital elements in stage productions. The digital elements are used in a variety of ways, the first of which consists of the projection of digital images on the stage, scrims⁵ or, occasionally, the performers themselves. The second way to use digital elements constitutes the live green or blue screen compositing of singers into a digital world, presented on screens above the stage. This method allows the audience to experience the live vocal and physical interpretation of the singers whilst perceiving them in the imagined virtual world. Secondary digital elements are also introduced through animated translations of the text in lieu of traditional surtitles. The digital elements therefore become part of the aesthetic instead of being a mere medium of presentation (National Arts Festival, 2020a).

⁵ Fabric made of translucent cloth, hung from décor bars upon which one can project images or other lighting effects (Speciality Theatre, n.d.).

In *The Invisible Stage – The Magic of Digital Compositing for Operatic Productions* (National Arts Festival, 2020b), the creation of opera for digital platforms is addressed. Van Rensburg promotes the computer game development suite *Unreal Engine 4*⁶ as a suitable platform for creating digital worlds in which, owing to its powerful, real-time 3D creation capabilities, opera can be performed. A singer is recorded in a green screen studio and composited into a virtual world created in the Unreal engine (National Arts Festival, 2020b). The workshops culminated in the creation of two virtual opera presentations, *Arcadia* and *Inferno*, which were presented during the online festival. Both include performances by the South African tenor Siyabonga Maqungo of the baroque arias “Where’er you walk”, from Handel’s *Semele* HWV 58, and “Zerschmettert mich, ihr Felsen und ihr Hügel” [O crush me now, you rocks and mountains], from J. S. Bach’s *Johannes-Passion* BWV 245.

The final production to explore, which premiered on 23 October 2020, is *Alice in the Pandemic*. This opera, composed by Jorge Sosa (1976–), is a production by White Snake Projects (2020). It is set in a fictional town and takes the protagonist, Alice, on a journey through the streets of her town in search of her mother, who had been taken to the hospital in an ambulance. The town is fully rendered in 3D topography, complete with buildings, parks, cars and a carnival. This production unique in the sense that singers from remote locations sing together synchronously. Due to latency issues caused by variables in internet connectivity, it is usually not possible for singers from different locations to sing rhythmically in unison. Rather than using green/blue screen footage, this opera features 3D generated characters who are able to interact with one another. It is also mentioned that these avatars lip-sync with the singers, creating the illusion that the virtual characters are singing. Information on the methodology used to achieve this result could not be found.

⁶ <https://www.unrealengine.com/en-US/>

2.6 Tertiary creative studies during the COVID-19 pandemic

All facets of daily life were irrevocably changed during the outbreak of the pandemic. As the duration of the disease and subsequent lockdown restrictions were uncertain, institutions of higher learning were pressed to find solutions for students to continue with their tuition during this period. The only alternative was for an entire year of study to be lost. However, the cost to people's lives and livelihoods and the impact on the global economy would have been devastating. Mavrin et al. (2020) reported on artistic and creative education in universities during the first year of the pandemic. They state that universities are deemed as merely being places of education. However, beyond this primary task, they also facilitate multilogues that result in innovation. Mavrin et al. (2020) regard online learning platforms as unsuitable to this task, as virtual classrooms do not allow for the same level of interaction as real classrooms. Despite continuous technological advances, artificial intelligence will never replace direct human interaction.

Arts education, due to its practical nature, was found to require more adaptation than classical theoretical courses (Mavrin et al., 2020). In their study, respondents suggested that there were positives to online teaching in terms of improved time management and a more individual approach to learning. The negatives reported concerned an increase in obligations and academic commitment, as well as frustration caused by technical issues. Lastly, Mavrin et al. (2020) found that students still preferred attending physical classes and deemed online study programs as economically less valuable. Dik et al. (2021) point out that inequalities in the access to education were brought to the fore during the pandemic. Although arts educators rose to the challenge of engaging students through online platforms, these platforms were not always available to or effective for all students. Adverse effects on the economy and strain on the educational system may result in the arts becoming less accessible. This situation has, however, created the opportunity for new entrants into the teaching

profession to be equipped with relevant technological and pedagogical approaches, and for their preparation to be thus reimagined. Which of the strategies implemented in virtual teaching will be retained, remains to be seen (Dik et al., 2021).

2.6.1 Effects of COVID-19 on opera tuition

At the time of the publication of this research study, the far-reaching long-term effects of COVID-19 on voice training and opera studies are not yet known. Each discipline will have had its own specific challenges to address in order to curb the immediate impact of the pandemic. Murdaugh et al. (2020) found that singing teachers across the globe were forced to teach virtually at very short notice. This meant that there was little to no preparation and training on the technological aspects associated with the transition. Video conferencing platforms such as Zoom, Microsoft Teams, VoiceLessonsApp, and FaceTime were utilised to facilitate weekly lessons. However, it is noted that these applications negatively affect the transmitted voice signal, due to the noise-cancelling algorithms necessary to distinguish speech from background noise. This leads to the inadequate representation of the vocal spectral composition and dynamic range. In addition, Murdaugh et al. (2020) explain that virtual vocal lessons are further hindered by internet latency. Accompanying a student on the piano over a video or voice call is rendered impossible due to the lag. Contrary to the findings of Mavrin et al. (2020), Murdaugh et al. (2020) found that the students consulted preferred online teaching.

In concurrence with Murdaugh et al. (2021), Güngör et al. (2021), whose study focused on vocal education within opera courses, found that distance education platforms, as well as internet infrastructure, were inadequate for optimal vocal tuition. Platforms used during pre-pandemic research into online music performance, including “Ninjam”, “Geant”, “Musigy” and “EJamming”, were impossible to replicate during the pandemic, as these

projects called for the use of recording studios and stable internet connections. These facilities were inaccessible due to lockdown restrictions, which limited movement and social interaction. Furthermore, they were not readily available to many teachers and students, and could only be acquired at great financial cost to tertiary institutions (Güngör et al., 2021). These findings highlight the need for current strategies that allow cost-effective and reliable online learning.

Traditionally, opera training programmes do not incorporate online technology to teach the skills necessary for becoming a professional performer. Dik et al. (2021) discuss how the pandemic has exacerbated long-standing difficulties within arts education. It is therefore prudent to explore the pre-pandemic challenges of opera tuition to elucidate the impact of the disease. Due to the complexity of the tertiary training of opera singers, universities and conservatoires created multifaceted study programmes to address all the necessary skills needed for students to become proficient in the art. In his seminal book, *On the art of singing* (1996), Miller names seven pillars for performance success: talent, vocal technique, musicianship, artistic imagination, perseverance, objectivity and business acumen. Although these elements are common to the success of many an operatic career, a number of singers have proven that added skills are advantageous. Lewis (2000) postulates that opera is unique among the performing arts in terms of the specific demands placed on the performer. She views the study process of learning operatic roles in terms of four interdependent levels, which she categorises as dramatic, linguistic, musical and vocal processes. In her autobiography, the celebrated American soprano Renée Fleming (2005) opines that singers should possess natural talent, tenacity and resilience. However, to ensure success, it also takes hard work and luck (Fleming, 2005). White and Rosenberg (2007) assert that, combined with a solid vocal technique, one should also possess excellent acting skills, versatility, the willingness to take risks and the ability to cope with failure. Latukefu (2007) concurs with her

contemporaries, but adds the need for singers to be educated in psychology, philosophy and physiology, as operatic performance is a complex synthesis of physical and mental activities, further complicated by the portrayal of a narrative and complex dramatic personae. Lastly, Briggs (2015) states that no other musical instrument combines the production of sound with text, often in a language foreign to the performer, while acting, dancing, sword fighting or executing acrobatic skills. Above all, the singer is still expected to maintain beauty of tone and vocal colour.

Although programmes aim to equip students with the necessary skills, many voice students have little prior training in music, vocal technique and performance (Briggs, 2015). Miller (1996) describes the tuition of singers during the golden age of the *bel canto* era (1700–1830). During this period, the training model for aspiring classical voice practitioners consisted of seven years of daily lessons with a master teacher. Furthermore, students lived with their voice teachers to further facilitate their rigorous training schedule (Miller, 1996). Today's tertiary singing students do not have enough time for the amount of one-on-one tuition awarded to their earlier counterparts. In her study, Schindler (2014) examines tertiary music education, with specific focus on the training of vocal performers. She finds that students traditionally spend four years in undergraduate courses, with a further two years of study if a postgraduate degree is planned. Physical, psychological and emotional developmental processes are cited as necessary fundamentals to the study of the voice. She also highlights the intricacies associated with the motor-learned elements of singing (Schindler, 2014).

Briggs (2015) points out that the various stages of the maturing of the voice cause major vocal and psychophysiological challenges for singers of both genders. These changes in the body and vocal instrument cause vocal training to be challenging and frustrating, discouraging some from singing altogether. Others may be late in discovering their operatic

potential, often already in their early twenties. It may then take another ten years before their voices reach full maturity. This is in stark contrast with instrumentalists, who enter university after having received intense formal training from a very young age (Briggs, 2015). This sentiment is shared by Graham (2009), Latukefu (2007) and Miller (1996). Many singers, therefore, are years behind instrumentalists in their technical ability and musicianship when they commence tertiary studies. These students, however, are still expected to graduate with the same level of informed performance as their instrumental counterparts, whilst also acquiring the various skills required to enter the operatic profession (Briggs, 2015).

Becoming an opera singer is, however, not only based on vocal proficiency. Kane (2015) notes Malcolm Gladwell's (2008) assertion that it takes 10,000 hours to become an expert in a field. She found that, during tertiary opera training, most of a student's time is dedicated to coursework in which music history, music theory, musicianship and singing are addressed. Unfortunately, students may not have much opportunity to hone their craft by performing on stage. The amount of time allocated to performance is dependent on the chosen institution of learning. In her research, Schindler (2014) lists the various performance opportunities presented at the Queensland Conservatorium at Griffith University, Australia. Weekly performance classes, tutored by departmental staff, create the opportunity for students to perform and receive feedback. Frequently, guest teachers, coaches, conductors or artists, also attend these classes, exposing the students to external influences. The classes are presented in large performance spaces at the Conservatorium. Further performance activities include workshops, public concerts and opera projects. Every year, a program of opera vignettes, as well as a fully staged opera, is performed (Schindler, 2014).

Similarly, Briggs (2015) investigated a tertiary opera programme in Australia, as well as another in the United Kingdom. The Australian opera school was independent from the main music department, whereas the British programme was only an opera stream,

facilitating opera training through elective modules. The names of participants and institutions included in her field study remained confidential. Students who participated in the opera programmes completed questionnaires on various aspects of their tertiary studies. A question on their motivation for choosing the specific institution was included. A large number of students indicated that they were attracted to the practical experience offered by the Australian university. They found that adding performed roles to their curriculum vitae was most advantageous to their professional careers. Their stress levels during productions also decreased as a result of developing performance stamina and gaining experience from independent rehearsal preparation. The programme presented three productions a year, each with two casts. This gave students the opportunity to perform several principal roles over the course of their studies.

Due to its structure, the UK-based programme could not offer the same level of practical tuition. Only two operas were staged per year, with few solo roles, which were only available to top students. Both programmes offered opera chorus work opportunities to undergraduate students (Briggs, 2015). However, Briggs cautions that there is a disparity between opera schools' and opera companies' perception of the most important qualities of a proficient opera singer. The schools focused on vocal quality and technique, whereas the companies focused on whether a singer was capable of communicating with an audience. The ability to cope with the physical load of singing in an opera production, even when ill or tired, was also of great importance (Briggs, 2015).

Insecurity is noted as the primary reason for many young graduates not to enter a professional operatic career (Feșteu, 2021; Kane, 2015; Mabry, 2012). Mabry (2012) suggests that young professionals experience the most anxiety when first entering the opera industry due to preparing insufficiently and doubting their talent. She further advises young singers to explore their performance capabilities as often as possible. This will allow students

to discover their own unique style of performing, and will keep them from merely mimicking a famous singer they admire. Feşteu (2021) expands on the need for performance experience and how it will serve students, not only during their studies, but for the rest of their careers. She asserts that presenting an audition portfolio with arias from roles that have been performed in full, or as part of vignettes, is most advantageous to young artists. This sets them apart from others who have only prepared pieces in studio or for examinations. Furthermore, singers often perform arias more confidently in stressful audition situations if they have previously studied and performed the roles (Feşteu, 2021).

2.6.2 Effects of singing on the psychological impact of COVID-19

In addition to the need for performance experience, it is also important for students to maintain contact with their colleagues, even if only through an electronic platform. In their investigation into the psychological effects of pandemic lockdown protocols in Italy, Corvo and De Caro (2020) show that these social distancing measures had a strong impact on individuals' mental wellbeing. Radical changes to social interaction were rapidly implemented, depriving people of a fundamental natural instinct to seek the company of others. Even family members were restricted from meeting with each other. A perception of isolation and distress was generated due to the uncertainty about the future. As more cases were reported and the mortality rate started to rise, people feared contact with each other (Corvo & De Caro, 2020). It was noted that during this time, familiar pastimes were implemented as a coping mechanism. People started to appear in their windows, singing to anyone who would listen. Soon, entire neighbourhoods started to engage in communal singing. Individuals could still express their identity through the variety of songs and styles they performed. Singing enhanced their mood, and curbed feelings of loneliness (Corvo & De Caro, 2020).

The large body of research that considers the potential health and wellbeing benefits of group singing is noted by Daffern et al. (2021). Pearce et al. (2016) showed that singing together improved the collective bonding of a group. Pearce et al. (2017) further examined the difference in social cohesion between competitive and cooperative singing. Contrary to their preconceived notion, it was found that both activities showed an increase in social closeness. They expounded that singing had an “ice-breaker” effect when unfamiliar individuals engaged in the activity. There was no protracted phase of assessment to form a positive connection. Daffern et al. (2021) states that group singing is more advantageous as a social bonding activity than other “social” activities. It even showed significantly higher levels of reported wellbeing than solo singing.

During the restrictions of the lockdown period, choral members could not engage in communal music-making in physical spaces, and had to resort to online platforms. Daffern et al. (2021) conjecture that virtual choir singing would not yield the same positive response as in-person interactions. They also examined the failings of online platforms to facilitate choir rehearsals as they would have occurred under pre-pandemic circumstances. They considered three methods of conducting virtual choir rehearsals. The first is the multi-track model, as used by Eric Whitacre, in which individual recordings of participants are layered over each other. The second method is facilitated through the use of social media platforms, such as Facebook in particular. Singers are encouraged to perform along to a live stream on the platform. The only interaction between participants takes place through the chat boxes. The final method explored was the use of existing video conferencing software, in which members are able to engage with each other through spoken conversation or messages in the chat boxes. Although singing can occur at the same time, latency does not allow for a cohesive performance. All participants have to mute their microphones, allowing only the facilitator to be heard. Therefore, the singers cannot hear each other while they are singing.

These methods fail in terms of re-creating an in-person choir experience. Daffern et al. (2021) concluded that online choir experiences did not facilitate the same level of social cohesion as physical choir rehearsals, although an improvement in mental well-being was still reported. During the course of the production, informal feedback from the CVOS students indicated that the same is true for opera students.

2.7 Conclusion

It is hard to think of an opera that has elicited more rigorous debate than *Die Zauberflöte*. Certain scholars view it as a masterpiece filled with hidden meaning and symbolism; others cannot excuse its outdated social commentary and racial tropes. Adaptation has remained the answer, and the opera had been reshaped to convey the views of the director, designers and performers. The opera's fairy-tale setting has been one aspect lending itself to modern interpretation, particularly as platform for the use of digital scenography. This has allowed the opera to be set in times and locations hitherto not experienced, from interstellar battle grounds to geometric sculptural installations.

Technology has also advanced opera performance in general through the development of virtual performances. Previously, digital elements were integrated within physical performance spaces, whereas real-world performances are now transposed onto virtual stages. This has become of vital importance for the longevity of the art form in a time where opera may only be accessed on a screen. The global pandemic and its impact on all aspects of life have intensified the uncertainty young singers have faced long before the outbreak of COVID-19. Embarking on a career in the opera industry has always been challenging. Singers spend many years in training, seeking to perfect their technique. This requires diligent study in all the skills needed to become a proficient singer. However, the hard work does not stop there. Opera singers are not just musicians, but singing actors. The ability to

effectively embody a character through music and drama can only be gained through experience.

Moving academic activities to virtual platforms was necessary to ensure the continuation of learning during the 2020 and 2021 academic years. How long classes will remain online is unknown, and therefore initiatives have been found to bring the study of opera into students' homes. Although there are technological challenges that hamper the teaching of singing, online learning still allows young classical vocalists to work on their technique. However, gaining performance experience in opera productions has been harder to achieve. Previous work has focused on presenting funded digital opera performances, created by teams of creative professionals with access to professional recording studios, sophisticated filming rigs and advanced computer technology. This study seeks to address this problem through evaluating sustainable solutions that will ensure the democratisation of digital opera performance.

CHAPTER 3

Methodology

3.1 Introduction

This chapter presents the methodology underpinning this study. Creating an artistic project requires the examination not only of the content created, but of the process of creation itself. Therefore, a practice-based approach was followed, allowing the author to fulfil the roles of both creator and researcher. In the first section, the rationale for the selected research approach is examined, after which the research design and data collection are presented. The procedure discussed in this section closely follows the phases in the creation of an artistic artefact. Lastly, the sampling strategy is described and ethical considerations are discussed.

3.2 Research approach

The study follows a practice-based research approach. The terms *practice* and *research* and how they relate to each other, have been greatly discussed in literature pertaining to arts research. The nuanced variations in the concepts of practice as research and research as practice are not clearly differentiated. Furthermore, practice-led and practice-based research have been used interchangeably in the literature. It is, however, paramount to define the methods clearly. Practice-based research presents a creative artefact as the basis of the contribution to knowledge, whilst practice-led research is primarily concerned with new understandings about practice (Candy & Edmonds, 2018). As the current study examines the creation of a digital presentation of Mozart's opera, *Die Zauberflöte*, the production becomes the creative artefact.

Ansari et al. (2014) find that research methods with practice as the basis for inquiry do not conform to traditional methods as described by either quantitative or qualitative research.

Rather, these practice-based methods are conceptualised as performative research. Performative research stems from qualitative research and relies on similar strategies. However, qualitative researchers view artistic practice exclusively as an object of study, whereas performative researchers establish artistic practice as the research method (Ansari et al., 2014).

It is also important to note the role of the researcher within practice-based research. Nimkulrat (2007) considers the duality of the practice-researcher in the field of performative research. During the practice phase of a study, the creative process is emphasised, allowing the artefact to be shaped through freedom and expressivity. After the creative process has been completed, the artefact is analysed. This results in the intended research, which culminates in a written dissertation or thesis. These steps highlight the need for documentation of the creative process to accurately reflect on the elements that formed the artefact during the artistic production process (Nimkulrat, 2007).

To facilitate the documentation of the current study, the iterative cyclic web model, as proposed by Smith and Dean (2009), was adopted. Smith and Dean (2009), in accordance with Nimkulrat (2007), highlight the value of combining theorisation and creative practice. In order to facilitate an academic output, the importance of the iterative process during the creation of artistic works, as well as the research process, is discussed. This process starts with the cycle of repeating procedures to allow for variation, thereby creating different iterations. This results in many versions of one particular object, and the creator can select which to focus on and which to reject. The rationale for the selection can be based on aesthetic, technical or ideological grounds, and may, in certain cases, be somewhat random (Nimkulrat, 2007). This iterative cyclic web model corresponds closely to my own creative process during the design of my opera productions. Funding whether by government or private institutions, have dwindled in recent years. Large opera companies, with the capacity

to employ teams of creatives, have all but disappeared. Due to the nature of the operatic environment in Gauteng, South Africa, I have frequently fulfilled the role of director, designer and content creator. Many hours are spent on stage, experimenting with different iterations of, for example, the lighting design, projected images or animations, and the placement pieces of décor or surfaces onto which to project. Although the platform of presentation will differ from previous productions, the same process applied.

It is, however, prudent to discuss the collaborative nature of any theatre or opera production. The director is responsible for the governing visual and philosophical aesthetic, but the final production may only be created through collaboration with the other artists. Kemmis (2009) suggests that there are cultural, economic and political factors that may influence a project. The relation between these components may be unstable and volatile and are beyond the control of the creators. Although one creator is responsible for the artistic vision, seeking collaborative solutions with all participants will mitigate the effects of these factors on the creative endeavour. The collective decision-making process will further shape the long-term effects of the practice and ensure positive outcomes. This approach is conducive to a production that, rather than being one-sided, embodies the culmination of various points of view whilst still conforming to an overarching aesthetic.

3.3 Research design and data collection

The research design for this study builds on the structure described by Candy (2006). According to her, practice-based research on the execution of a new artistic artefact should include sections on foundation work, new studies (or creation of artistic outcomes) and results. The design also resembles the study outline as described by Steele (2016), who proposes a design that mimics the process of creating an artefact and categorises it into three

phases, namely planning, practical studio action and reflection. Although the terminology differs, the processes described are similar.

Gray and Malins (2004) support the use of multiple data collection instruments in arts and design studies, as well as the integration of diverse forms of media associated with each. This allows for a more meaningful and balanced understanding of a research issue through triangulation. Triangulation promotes examining the complexity of issues from different perspectives. Below, I will discuss each phase of the study, as well as the data collection instruments that will be applied to each of these phases.

The first phase focused on the planning and preparation of the production. Each action taken during the planning and preparation phase was informed by standard procedure within the opera industry. Chapter 4 presents a detailed discussion on these procedures. The process started with the selection of an opera to perform. In this case, the chosen opera was *Die Zauberflöte* KV 620 by W. A. Mozart. This was followed by the casting of suitable candidates from the enrolled students. The decisions pertaining to the choice of opera and the assignment of roles were made in consultation with the CVOS singing lecturers and programme coordinator. Subsequently, students were invited to take part in the production, portraying the roles that were assigned to them. They were free to accept or decline the invitation without prejudice towards their studies. All students accepted the invitation. Only one role could not be filled by a student in the programme. An alumnus was contacted, who agreed to take part in the production. The aim of the study is to create a digital production under constrained circumstances. Protocols, as dictated by level 5 lockdown, informed the delineation of the constraints imposed on the production. The following restrictions, as set out in the *Amendment of regulations issued in terms of section 27(2)* (Department of Co-operative Governance and Traditional Affairs, 2020b), were applicable to this study:

- Confining of all individuals to their place of residence, except to fulfil essential functions
- Prohibition on the purchase of non-essential items

Although not all of these protocols were still legally enforced at the time of the study, participants were asked to adhere to these restrictions as if they had been required. Therefore, participants could only use spaces within their homes for all recordings. Furthermore, recording devices, items of clothing and props were limited to those already available.

Further actions taken during this phase included:

- a) The production score was prepared, indicating the necessary cuts, as well as the musical numbers⁷ which were to be included. This was provided to the participants before the rehearsal period commenced.
- b) A precise outline of the scenes and musical numbers found therein was also provided. This document included references to page numbers as found in the production score.
- c) Participants were supplied with a detailed rehearsal schedule, demarcating the musical numbers to be rehearsed during each session.
- d) Audio files with the melodic lines and accompaniment tracks, as well as recordings of the German pronunciation, were prepared. These were supplied to aid each participant in their preparation process.
- e) Participants received guidelines on effective audio and visual content creation based on the method set out by Columbia University (n.d.) in their tips on recording videos at home.

Further action taken during this phase included performing preliminary tests by means of filming and photographing myself. These trials, combined with the recording guidelines,

⁷ Both Mould (2016) and Steele (2016) adopt this term when describing the music sections of a Singspiel.

informed the creation of a participant survey. The survey was sent to participants to determine their access to resources regarding the recording of audio and video material. Necessary resources for partaking in the study included electronic devices for audio and video recording, access to data for the electronic sending and receiving of materials, as well as suitable surroundings as set out in the aforementioned guidelines. A copy of this survey is included in Appendix C of this document.

Rehearsals were also conducted during this phase. Weekly sessions were scheduled on Wednesday afternoons, with each session lasting two hours. Rehearsals took place on an electronic platform rather than face-to-face. The Google Meet platform was utilised, as each student is supplied with a UP Tuks Gmail address by the University of Pretoria. A further benefit of using Google platforms, as provided by the university, is the ability to send large files through Google Drive to the aforementioned email addresses with no limitation to data storage capacity.

Phase two included all activities that took place during the practical studio action and is presented as an explorative narrative. This phase examines the process of practice as it relates to the creation of a digital opera. It has been categorised into visual and audio processes. Each subsection includes a report on the software packages and platforms used during the editing and compilation of the individual elements. The rationale for the selection of the software packages is also discussed. For a summarised list of these applications, see Appendix F. A detailed system specification description of the laptop used for the editing of the material is presented in Appendix G. Candy (2006) proposes the use of an electronic or handwritten record to allow for the monitoring and recording of observations or events as they occur. All activities concerning the practical studio action were documented in a practice journal, saved electronically by means of a Microsoft PowerPoint file. This format allowed written observations to be augmented by images of the iterative cyclic web. These images

were then used during the chapter discussions to better illustrate the creative process. See Appendix D for an example slide from the journal.

Phase three concludes the study with a reflection on the activities undertaken during the preceding phases. Mortari (2015) examines the different perspectives of reflexivity in practice. Reflective analysis of the heuristic experience is posited as essential to the trustworthiness of any research. Reflexivity may be viewed through pragmatistic, critical, hermeneutic and phenomenological lenses. The pragmatist perspective on reflection is conducive to the current study. This view directs reflection to the solution of an established problem. Schön, cited in Mortari (2015), conceptualises reflection in two forms: reflection-in-action and reflection-on-action. Reflection-in-action refers to thinking about doing something whilst doing it. This approach allows researchers to function competently in situations in which no answers or standard procedures are available in terms of mitigating problematic or unforeseen events. Reflection-on-action is retrospective in nature, allowing one to comprehend how knowledge-in-action has contributed to the solution of the problem (Mortari, 2015, p. 4). This lens through which to reflect on the practice conducted during this study facilitates the understanding of artistic endeavours during times when the creative process is constrained.

This study follows the guidelines as prescribed by the American Psychological Association (APA) seventh edition. This applies to the style and referencing found in the document

3.4 Sampling strategy

Participants in the study were selected from the CVOS programme at the School of the Arts, University of Pretoria. These students participated in the study by means of performing in the production. A panel, consisting of the singing teachers and coordinator of the CVOS

programme, cast suitable candidates in the available roles. Each candidate was selected for his or her suitability to portray a role, which included vocal *fach*⁸, level of vocal technique development, and dramatic interpretation of the character.

3.5 Ethical considerations

Although the study includes participants, these individuals functioned more as collaborators than research subjects. The ethical considerations for the study were addressed as set out by Gray and Malins (2004). There are three guiding ethical principles to a collaborative study: gaining permissions and access; clarity of research framework and participants' involvement; and use of data or information resulting from participants' involvement.

Since the participants are enrolled students of the CVOS programme at the School of the Arts, permission to conduct the study was requested from the Director of Student Affairs at the University of Pretoria. The matter was referred to the Registrar of the University of Pretoria. Provisional approval of the study was received on 18 August 2020 (see Appendix A, Letter of approval for research study, Office of the Registrar).

Participants were informed of their duties and level of involvement in the information section, as found in the participants' letter of informed consent. The letters were signed both by the participants and the researcher to gain individual consent (see Appendix B, Participant informed consent form). By signing the participant informed consent form, participants waived the rights to all audio or video recordings gathered during the practical studio action in order to allow the unhindered editing and compositing of said recordings. After participants consented to take part in the study, they received the Participant Survey.

⁸ System classifying a singer's voice type.

Financial assistance was offered to participants for the purchase of data, but this was not used by any of the participants. Although the participant survey guided the process of the content creation, the feedback received is not presented in this study. Where necessary, it is discussed in general terms.

3.6 Conclusion

In Chapter 3, an outline of the research design and methodology underpinning the study was provided. The rationale for selecting a practice-based approach was presented, detailing the importance of research through practice when examining the creation of an artefact. It further highlighted the importance of documenting the creative process to allow for robust academic reflection. The iterative cyclic web was proposed to fulfil this objective. This method facilitates robust discussions on theorisation and creative practice through the three phases of content creation, namely preparation and planning, studio action and reflection. The collaborative nature of an operatic production was also described. The participants in this study are not defined as research subjects, but as fellow creators through their vocal performance and portrayal of the characters. Although their performances form part of the resulting artefact, the aim of this study is not to critique their contributions. The value of the study lies in examining the effectiveness of the methods, actions and processes followed during the creation of the digital presentation of *Die Zauberflöte* by W. A. Mozart.

CHAPTER 4

Phase 1: Planning and preparation

4.1 Introduction

Any artistic endeavour starts with planning and preparation. Decisions taken during this phase may have far-reaching effects on the success of a production. In this chapter, the different strategies implemented by producers during their opera productions are examined. Each section includes a description of the activities undertaken for the current production of *Die Zauberflöte* during the planning and preparation phases.

4.2 Planning an opera production

The planning phase for any production is critical if a level of proficiency is to be ensured. During my career as opera director, timelines for planning operas have varied greatly. This ranged from one and a half years to a period as short as three months. My experience has, therefore, taught me that the preparatory work required for a production and the studio process thereof bear equal importance. Treatises on the staging of opera tend to focus on the artistic and philosophical portrayal of operas rather than the practical steps of planning and preparation. Online sources, provided by opera companies, provide some insight into the inner workings of these companies when productions are planned. Opera Australia (2016) created five short video clips to explain their process during the staging of a new production of *Les pêcheurs de perles* by Georges Bizet (1838–1875). The five phases are listed as follows: the beginning, the set build, making and measuring, the music, and the final countdown.

The Irish National Opera (2018) also shared their ten-step general action plan for producing operas: the designer and director meet, the fun starts, try and try again, bringing

the characters to life through costume, the cast arrives, things get technical, the orchestra, the show goes on, preserving the opera, and do it all again. Although these steps are informative, fundamentals such as opera selection and casting of singers are omitted. Many of these phases pertain to the activity of artistic preparation and creation rather than planning. There are also sections that are not applicable to the production relevant to this study. A planning phase model was devised to describe the relevant approaches as they pertain to our production, and these are discussed under each applicable phase. The model consists of the following sections: opera selection, engaging creatives, and budgetary and logistical considerations.

4.2.1 Opera selection

There are myriad reasons why a certain opera may be performed. It may pertain to a certain political or social issue the performing company wishes to address. Impresarios might wish to introduce their audience to an opera by a new composer, or to an opera which is in a different musical style or language. Companies or impresarios might simply decide on a specific opera for its entertainment value or ticket-selling potential (Trevisan, 2017). Operas have also been selected merely to showcase a talented singer performing a specific role. For a vocal programme at a tertiary institution, the number of performance opportunities for students is taken into consideration. In discussions with the head of the CVOS programme, and later the singing teachers of the programme, *Die Zauberflöte* KV 620 by W. A. Mozart was selected. The target audience for the production would be the friends and family members of the students, showcasing their hard work through the academic year. However, the main focus would still remain on the academic value of partaking in an opera production. This specific opera was chosen for four reasons. Firstly, a great number of Mozart's operas can relatively successfully be sung by young singers. Ragan (2016) suggests that repertoire

from Mozart operas is essential for the development of a young voice. Secondly, the narrative of *Die Zauberflöte* provides the opportunity for students to portray both lighter comical pieces, as well as more solemn sections. Thirdly, it allows for a greater number of solo roles than any other opera by Mozart. The final consideration is the opera's fantasy setting, as the fairy-tale aesthetic lends itself to being superimposed on an imaginary virtual performance space.

4.2.2 Engaging creatives

Theatre productions of all genres are collaborative creative efforts, as described by Bickerstaff (2011). Many creatives are involved when staging an opera. As in an effective business enterprise, managers are needed to lead such a large and diverse team. In operas, there are two main role players that form the creative team, namely the conductor and stage director (Ewans, 2016). They may be part of the in-house staff of an opera company or theatre, or they may be employed on an ad-hoc basis. The conductor assumes the role of musical director, whereas the director is responsible for all dramaturgical, design and technical aspects. Jones (2006) notes that, historically, directors were not awarded the same level of responsibility they attained in the age of *Regietheater*⁹ [director's theatre]. This is illustrated through the fact that, during the time of George Frideric Handel (1685–1759), the directors were limited to blocking the singers' movements and fulfilling the function of stage manager and technical director (Jones, 2006).

The next phase concerns engaging singers for the major and minor roles through an audition process. There may be multiple rounds of auditions, depending on the number of auditionees. Traditionally, the audition process would allow a director to select artists who

⁹ Productions in which the director's interpretation or aesthetic supersedes that of the creator (Baker, 2013).

would most aptly embody the characters found in an opera. Due to the short amount of time available for rehearsing, a level of typecasting is often necessary. This is true not only for student productions, but also for many professional productions. It is also true for other genres in the performing arts, such as musicals, dramas and screen acting. Due to the prevalence of television and cinema, the modern audience is accustomed to a naturalistic style of acting (Wojcik, 2003). The small nuances needed to build a character take months of preparation, even for experienced thespians. The old adage that one cannot learn to be funny highlights the unsurmountable task a director faces if every minuscule movement by each actor has to be choreographed (Rea & Irving, 2015). Therefore, in a student production, it is important to match the student with the intended character, not just because of their vocal *fach* and proficiency, but also because of their temperament.

Die Zauberflöte consists of a large number of major and minor roles. The following table lists all the roles in the opera and the requisite vocal *fächer*:

Table 1

Character list for Die Zauberflöte

Role:	Vocal <i>fach</i> :
Tamino	Tenor
Papageno	Baritone
Queen of the Night	Coloratura soprano
Pamina	Soprano
Sarastro	Bass
First Lady	Soprano
Second Lady	Soprano or mezzo-soprano
Third Lady	Mezzo-soprano
Monostatos	Tenor
Three Genii	Treble
Speaker of the Temple	Bass
Two priests	Tenor, bass
Papagena	Soprano
Two armoured men	Tenor, bass

Speaking roles:

Three slaves

Three priests

Note. Adapted from *The Opera Manual* (p. 410) by N. Martin, 2014, Scarecrow Press.
Copyright 2014 by Scarecrow Press.

Suitable candidates for each role were selected in consultation with the singing lecturers. From the list above, only three characters could not be cast from the available student cohort, those of the Queen of the Night, Second Lady and Third Lady. It was then decided to seek departmental alumni to portray these roles. From these students, a Second and Third Lady were selected. No alumna was available to sing the Queen. It was decided that we would proceed with the production and that I would find a creative way to still include the character. Unfortunately the Second Lady had to withdraw from the production close to the completion time of the video recordings. The student already cast as the First Lady had previously performed the role of the Second Lady in student production in Germany. Due to time constraints it was decided that she would perform both roles.

4.2.3 Budgetary and logistical considerations

The core activity of an opera company is the artistic production. However, other than the creative role players, there are various other budgetary and logistical considerations that contribute to the successful performance of an opera. These activities, unseen by the audience, play a vital role in how a production is to be approached artistically. Auvinen (2001) describes an opera company as a dual organisation; on the one hand is the administrative structure and on the other the creative structure. He explains that there is often no synthesis between the departments of an opera company, leading to miscommunication and unnecessary tension between the organisational and artistic departments. Trevisan (2017) describes the potential impact of budgetary and logistical considerations on a production.

When companies seek ways to reduce costs, the resources available for the staging of an opera are directly affected. Limitations to scheduling, venue size and technical equipment may also cause companies to be unable to stage a certain opera. Chenault (2016) points out that scheduling rehearsals, the activity that requires the longest amount of time, is logistically the most problematic. This might be due to scarcity of rehearsal spaces, conflicts in artists' diaries or prior engagements that might only allow artists to be available days before opening night.

For this production, the budgetary and logistical considerations vary drastically from those of the traditional model. In the current study, the creation of an opera production under constrained conditions was examined. Although constraints are germane to many opera productions, a unique set of restraints were created by the outbreak of the COVID-19 pandemic. A national state of emergency was declared on 15 March 2020, following the World Health Organisation's (WHO) announcement declaring the COVID-19 outbreak a global pandemic (Department of Co-operative Governance and Traditional Affairs Republic of South Africa, 2020a). Lockdown level 5 was instated in South Africa between 26 March and 30 April 2020. During this period, the movement of persons not fulfilling an essential function, as well as trade in nonessential goods, was prohibited. Individuals were confined to their places of residence, and could only leave in order to seek medical attention or to purchase essential goods. All public institutions, including schools and universities, were closed with immediate effect (Department of Co-operative Governance and Traditional Affairs Republic of South Africa, 2020b). The University of Pretoria moved all practical classes and activities to online platforms. The uncertainty regarding the length of the lockdown necessitated the virtual preparation and execution of the production. The only other alternative was to postpone the production indefinitely. Subsequently, it was decided that the study would be carried out as if level 5 lockdown restrictions were still in effect.

There was no official budget for this production; private funds were made available to assist students with purchasing data when necessary. Strategies were devised to take into consideration the costs of data and other sundries. Freeware¹⁰ and Shareware¹¹ (with sufficient functionality) were sourced for the design, compilation and editing of audio and video material. Solutions for only using hardware already available both for capturing of video and audio, as well as for the design and editing of the digital material, were sought. Students made use of their own devices to record themselves, whereas my personal computer was used to facilitate the design, compilation and editing of material. Details regarding the hardware and software utilised can be found in Chapter 5 of this document. Due to the structure of the academic timetable, rehearsals were scheduled to take place for two hours on Wednesday afternoons, during the Stage Technique timeslot. The structure followed during rehearsals is discussed in the section pertaining to preparation below.

4.3 Preparation

After the initial planning phase was concluded, activities pertaining to the preparation of the opera commenced, starting with preparation of the score. Participants needed as much time as possible for adequate musical preparation for the production. For previous productions, répétiteurs aided the students in learning the music. As these lessons could not be accommodated in the virtual format, it was important to supply the students with practice aids. Rehearsals could only commence after the initial music preparation had taken place. Before the practical studio action could commence, it was essential to ascertain what

¹⁰ Software with full functionality, to be used free of charge (Computer Dictionary of Information Technology, n.d.-a).

¹¹ Software that is obtained free of charge. Payment is required to receive licensing, or to buy additional support, documentation or functionality (Computer Dictionary of Information Technology, n.d.-d).

hardware was available to the students. It was also important to identify the areas available to students for their video recordings, and to determine whether these locations would be conducive to good quality recordings. To collect this information, the students were asked to complete a survey. Initial tests were also conducted to determine appropriate procedures for the design, compilation and editing of the various materials. All these activities are described in more detail in the following sections.

4.3.1 Score preparation

The stage director and conductor decide whether the score will be used in full or whether cuts to the music are necessary. The latter entails removing music from the score, either for the sake of shortening the opera or for reducing repetition. In some operas, accepted traditional cuts exist. Recitatives are used in traditional operas to advance the storyline, but in the case of a Singspiel, such as *Die Zauberflöte*, the plot is driven forward through spoken dialogue (Balthazar, 2013). In consultation with the conductor, the director makes decisions concerning the dialogue. Reynolds (2019) notes that alterations to a composer's artistic effort is frowned upon in the world of opera. Conductors and directors are wary of changing the original compositions beyond reworking the dialogue or pruning a recitative or aria. However, more drastic omissions, such as cutting entire sections of scenes, may occur for dramaturgical or monetary reasons. These cuts are often highly criticised (Reynolds, 2019). Student performances are seen as opportunities for young singers to learn their craft, and students may therefore not be ready to perform an entire role. In these cases, drastically shortening the opera is more acceptable, as the main objective is not to present a composer's creative ideal, but to use the composition as an educational tool (Traub, 2011).

A collective decision was made amongst the lecturers of the CVOS programme that the opera would conform to the structure of their annual production. This meant that the

duration of the production was limited to 45 to 50 minutes. The duration of *Die Zauberflöte*, when performed in full, is approximately two and a half hours. Thus, it was necessary for considerable cuts to be made to the score. Two scores were used during the preparation phase, a study score (Mozart, 1791/1985) and a vocal score¹² (Mozart, 1791/1969). A study score is a reproduction of the full orchestral score in reduced size, used for study and analysis purposes (Cohen, 2021). The study score was an important source regarding the dialogue, as the vocal score only included an abridged version.

Character development remains a vital part of conveying the intended narrative of a story. The Iranian-born American director, Lofti Mansouri (Ostwald & Zegans, 1993, as cited in Crain, 2004), contends that it is difficult to find the right balance between the comedic and more dramatic themes in Mozart's operas. To him, *Die Zauberflöte*, *Don Giovanni* and *Così fan tutte* are particularly challenging to direct. The characters in these operas have intense human relationships and face complex issues. However, if focus is placed on the profound, the operas become heavy and solemn. Conversely, if the comedy is overemphasised, the pathos is lost (Ostwald & Zegans, 1993, as cited in Crain, 2004). According to the title, *Die Zauberflöte* mainly concerns a flute with magical powers. However, it is the arc of Papageno which is the greatest. This is also reflected in the fact that he has the most musical numbers. It was therefore decided to tell the story of the opera from Papageno's perspective. Due to the extensive cuts to the opera, intertitles¹³ were used to develop the narrative. The intertitles are available in Appendix E of this document. Below, a brief synopsis of each scene in the opera is presented, as summarised from the study score (Mozart, 1791/1985). This is followed by

¹² A score with reduced piano accompaniment of the full orchestral score, used by singers and répétiteurs in role preparation, lessons, auditions and rehearsals. (Cohen, 2021).

¹³ Intertitles are captions placed in between scenes. The use thereof started during the age of silent films to convey the storyline (Gaudreault, 2013).

observations regarding the respective numbers, the rationale for the selection or rejection of each number, as well as any cuts that were made. For the sake of clarity, the musical numbers are labelled numerically, whilst the dialogue is denoted by letters.

4.3.1.1 Scene discussion

Ouverture [Overture]

For this production, the overture was not utilised, as we did not have an orchestra.

ACT 1

No. 1. Introduktion: “Zu Hilfe! zu Hilfe!” [Oh help me, oh help me]

Mozart introduces us to the fantasy world in which *Die Zauberflöte* is set, with Tamino fleeing from an pursuing serpent. The frenzy of the struggle between the brave young prince and the beast is skilfully displayed in the accompaniment. However, Tamino is not able to subdue his foe, and as he faints, the Three Ladies appear and vanquish the beast. The Ladies are enamoured with Tamino, and an argument ensues to see who will remain with him.

This section does not allow for many cuts, as the Three Ladies’ collective and personal reflections are displayed in an interwoven web of vocal lines. Crain (2004) notes two instances where possible cuts may be made. These cuts would not contribute to a meaningful reduction and were therefore not selected. Grant (2012) argues that it is peculiar for a rescue opera to start with the chivalric hero crying out for help. In the opening scene, Tamino has to confront a serpent, but has no arrows for his bow. He is portrayed as powerless, but Tamino is nevertheless chosen by the Queen to save Pamina, armed only with a magic flute. Grant (2012) highlights the fact that Papageno, however, is the character who saves Pamina twice from attempted assault and who performs the opera’s most tender duet, “Bei Männern, welche Liebe fühlen” [In men, who feel love], with her. Building on this view

by Grant (2012), it was decided to cut Tamino's introductory lines found in measures 17 to 39. Instead of Tamino appearing to faint from terror, it is the shock wave from the Ladies' energy blast that knocks him to the ground.

Dialogue A

Tamino awakes and finds the serpent dead at his feet. Still dazed, he observes the strange surroundings. His monologue is interrupted when he is startled by an approaching figure. In the theatre, this dialogue is necessary for Tamino to move from the performance space. Papageno is then free to make his entrance without encountering Tamino. In this production, the problem is avoided, as Papageno's entrance is the beginning of a new scene. The dialogue is therefore omitted.

No. 2. "Der Vogelfänger bin ich ja" [I am the bird catcher, yes]

This aria introduces the Papageno, the bird catcher, to the audience. He scours the area for birds to trap with his net. The aria is strophic in nature and comprises three verses. During this aria, he already expresses his desire to find a significant other. A parallel is drawn between the birds he catches and young women. This is echoed in the methods by which he endeavours to ensnare a wife, described in the lyrics of verse two. Firstly, Papageno wishes for a net in which he can capture girls. Secondly, he explains that when caught, the girls will all be kept in a cage. Verse three describes a less barbaric treatment of the trapped beauties. Papageno describes that he will feed sugar to the girl he is most fond of; if she kisses him in return, he will make her his wife. Even more affectionate behaviour is displayed in the final two lines of the aria: "Sie schlief an meiner Seite ein; ich wiegte wie ein Kind sie ein" [She fell asleep at my side, and I'd rock her like a child] (Mozart, 1791/1985, p. 35).

It is clear that there is a vast contrast in the narrative between the first, second and third verses. Although many scores contain all three verses, Branscombe (1991) points out

that the third verse neither appears in the original libretto, nor in the autograph manuscript¹⁴. While this verse appears in vocal scores from as early as 1793, there is no historical evidence to prove when or by whom the amendment was made (Branscombe, 1991). Since Schikaneder portrayed the role of Papageno in the initial performance, either the composer or librettist could have called for the addition. Crain (2004) advises that if one verse is to be cut, the third verse would be most suitable due to its ambiguous authorship. She further advises against omitting the aria entirely, as it is a well-loved and recognisable piece, and also lends a comedic pause between two scenes filled with spectacle. Powley (2004) concurs with the importance of Papageno's introductory aria, as it portrays him as a fun-loving child of nature with whom the audience may immediately identify. Ultimately, it was decided that only the first two verses would be retained.

Papageno's panpipe is also introduced in this section. When he enters, he plays a five-note ascending motive (Powley, 2004). This motive will be repeated throughout the opera. Here it is used whilst he is looking to attract birds; later it will be used when Tamino and Papageno are separated and they try to find each other.

Dialogue B

Tamino emerges from his hiding place to speak to Papageno. The two characters comment on each other's strange appearance. Tamino has never encountered a birdlike man and Papageno has never met a prince. When questioned about the serpent, Papageno is quick to take credit for slaying the beast. The two men are interrupted by the arrival of the Three Ladies, who scold Papageno for claiming their heroic deed as his own. They reward his fib by locking his mouth with a magic padlock. While Papageno struggles to free himself, the

¹⁴ A digital version of the autograph manuscript may be found at <https://digital.staatsbibliothek-berlin.de/werkansicht/?PPN=PPN662630750>.

Ladies turn their attention to Tamino. They convey the greetings of their mistress, The Queen of the Night, and present him with a portrait of the Queen's daughter, Pamina. For my production, this dialogue was summarised and presented as Intertitle 1.

No. 3. “Dies Bildnis ist bezaubernd schön” [This likeness is enchantingly beautiful]

Entranced by the beauty of the girl in the painting, Tamino soliloquises about finding Pamina and making her his own. Due to the focus of our production being on Papageno's transformation, the arias of the other characters were omitted if they did not advance his storyline. Ensembles were also given priority in order to allow as much interaction between the participants as possible. As this aria solely advances Tamino and Pamina's storyline it was omitted.

Dialogue C

The Three Ladies inform Tamino that, if he wishes to claim Pamina, he must first rescue her from the clutches of the evil Sarastro. Tamino resolves to vanquish Sarastro and free Pamina. A loud noise is heard, signalling the arrival of the Queen of the Night. After hearing Tamino's vow, the Queen decides to reward his courage with a private audience. This spoken text was summarised and presented in Intertitle 1.

No. 4. “O zittre nicht, mein lieber Sohn” [Oh, have no fear, my dear young one]

In this recitative and aria, the Queen recounts the tale of her daughter's kidnapping. Her daughter's absence has left the Queen bereft of all joy, leaving her too frail to avenge Pamina. The Queen urges Tamino to rescue her daughter, vowing to grant him Pamina's hand in marriage should he succeed. Although this aria was omitted from the production, the plot was summarised and presented in Intertitle 1.

No. 5. “Hm! Hm! Hm!”

This is a quintet, featuring Tamino, Papageno and the Three Ladies. It starts with Papageno struggling with the magic lock. Tamino also attempts to free Papageno from the padlock to no avail. The First Lady receives a decree from the Queen to free the lying Papageno from his predicament. The Ladies hand Tamino the Magic Flute, which will serve him well in his quest to free Pamina. They advise him that, when played, it will turn sorrow into joy, and that it is a formidable instrument of power. Papageno begs his leave from the group, but is held back by the Ladies. The Queen commands Papageno to accompany the prince on his quest. When Papageno refuses, the Ladies hand him a magic glockenspiel. With enchanted instruments in hand, the heroes leave for Sarastro’s fortress. The Queen sends them a final boon in the form of the Three Genii, who will lead them on their way.

This scene is extremely important to the plot of the opera. It introduces the Magic Flute, the glockenspiel and the Three Genii, who are imperative to the progression of the story. Powley (2004) describes the Flute as a phallic symbol, granting Tamino that which he lacks to complete his quest – virility. Grant (2012) postulates that the Flute is a dyadic symbol of wisdom and knowledge. She further mentions a link between the Flute and the mythology of the gods Isis and Osiris, as Osiris is seen as the first inventor of the Flute. Lastly, her study observes the comparison between Tamino and Orpheus, as both control emotions, subdue wild beasts and liberate their lovers through music. The Three Genii are also representative of the allegory inherent to the opera. Grant (2012) cites the importance of the number three to the Egyptians and the Freemasons. Mozart repeats the use of three ascending triadic chords to symbolise Tamino’s installation as heir to the Circle of the Sun. She suggests that the significance of the number three in being installed to an elevated position stems from the three blows with which Typho struck Osiris, allowing him to ascend to the position of god-king of Egypt.

The scene further provides the first moral lesson in the opera. Before idealising the Magic Flute and glockenspiel, the quintet breaks the fourth wall¹⁵ and speaks directly to the audience:

Bekämen doch die Lügner alle
Ein solches Schloss vor ihren Mund
Statt Hass, Verleumdung, schwarzer Galle

Bestünde Lieb und Bruderbund

For if all liars received
A lock like this on their mouths
Instead of hatred, calumny, and
black gall
Love and brotherhood would
flourish

(Mozart, 1791/1985, pp. 48–50)

This stanza mimics that of the padlock scene from *Der Stein der Weisen*, an opera composed jointly by Johann Baptist Henneberg (1768–1822), Benedikt Schack (1758–1826), Franz Xaver Gerl (1764–1827), Emanuel Schikaneder and Mozart, in 1790 (Buch, 2004). The Masonic symbolism of the lock relates to the female initiation ritual. Nedbal (2009) debates whether this quintet is an example of didacticism or political critique. He cites the work of Till (1995) and Assmann (2005), who both claim to have found hidden political contexts in this stanza. The former postulates that the padlock symbolises Josephine¹⁶ censorship and police surveillance. The latter posits a Masonic context, explaining that the stanza seeks to educate the audience on the factional disputes within the Viennese Masonic lodges and political persecution of the Masons during the early 1790s. Because of its importance, no cuts were made to this number.

Dialogue D

This spoken text heralds Monostatos' entrance. Three slaves enter a room in Sarastro's fortress, with one stating that Pamina has escaped once more, but has been recaptured. This scene has been omitted, as the narrative does not lose its integrity without it.

¹⁵ Conceptual barrier between the stage and the audience (Dawson et al., 2011).

¹⁶ Refers to the collective domestic policies of Joseph II, Holy Roman Emperor (1765–1790) (Robbins, 2011).

No. 6. “Du feines Täubchen, nur herein!” [You fine little dove, come hither]

In this scene, Monostatos is portrayed as a barbaric brute, ordering the other slaves to chain Pamina and then to leave, allowing him to be alone with her. The true intentions of Monostatos are not stated, but his behaviour points to him wishing to take advantage of the Queen’s daughter. Pamina tries in vain to appeal to his better nature and falls unconscious with fear of what is about to take place. Meanwhile, Papageno has also entered the fortress and spots a pale beauty unconscious on the floor. As he approaches her, Papageno encounters Monostatos, and the two characters each mistake the other for the devil. They take turns scaring each other with exaggerated posturing until Monostatos flees from the scene, leaving Papageno victorious. The exchange between the two men is always directed comically. Crain (2004) regards this scene as a welcome comic relief after the dramatic assault on Pamina. Although this scene has comedic value, it does not outweigh the blatant stereotyping, as Monostatos is depicted as ruthless and lascivious. These traits were often ascribed to people of colour during the Enlightenment (Al-Taee, 2017). It serves no other purpose than to portray the character in a bad light. For this reason, the entire scene has been omitted from our production.

Dialogue E

Papageno looks at the sleeping girl and, after examining the likeness in his pocket, concludes that it must be Pamina. The vulnerable princess is startled by the strange figure who knows her name. Papageno explains that he is a messenger of the Queen, announcing the arrival of the prince charged with her rescue. Pamina questions the motive of her rescuer, to which Papageno answers: “Love!” (Mozart, 1791/1985, p. 66). She commends her new friend on taking the risk to enter Sarastro’s domain, and inquires whether he has a sweetheart who awaits his return. Papageno laments his bachelor status, but Pamina assures him that the

heavens will provide him with a mate. This dialogue was omitted; however, the plot was summarised and presented as Intertitle 2.

No. 7. “Bei Männern welche Liebe fühlen” [In men, who feel love]

In this duet, Papageno and Pamina reflect on the joys and sacred duties of matrimony. No cuts were made to this duet.

No. 8. Finale

The Finale is 35 pages long within the score (Mozart 1791/1985). It consists of six scenes, which will be dealt with separately. Extensive cuts were made to this number, as it contains sub-plots that were unnecessary in the narrative of our production.

No. 8.1 “Zum Ziele führt dich diese Bahn” [This path leads you to your goal]

The Three Genii guide Tamino to a valley with three temples. An inscription is written above the entrance of each temple. The inscription to the left reads: “Tempel der Natur” [Temple of Nature]; the middle inscription reads: “Tempel der Weisheit” [Temple of Wisdom]; and the right inscription reads: “Tempel der Vernunft” [Temple of Reason] (Mozart, 1791/1985, p. 70). When asked whether he will save Pamina, the three spirits instruct him to remain constant, patient and discreet in order to triumph. With these wise words, the Genii depart. Tamino examines his surroundings, admiring the skill of those who constructed the temples. It is clear to him that the architecture reflects the culture of an industrious and accomplished civilisation. He is resolved to face Sarastro bravely, and seeks to enter the temples. First, he tries the entrance to the right, but voices from within warn him to turn back. Next, he tries the entrance to the left, but is again warned to turn back. As he approaches the middle temple, the entrance opens. This scene, along with the following section, does not advance Papageno’s story and were omitted.

No. 8.2 “Wo willst du, kühner Fremdling, hin? [Where do you want to go, daring stranger]

An elderly priest can be seen coming from the inside of the Temple. The Speaker enquires why Tamino wishes to enter the Temple of Wisdom. Tamino answers that he seeks the domain of Virtue and Love. The old priest perceives that Tamino’s intentions are born from vengeance and hate, and if this is true, he will never be able to enter the Temple. He informs the prince that he has been deceived, for Sarastro is the high priest of the Temple of Wisdom and is no villain. The Speaker assures Tamino that Sarastro’s kidnapping of Pamina has a virtuous objective. The purpose of Sarastro’s deeds will only be revealed to Tamino if he extends a hand of friendship. With this, the old priest withdraws. In despair, Tamino bemoans his lot, wishing that the eternal night would soon be pierced by light. He is startled by the voices from within the Temple, who exclaim: “The veil of darkness that plagues your thoughts will soon be lifted”. They also inform him that Pamina is still alive. This scene was omitted.

No. 8.3 “Wie stark ist nicht dein Zauberton” [How strong is thy magic tone]

Again, Tamino is granted a soliloquy aria. Overjoyed by the news that Pamina is still alive, Tamino shows his gratitude to the gods by playing on the Magic Flute. The music from the Flute enchants the nearby creatures, showing that the power of the Flute extends beyond its effect on humans. Tamino therefore masters nature itself when playing the Flute, which is in stark contrast to his helplessness when combating the serpent. This aria further supports Powley’s (2004) view that Tamino is only granted his virility by the power of the Flute. Tamino’s enchantment with the joyous scene unveiling in front of his eyes soon turns to sorrow as he realises that Pamina might find herself in a state of anguish. Desperate, he hopes that the Flute will also guide him to Pamina. He plays an ascending G major scale. Suddenly,

he hears a familiar sound – Papageno’s pan flute. Tamino immediately plays an ascending five-note motive, which is echoed in the distance, and makes his way towards the sound. Similarly, as with Tamino’s first aria, this scene was omitted.

No. 8.4 “Schnelle Füße, rascher Mut” [Swift steps, ready courage]

In this scene, Pamina and Papageno are searching for Tamino. Speed is of the essence, as they hope to find Tamino before they are captured by Sarastro’s forces. Papageno repeats the five-note phrase, which is again echoed by Tamino. Their proximity to the prince invigorates their efforts, but they are stopped in their tracks when they are ambushed by Monostatos. The two travellers are cornered by Monostatos, who calls for his henchmen to assist him in chaining the pair. Whilst pondering on the horror that awaits them, Papageno remembers that he has the glockenspiel in his knapsack. He starts playing the instrument and, in doing so, enchants Monostatos and his lackeys. Intertitle 3 introduces Monostatos as an evil forest spirit instead of his intended characterisation by the composer and librettist. No changes were made to this number.

No. 8.5 “Das klinget so herrlich” [That sounds so splendid]

Monostatos and his minions are entranced by the magic of the glockenspiel and start dancing to the beguiling music. All signs of aggression disappear at the tones emitting from the instrument. Papageno and Pamina then sing of the virtue of friendship, conveying another moralistic maxim:

Nur der Freundschaft Harmonie
Mildert die Beschwerden,
Ohne diese Sympathie
Ist kein Glück auf Erden.
(Mozart, 1791/1985, p. 92)

Only the harmony of friendship
Makes milder the burdens,
Without this sympathy
There is no happiness on earth.

This number was left unchanged.

No. 8.6.1 “Es lebe Sarastro!” [Long live Sarastro!]

Scene 8.6 will be discussed according to smaller sections, as it was cut extensively. Pamina and Papageno are interrupted by distant voices chanting: “Long live Sarastro” (Mozart, 1791/1985, p. 93). Terror befalls the companions as they contemplate Sarastro’s wrath. Papageno cowers in fear, but Pamina resolves to tell the truth even if it is considered a crime. Temple attendants fill the scene, and Sarastro rides in a gilded chariot drawn by servants. Sarastro’s retinue extols his wisdom and righteousness, whilst wishing him long life. This entire section was kept intact, and no cuts were made.

No. 8.6.2 Herr, ich bin zwar Verbrecherin [My lord, I am indeed a criminal!]

Pamina falls at Sarastro’s feet, begging his forgiveness. She relates the tale of how she escaped as a result of Monostatos’ inappropriate advances. The wise priest tells her to rise, stating that he knows her heart and that she feels love for someone else. He also explains that, if he had left her with her mother, Pamina would only have known misery. Ever the dutiful daughter, Pamina tries to interject and defend her mother. Sarastro admonishes her, saying:

Ein Mann muß eure Herzen leiten, Denn ohne ihn pflegt jedes Weib	A man must lead your hearts, For without him every woman is misguided
Aus ihrem Wirkungskreis zu schreiten. (Mozart, 1791/1985, p. 98)	To step out of her sphere.

This and the following section refer to Monostatos’ brutish character, further strengthening the racial stereotypes first introduced in number 6. For this reason, both sections have been omitted.

No. 8.6.3 “Na, stolzer Jüngling, nur hierher!” [Now then, proud youth, come here!]

Monostatos enters, dragging Tamino behind him. Pamina catches Tamino’s gaze, and the two young lovers are overjoyed to have finally found each other. Instinctively, they gravitate towards each other and embrace passionately. Their public display of affection

offends the temple attendants and Monostatos forcefully separates them. He kneels before Sarastro, ready to receive his reward, having apprehended Tamino before he could whisk Pamina away. However, the truth has already been revealed to Sarastro, who rewards Monostatos with 77 lashes on the soles of his feet for his poor conduct. The assembled attendants praise the High Priest for his godly wisdom and sound judgement. This scene was omitted.

No. 8.6.4 “Führt diese beiden Fremdlinge” [Lead these two strangers]

Sarastro turns his attention to Tamino and Papageno. He instructs the attendants to cover their heads and to lead them into the Temple to be cleansed. The chorus declares that mortals may transcend and achieve godliness when their path is strewn with virtue and righteousness, as this will create heaven on earth. No cuts were made to this section. This scene concludes the first Act.

ACT 2

No. 9. Marsch der Priester [March of the Priests]

The second Act opens in a chamber within the Temple of Wisdom. Sarastro and a few priests can be seen conversing. While the music plays, more priests enter the hall. In her study, Crain (2004) indicates that this number was omitted from her production, due to physical restrictions in the performance venue. This is purely an orchestral number and was omitted.

No. 9a Der Dreimalige Accord [The triple chord]

The *dreimalige Accord* first appears during the overture, then twice in Act 1, Scene 8.2. In Act 2, it can be heard during this scene, and is later repeated in Scene 19. Here, it is

again included as an invocation, signalling a ritual or holy rite within the sacred halls of the Temple.

Dialogue F

In this lengthy exchange, Sarastro advocates Tamino and Papageno's initiation to the Order. Three respective priests enquire whether Tamino is virtuous, discreet and charitable, upon which Sarastro affirms that he is. The Speaker fears that, as a prince, Tamino may not have the fortitude to withstand the harsh trials he has to face. If he succeeds, his reward will be great, but if Tamino fails, he will pay with his life. Sarastro upholds his decision and directs the Speaker to instruct Tamino and Papageno in the ways of the Order. Although this spoken text was omitted, it was summarised and presented in Intertitle 4.

No. 10. "O Isis und Osiris" [Oh, Isis and Osiris]

Sarastro, in a solemn prayer, implores the gods Isis and Osiris to guide the young initiates and to grant them strength to endure the trials ahead. The assembled priests echo his sentiments. This scene was omitted. Fisher (2001) remarks that Sarastro's name bears a resemblance to that of the Persian god Zoroaster, who represented the god of eternal wisdom. He also proposes that Sarastro's music is on an elevated level, above that of the other characters. Furthermore, he explains that Mozart composed in a new Masonic style, exalting the ideals and maxims associated with Freemasonry. As with Sarastro's previous aria, this section was omitted.

Dialogue G

Tamino and Papageno are led into a chamber by the Speaker and two priests. The priests remove the sacks from the heads of the initiates and exit with the Speaker. Tamino and Papageno are left alone in the dark. Thunder strikes, startling Papageno, who wishes that

he had been a girl who would not have had to complete the trials. This scene acts as a comic interlude after the preceding solemn ceremonies. This dialogue was not included in the production.

Dialogue H

The Speaker and priests return. Tamino is interrogated by the Speaker as to his intentions and whether he will submit himself to every trial, whereupon Tamino agrees. The Second Priest now starts to question Papageno. True to his nature, Papageno refuses to go any further, as he is content to sleep, eat and drink rather than attain wisdom. The Second Priest offers another reward to Papageno; Sarastro has created a mate for him in his own image. This piques Papageno's interest, and he immediately submits to all the trials. Both initiates are sworn to silence under pain of death. They may see their lovers, but are forbidden to speak to them. This dialogue was omitted.

No. 11. "Bewahret euch vor Weibertücken" [Keep yourselves from women's tricks]

The two priests continue to instruct the initiates on the virtue of the vow of silence:

Bewahret euch vor Weibertücken; Dies ist des Bundes erste Pflicht! Manch weiser Mann lies sich berücken,	Beware women's artfulness; This is the first duty of the alliance! Many a wise man let himself be beguiled,
Er fehlte, er fehlte, und versah sich's nicht; Verlassen sah er sich am Ende, Vergolten seine Treu mit Hohn! Vergebens rang er seine Hände, Tod und Verzweiflung war sein Lohn, (Mozart, 1791/1985, pp. 117–118)	He was wrong, and knew not the error; Abandoned he sat at the end, His trust repaid with scorn! In vain he wrung his hands, Death and despair were his reward,

Crain (2004) mentions that there are productions that include this number, as it reflects eighteenth-century culture. She, however, advocates for its omission, as it did not promote the Claremont Graduate University's view on women. Similarly, this duet was not included in our production.

Dialogue I

Tamino and Papageno are again left in the darkness. Papageno's vow of silence does not last long, as he confronts the priests for taking the torches with them. Tamino instructs him to bear the darkness and to regard it as the will of the gods. This dialogue was omitted.

No. 12. "Wie, wie, wie" [How, how, how]

Suddenly, the two men are joined in the chamber by the Three Ladies, who have managed to gain entry into the Temple. The Ladies caution the men against their current path, warning them that it will lead to their ultimate demise. Papageno is swayed by their ploy, but is instructed by Tamino to remain silent. Again, the women bombard the men with falsehoods, but Tamino remains steadfast. From afar, the priests are heard cursing the Three Ladies for desecrating their sacred Temple. With this, the Ladies flee. Papageno, still cowering from tales of his impending doom, collapses in a faint. No changes were made to this number, and it was performed in full.

Dialogue J

The Speaker and Second Priest return. Tamino is praised for his steadfastness and is led to the next trial. Papageno, however, questions the Second Priest on why he has to endure all this pain. He asks why he cannot merely go to Papagena if the gods have chosen her for him. The Second Priest is not deterred by his ramblings and urges Papageno on to the next task. It was decided to omit this dialogue.

Dialogue K

The scene now changes to a courtyard within the temple grounds. Pamina can be seen sleeping, with the moonlight illuminating her face. Monostatos enters and takes a seat next to

her. He soliloquises about her beauty and the fact that his only crime was to fall in love with her. This dialogue was omitted.

No. 13. “Alles fühlt der Liebe Freuden” [All feel the joys of love]

In this aria, Monostatos bemoans his inability to quench the fire of passion burning within him. He desires the same as any man – someone to call his own. He tries to kiss Pamina, but is afraid to be spotted in the bright moonlight.

Und ich soll die Liebe meiden,
Weil ein Schwarzer häßlich ist,
Ist mir denn kein Herz gegeben?
Ich bin auch den Mädchen gut,
Immer ohne Weibchen leben,
Wäre wahrlich Höllenglut
(Mozart, 1791/1985, pp. 130–132)

And I am supposed to avoid love,
Because a black is ugly,
Have I, then, been given no heart?
I am also fond of girls,
Always to live without a woman
Would truly be the blaze of hell

I recall that, during my undergraduate studies, I was instructed by my singing teacher to change the lyrics to “weil mein Herzen hesslich ist” [while my heart is ugly]. It has also been suggested to me by one director that the line does not refer to Monostatos’ skin colour, but to the fact that he has dark intentions. The lyrics in the aria remain problematic. Including the aria and the lyrics in their original format would, however, be unacceptable. The intention of this scene, similar to that of Act 1, Scene 6, is to portray Monostatos as the anti-hero living up to his cultural stereotype. Therefore, this scene was omitted.

Dialogue L

Monostatos’ antics are interrupted by the arrival of the Queen of the Night. Pamina rushes to her mother and embraces her, expecting affection and tenderness, but receives naught in return. The Queen confronts her daughter with questions regarding Tamino’s whereabouts. She continues to relay the tale of how Pamina’s father freely handed the Sevenfold Circle of the Sun to Sarastro and his initiates, as he would not entrust it to a woman. The Queen warns Pamina to be wary of the Order and not to allow Tamino to fall for

their devious plot. Pamina is to guide Tamino, under the cover of darkness, away from the Temple and to return him to the Queen's realm. Pamina, however, asks whether she may love Tamino even if he is initiated into the Order. After all, Pamina's father held Sarastro and the Order in high regard. The Queen is infuriated by her daughter's insolence. She produces a dagger from her garments and places it in her daughter's hands. Pamina is to show allegiance to her mother by murdering Sarastro. The already frail youth refuses, which enrages her mother even further. This dialogue was omitted.

No. 14. "Der Hölle Rache kocht in meinem Herzen" [Hell's vengeance burns within my heart]

The Queen, in a frenzy of rage and vengeance, warns Pamina that she will no longer be her daughter if Sarastro does not die by her hand. This is perhaps the best-known aria in the entire opera. Audiences are dazzled by the soaring coloratura sung by the Queen. In the absence of a Queen in our production, this scene was omitted.

Dialogue M

Pamina, still distraught, does not take heed of Monostatos. He has overheard everything and blackmails Pamina with the murder plot. If she does not give herself to him, he will inform Sarastro of the Queen's plans. Pamina's refusal of his advances only fuels his lust. Sarastro, seeking Pamina, enters the courtyard and catches Monostatos in his pursuit to overpower the young princess. Sarastro reprimands his former confidant and banishes him from the Order. Pamina attempts to explain her situation to Sarastro, but the wise priest has already perceived the Queen's plan to murder him. He also knows that Pamina's pure heart will keep her from obeying her mother's wish. This dialogue was omitted.

No. 15. “In diesen heil’gen Hallen” [Within these hallowed halls]

Sarastro explains to Pamina that revenge cannot be found in the walls of the Temple. According to the Order’s doctrines, he who does not forgive his enemy may not be initiated or be called a man. This aria follows directly on the two preceding sections and was omitted.

Dialogue N

The scene changes to a hall in the Temple. Tamino and Papageno are escorted in by two priests, followed by the Speaker, who informs Tamino that, at the sound of the trumpet, he may proceed to the next task. Before leaving, the Speaker reminds the Prince to remain silent. Before leaving, the Second Priest, having no faith in Tamino’s virtue, reminds Papageno that breaking his vow of silence is punishable by death. For a moment there is complete silence. Being unable to comply for long, Papageno seeks Tamino’s attention to no avail. This dialogue was omitted.

Dialogue O

An unattractive, geriatric woman appears, carrying a large glass filled with water. Papageno is repulsed by her haggard appearance, but is happy for the company. He tries to make small talk with the old lady and enquires about her age and whether she has a lover. The woman answers that her age is 18 years and 2 minutes, and that she indeed has a lover, who is ten years older than she. He then tries to elicit the name of this mysterious lover, to which the old crone answers: “Papageno!” (Mozart, 1791/1985, p. 141). Taken aback, Papageno refuses to believe that he is her lover. He asks her name, but before she can complete her name, there is a loud, abrupt lightning blast. Tamino motions for Papageno to quiet down. Papageno promises not to say another word. This dialogue was omitted.

No. 16. “Seid uns zum zweiten Mal willkommen” [We welcome you a second time]

The Three Genii enter the hall and present Tamino and Papageno with gifts from Sarastro, the Magic Flute, the glockenspiel, as well as food and drink to enjoy. They tell Tamino that by their next appearance he will have completed his task, and that victory is at hand. Before leaving, they remind Papageno to remain silent. As the first entrance of the Three Genii was not included, this scene was also omitted.

Dialogue P

Papageno starts to indulge in the feast laid out before him. Tamino is content with playing his Flute. The sound of the Flute has alerted Pamina to Tamino’s location. She is overjoyed to finally see him again and tries to embrace him. He shrugs her away and refuses to answer her pleas of desperation. Pamina interprets Tamino’s silence to mean that he no longer loves her. She questions Papageno on Tamino’s strange behaviour, but for the first time he is silent as he packs his cheeks full of food. This dialogue was omitted.

No. 17. “Ach, ich fühl’s, es ist verschwunden” [Oh, I feel it, it has vanished]

Pamina is distraught, since Tamino refuses to speak to her. His silence fills her mind with doubt and she descends into despair, wishing that she would rather wither away. Again, this aria does not advance Papageno’s transformative narrative, and was thus omitted.

Dialogue Q

The text that follows is perhaps one of the most comic pieces in the entire opera. Papageno is impressed with himself for keeping silent. The trumpet sounds, alerting Tamino to move on to his next task, and motions for his friend to join him. Papageno, however, is content to remain and indulge in his meal. He boasts that not even Sarastro’s six pet lions will bring him to move away from the table. To his surprise, the lions appear. Having gained

newfound motivation, he gathers his things to leave. The trumpet sounds again. This dialogue was omitted.

No. 18. “O Isis und Osiris” [Oh, Isis and Osiris]

The priests and attendants gather to consecrate the Temple for the ritual of initiation. They ask Isis and Osiris to guide Tamino, who will soon be admitted to their fold, as he has proven himself to be steadfast and pure of heart. This number was left unchanged, and was performed in full.

Dialogue R

Tamino is brought in to join the congregation. Sarastro informs him that there are two more trials that await him. Before he departs, he is granted leave from his vow of silence and is allowed to see and speak to Pamina one final time. Sarastro orders Pamina to be brought in. Two priests escort the princess into the sacred chamber. This shocks the assembled priests, as Pamina is the first woman allowed to enter the sacred chamber. Tamino and Pamina seek to embrace each other, but are held back by Sarastro and the two priests. This scene was omitted.

No. 19. “Soll ich dich, Teurer, nicht mehr sehn?” [Shall I see you no more, dear one?]

In this trio, Pamina is anxious that she will not see Tamino again, as she fears he will not survive the trials. It does not appear to her that Tamino still feels the same about her, but he reassures her that his passion for her burns equally strong. Sarastro beseeches the gods to protect the young man during the dangerous trials. With a final greeting, the prince is led out of the chamber to face the last two trials. This scene was omitted.

Dialogue S

Papageno enters the darkened sacred chamber looking for his companion, Tamino. He tries to leave via the door through which Tamino was led. The mysterious voices instruct him to turn back, and their warning is followed by a loud thunderclap. He then tries to exit through the door by which he entered, but is again blocked. He is now stuck in the chamber. The Speaker enters and informs him that the benevolent gods have freed him from the punishment of the initial trials. This, however, means that Papageno would never achieve transcendence. Papageno informs the Speaker that he does not desire wisdom, but would be happy with a glass of wine. His wish is fulfilled, and a cup of wine appears from the ground. He goes on to contemplate his true desires. This dialogue was omitted.

No. 20. “Ein Mädchen oder Weibchen” [A girl or a woman]

Papageno’s desire for a wife, which he expressed in the beginning of the opera, again comes to the fore. Without a significant other, he wishes for flames to consume him. But if he is granted a lover, it would be as if he were in the Elysian Fields. Of Papageno’s three solo sections, this aria was the only one not selected. Consideration was given to the fact that all arias composed for the other characters were cut; therefore three solo pieces for one character would be excessive.

Dialogue T

As soon as Papageno stops singing, the old woman appears, dancing whilst leaning on her cane. She has come to embrace her angel, who is all but happy to see her. She offers Papageno her hand in marriage. He promises to consider the proposal, but she warns him that, if he does not comply, he will be imprisoned forever. Furthermore, he will only have bread to eat and water to drink. The thought of this spartan existence seems far worse to Papageno than the prospect of being married to a withered old hag, and he consents. At his vow of

fidelity, the old woman transforms into the beautiful and young Papagena. Papageno rushes to embrace her, but is stopped by the Speaker. They all exit. This scene was omitted.

No. 21. Finale

The finale of Act 2 consists of several scenes. The sections are discussed below.

No. 21.1. “Bald prangt, den Morgen zu verkünden” [Soon emblazoned to announce the morning]

The Three Genii enter with a message of hope, as the long night that has descended on the earth is soon to be expelled by the rising sun. They see Pamina in the distance and sense her doubt and desperation. Fearing that she has been abandoned by Tamino, Pamina is ready to take her own life with the dagger intended for Sarastro. Delusion fills her mind and she rages against her mother for abandoning and cursing her. Furthermore, she blames Tamino for her demise. She draws the dagger near, ready to plunge it into her chest, when she is stopped by the Genii. They assure her that Tamino’s love for her has never wavered, and that they will lead her to him. This section places too much emphasis on Pamina’s mental frailty due to Tamino’s indifference. As with the omission of the scene depicting racial stereotyping, it was decided that the narrative would not suffer due to the omission of a scene based on gender stereotyping.

No. 21.2. “Der, welcher wandert diese Strasse voll Beschwerden” [He who walks this path weighed down with cares]

The scene changes to a valley overlooking two mountains, one spouting a waterfall and the second spewing forth fire. There are two Armoured Men on either side of Tamino. They read the prescripts of the ritual to the young prince. Those who are purified through the rites of air, water, fire and earth will find themselves illuminated and ready to be fully

consecrated to Isis. Tamino is steadfast and resolute to face the dangerous trials. He starts making his way to the first mountain, but is halted by Pamina. Tamino is wary to acknowledge her, but the Armoured Men inform him that a woman brave enough to face the trials with the man she loves is equally worthy to be consecrated. This scene was omitted in order for the focus of these two consecutive scenes to be on the union of Tamino and Pamina.

No. 21.3. “Tamino mein, o welch ein Glück!” [My Tamino, oh what luck!]

At last, the two lovers come together. They swear fidelity to each other and ready themselves for the trials. Pamina relays the tale of the Flute’s creation to Tamino. In a magical hour, Pamina’s father created the Flute from the wood of a thousand-year-old oak during a fierce storm. The power of the Flute will protect them during the trials. With this assurance, Pamina leads Tamino into the trial of fire. After coming out victorious, they are assured that the Flute will again preserve them through the trial of water. Indeed, they face the trial with no harm befalling them. The chorus breaks out into a celebratory fanfare, as the youths are now consecrated to Isis, and may freely enter the Temple.

Chailley (1982) postulates that the Flute is able to protect the young couple due to the way in which it was created. Each element of the trials described by the Armoured Men are symbolised in the instrument. He continues to explain that the music from the Flute is initiated through man’s breath, symbolising Air. During the magical evening it was created, there was a downpour (Water), with loud thunder (Earth) and bursts of lighting (Fire). The power of the Flute not only protects Tamino and Pamina, but also brings a change in Pamina. Up to this point, she has been depicted as a frail, naïve girl. Her faith in their union and in the power of the Flute gives her the courage not only to join Tamino, but rather to lead him through the trials. This is clear from her solo stanza:

Ich werde aller Orten
An deiner Seite sein
Ich selber führe dich,
Die Liebe leite mich.
Sie mag den Weg mit Rosen streun,
Weil Rosen stets bei Dornen sein.
(Mozart, 1791/1985, pp. 180–181)

I will in all places
Be at your side.
I myself will guide you,
May love lead me.
It may well strew the way with roses
Because roses are always near thorns.

In addition, this duet grounds the opera to the Orphic myth (Powley, 2004). Before entering the trial by fire, Tamino and Pamina sing:

Wir wandeln durch des Tones Macht
Froh durch des Todes düstre Nacht.
(Mozart, 1791/1985, p. 182)

We wander by the power of the sound
Happily through death's gloomy night.

The passage highlights that their virtue alone will not protect them during the dangers ahead. Rather, the music from the enchanted Flute will keep them safe. Fisher (2001) proposes that the union of Tamino and Pamina reflects the relationship of Isis and Osiris. He explains that the Egyptian gods represent the incarnation of rebirth and renewal, a process that will also be fulfilled through the young couple. Now that they have both been initiated, Tamino and Pamina will restore balance to their realm. Lastly, he explains that the couple's transformation from innocence to maturity symbolises the Masonic ideal of achieving transcendence. The importance of this scene, both in its allegory and the character development of Pamina, is rationale enough for this section to be left unchanged. This number was shortened but still included due to its importance. Only the first section between Tamino and Pamina was retained.

No. 21.4. “Papagena! Papagena! Papagena! Weibchen, Täubchen, meine Schöne”

[Papagena! Papagena! Papagena! Little wife, little dove, my beauty]

The scene now changes to a garden, with a solitary tree in the middle. Papageno is searching for Papagena. The distraught man is at his wits' end and sees no reason to live without his love. He contemplates hanging himself from the tree. Before he does so, he will

give fate a final chance; perhaps a girl will hear his pleas and come to embrace him. He counts aloud to three, giving pause between each number, looking around to see if someone appears. It is all in vain. He surrenders himself to his lot and prepares to hang himself. The Three Genii appear to bring him hope. They remind him of the glockenspiel and its magic, and encourage him to play it. Papageno has foolishly forgotten that he possesses such a powerful instrument and starts to churn the handle. The music fills the air, and his frantic playing is interrupted by the Genii telling him to turn around. This section was included in the production score, but due to unforeseen circumstance the participant could not complete the video recording of this section and was omitted in the final presentation.

No. 21.5. “Pa... pa... pa...”

Papageno hears the sweet voice of Papagena calling out to him. They revel in finally being together, dreaming of the many children they will have. Having a large brood will be the pinnacle of their happiness. Papageno goes through the whole gambit of human emotions in a very short time, progressing from utter despair to complete euphoria. Duncan (2004) asserts the importance of this duet, as it is the resolution to Papageno’s main objective of finding a mate. It is strange that Papageno receives the reward he was promised, despite his inability to keep his vow. Fowles (2004) explains that while Papageno has indeed forfeited his right to become an initiate, he ascends to a higher plane of spiritual maturity in swearing his fidelity to Papagena. Due to this duet’s importance, it was left unchanged.

No. 21.6. “Nur stille!” [Just quiet]

Monostatos leads the Queen and her Three Ladies into the Temple. They plan to destroy Sarastro and all his attendants. If they succeed, the Queen will hand Pamina over to Monostatos. They hear a thunderous sound in the distance, like that of a great waterfall.

Suddenly, the Temple is filled with light and the evildoers are vanquished. Again, in the absence of a Queen, this scene was omitted.

No. 21.7. “Die Strahlen der Sonne” [The rays of the sun]

Sarastro appears with all the priests, attendants and populace of his realm. The chorus celebrates the victory of light over darkness. By the grace of Isis and Osiris, the consecrated have prevailed and are now crowned with an eternal crown. This scene concludes the opera. No cuts were made to this scene.

4.3.2 Practice aids

In order to assist the participants with their preparation, several practice aids were compiled, distributed by means of a shared Google Drive folder. In the drive were different folders, clearly marked “soloists” and “chorus”. The chorus section contained sub-folders for each of the different vocal sections: soprano, alto, tenor and bass. A digital copy of the cut score was available to all participants. As the chorus, consisting only of undergraduate students, was the most inexperienced, this group received the most material. The melodic lines of each chorus piece were recorded for the respective voice types. Two tracks were provided for each piece, one at fifty percent of the tempo, and the other at performance tempo. The soloists did not receive recordings of their vocal lines, as they are expected to be able to learn their melodies by themselves. All students were supplied with accompaniment tracks, which would enable them to become accustomed to the full musical structure. This was further supplemented with pronunciation tracks in German for each of the numbers.

The musical tracks were created using the music notation software MuseScore¹⁷. First, the MIDI¹⁸ tracks for the orchestral accompaniment were downloaded from the Kunst der Fuge website (Kunst der Fuge, n.d.). This was a useful resource, as without it, every note of the entire orchestral score would have had to be notated. From these tracks, I created an abridged accompaniment by combining parts from the full orchestral score. This process is akin to the method that is used to create vocal scores. The MuseScore software provides the option to associate the sound of any instrument with the notation. As students usually practice with live piano accompaniment during their studies, the grand piano option was selected. Not all devices are capable of reading MIDI files without the correct software. The MIDI accompaniment tracks were therefore exported as MP3¹⁹ files, readily playable by both Android and Apple operating systems. Another advantage of this file format is the small file size utilised.

4.3.3 Preliminary tests and survey

Before the participant survey was compiled and rehearsals started, preliminary tests were done. It was assumed that most students would only use their smartphones to make recordings. Therefore, the preliminary tests were undertaken on my mobile phone. A series of photographs taken in front of an empty wall served as test subjects to practice the method of removing the background. The freeware graphics editor GIMP²⁰ was used. After the background was successfully removed in a still image, footage was necessary to establish a

¹⁷ <https://musescore.org/en>.

¹⁸ Musical Instrument Digital Interface. Used to communicate note and sound effect information between synthesisers (Computer Dictionary of Information Technology, n.d.-b).

¹⁹ MPEG audio Layer-3 compression of a sound sequence which enables digital storage and transmission of digital music (Computer Dictionary of Information Technology, n.d.-c).

²⁰ <https://www.gimp.org/downloads>.

method to remove the background of a video recording. Because the footage needed for the production would be of people singing, a short test reel was shot, in which singing was mimicked. Several video editing platforms were investigated, and from those available, HitFilm Express²¹ was selected. The express version of the software is free, with the option to upgrade to a paid professional (herein after pro) version. The software includes a function allowing the background of a video to be removed with little effort. This function was either not available in other free software, or was more complicated to achieve. HitFilm Express further had other functions that would serve me well in creating the virtual production. It was not foreseen that an upgrade to the pro version would later become necessary.

Although the preliminary tests were successful, it was important to establish what actions should be taken to create the best quality video recording. The Columbia University Office of Communications and Public Affairs (Columbia University, n.d.) published a practical guide on their website for recording videos at home, which contains sections on the creation of content with an Apple iPhone, Android phone and computer. After providing detailed steps on setting up a device for recording, it gives guidance on the necessary lighting and exposure, as well as framing and backdrop. It was necessary to draft a survey in order to determine whether all participants would be equipped and able to film video footage of adequate quality. The Participant Survey can be found in Appendix C of this document.

4.3.4 Rehearsals

The way in which rehearsals are structured is vital to the success of a production. Molnar's (2015) practical guide to stage management is a valuable source describing the process of rehearsals. There are four categories of rehearsals: musical, blocking, stage and

²¹ <https://fxhome.com/product/hitfilm-express>.

technical. The conductor is responsible for the music rehearsals, assisted by a coach or répétiteur. It should be pointed out that these rehearsals are not intended for learning the music, as artists are expected to arrive at the first rehearsal having already prepared the music. Molnar (2015) notes that singers may be contracted to sing a role up to five years in advance. Blocking rehearsals create the opportunity for the director to physically block the positions and movements of the singers. In larger companies, assistant directors conduct smaller blocking or stage rehearsals with the chorus. If the opera calls for dances, whether by the chorus or professional dancers, the director is assisted by a choreographer. Preliminary musical and blocking rehearsals take place in special rehearsal venues. These may be smaller rooms to accommodate the cast, or large halls that are roughly the same size of the stage on which the work is to be performed. It is important for singers to familiarise themselves with the exact play area they will have during performance (Briggs, 2015).

Rehearsals then move to the stage for the next two phases. The first stage rehearsals are still accompanied by piano. From here, the rehearsal schedule is dependent on the format accepted by the theatre or opera company. Molnar (2015) reports that, in the company he observed, technical rehearsals were conducted last, right before the final dress rehearsal. Briggs (2015) states that technical rehearsals were combined with dress rehearsals, and took place before the final music rehearsal. Dress rehearsals are sessions during which all artists appear in costume and makeup. Before the orchestral stage rehearsals, a *Sitzprobe* [seated rehearsal] takes place. The entire cast is seated on stage and sing through the music with the conductor and orchestra. The conductor might opt for a *Wandelprobe* [walking rehearsal] instead (Molnar 2015), during which singers walk around on set whilst performing with the orchestra to familiarise themselves with the acoustics on stage. The conductor may decide to run through the entire score, or to work on problematic sections only. This is followed by orchestral dress rehearsals. The rehearsal period is concluded with the final dress rehearsal.

For our production, the usual rehearsal period was drastically shortened due to the unusual circumstances, as explained before, and the only available rehearsal time was the weekly two-hour stage technique class. Rehearsals took place on Google Meet, as all the participants were already familiar with the platform. The first three were music rehearsals, during which the first hour was dedicated to chorus numbers, while soloist work was rehearsed during the second hour. Ensemble pieces, whether chorus or soloist ensemble numbers, were impractical to rehearse because of latency. Other than latency, numerous challenges were experienced concerning sound quality. Differences in distance from the camera resulted in too many audio variables. We encountered many instances where the Google Meet audio algorithm could not distinguish between background noise and the accompaniment. Additionally, the sound of the singers' voices would fade in and out, especially when the participant was positioned far from the camera. This is in accordance with the findings of Mavrin et al. (2020). Due to these challenges the music rehearsals were restructured to ensure that the limited time was utilised more efficiently. At the start of each rehearsal general notes and directions would be given, followed by short individual sessions in which questions or challenges faced by each participant could be addressed.

In the weeks that followed, the rehearsals were for soloists only and focused on blocking. Rehearsing scenes for a digital presentation differed greatly from preparing performers for the stage. With this new platform the performance space is greatly reduced, as the play area is restricted to the size of a screen. For the initial staging rehearsals, a large amount of time was set aside for the soloists to become accustomed to orientating their performance around the camera. It was important to discuss each scene in terms of the different angles and distances from the camera. As the focus was on ensemble numbers, the virtual conferencing made rehearsing these scenes challenging, especially the two quintets. Participants found it difficult to interact with each other as they could not always see their

fellow performers on the screen; as they either appeared too small, or they were not facing their devices whilst performing. It was thus easier for participants to observe each other and then take turns to act out the same scene.

Customarily, I would allow time to workshop scenes with members of the cast, and even more so for young students. However, the limited rehearsal time necessitated the staging directions to be more scripted. This does not mean that performers were not given the opportunity to explore their own expressions in the portrayal of their characters, but if not for the severe time constraints, they would have been able to do so with even more guidance from myself as the director. Furthermore, they had to contend with added constraints to their movements, either by the size of the room they were filming in, or the available play area as dictated by the framing of the footage. Interactions with digital elements were planned for some scenes, such as Papageno who, at one point, had to interact with a bird that was to fly across the screen, and in another scene had to hold a magical glowing glockenspiel. Because these elements would only be added during the editing phase of the production, it was impossible to rehearse the interaction beforehand. The performer had to contend with audio cues informing him of the position of the bird at a certain point in the music. Regarding the glockenspiel, he only had to hold out his hands, as if carrying the object, and the virtual instrument would later be added to the footage. Technical rehearsals would not be necessary, as any editing of the video would take place after the videos were already recorded. The *Sitzprobe* was not possible due to the lag caused by variables in the internet connection.

4.4 Conclusion

In Chapter 4, the chronology of the planning and preparation of an opera production was evaluated. It was noted that, although a standard procedure exists, the order in which the different actions take place are specific to each production. There are numerous

considerations that may impact how, when or where an opera is staged. This highlights the importance of having a clear procedural structure before one embarks on the first rehearsal or scene design. From the preparation of the production score to the start of rehearsals, there are practical and aesthetic implications that shape the final artistic product. The production that forms the creative output for this study is presented in an abridged format. Therefore, this chapter presented the rationale for the inclusion of the musical numbers selected. This production also had to contend with challenges not faced during the traditional staging of an opera. All activities of the CVOS programme were forced to take place online, due to the outbreak of the COVID-19 pandemic. Solutions were found, allowing the preparation for the opera to continue. This phase culminated in the rehearsal period, allowing the shaping not only of the singers' performances, but also of strategies that would inform the next phase in the creative process, namely the practical studio action.

CHAPTER 5

Phase 2: Practical studio action

5.1 Introduction

The creation of our opera took many months of studio action to bring together the final presentation. During this time, there were numerous versions of the methods, individual elements and scene composites. Finding solutions through trial and error is inherent to the creative process. Iterations are vital in the creation of robust systems that are able to address various challenges through technical refinements. The artistic elements are also positively influenced by iteration, as these are a confluence of creative ideas and realisations thereof. Reporting on every variation in design, or setting changes within the various applications, is beyond the scope of this study. As the creative process required different actions being taken simultaneously, the discussions follow a non-linear path and are grouped according to themes.

The chapter commences with a description of the strategies implemented in the creation of the visual and audio content. This is followed by further considerations that affected the creation of the production. The final section focuses on the progression of the creative process during the design of specific scenes.

5.2 Content creation processes

It is important to report on the methods, actions, strategies and protocols followed during the creation of this opera, to give an overview of the entire creative process. This section deals with the iterative cycle of individual elements. Since this production is presented digitally, a substantial amount of technical work was involved, as expounded below.

5.2.1 Visual content

Opera is an art form filled with visual and audio spectacle. The composer supplies the music, while the director provides the overarching scenic imagery. Tastes and conventions in design ebb and flow, similar to those in fashion (Kotnik, 2013). Remaining relevant in one's portrayal of an opera is a vital aspect of presenting a work, particularly in this day and age, with permanently visible screens are a constant bombardment of countless Instagram, Pinterest, YouTube or Facebook feeds. This results in a modern audience that is far more used to visual trends than previous generations (Benito & Babi, 2014). To stay abreast of the current trends, I spend many hours perusing opera books and magazines, watching DVDs or viewing YouTube videos. Inspiration can often be found in disciplines outside of opera, such as architecture, graphic design and films. When one starts to muse about the visuals of an opera, one realises that all of these influences play a role. The objective is not to copy other artists, but to be a metaphorical channel, moulding different artistic influences into a cohesive, creative whole.

This places a hefty responsibility on any director. All of the actions taken during the many months of preparation are invisible to the average audience member, and rightly so, as opera remains a form of entertainment. This has subsequently led to musicologists largely ignoring the processes concerned with the design, interpretation and execution of the theatrical elements of staging an opera (Chenault, 2016). In the sections below, a delineation of the processes followed is presented in order to illustrate the complexity of creating the visual interpretation of a production.

5.2.1.1 Creation of digital scenic elements

Before describing the studio action, it is important to reflect on the advice by Becker and Eckel (1995). They caution that creating art by means of technology may result in

unwanted outcomes. The limits of artists' technological competence place certain limitations on their work. They may allow their envisaged strategies to be dictated by what can be achieved by technology, and thus compromise their artistic concepts (Becker & Eckel, 1995). During the time between preparation and planning, and designing the virtual scenery, I encountered these challenges.

During an exploration session on YouTube, I came across EbSynth²², a program²³ that facilitates the overlaying of artistic style effects on to video footage (Secret Weapons, 2019). It is now possible for video material to be turned into a moving oil painting, or any other form of visual art. Although there are many applications that may be used to apply such artistic filters to still images, EbSynth pioneered this procedure for video footage. This process was alluring, as it would allow transforming the performers' footage to seem as if it were painted by hand. It would further suit the fantasy aesthetic of the *Die Zauberflöte*. EbSynth was promptly downloaded, and preliminary tests commenced.

The procedure works as follows: a sample sketch, in the desired artistic style, is provided for the first frame of the video. The software, by means of an advanced algorithm, intuitively applies the artistic style overlay to every frame within the footage. The short preliminary test video (as discussed in section 4.3.3 above), was also used to test the outcome of the artistic overlay. This is where the first obstacle was encountered. The initial image from which the artistic style is to be applied, has to be created in the exact style desired. For example, if one wishes for the project to resemble a Picasso painting, the first frame of the video has to be recreated in the style of Picasso. Although I am able to create computer graphics, I do not possess the skills to create an exact copy of a video frame in a different

²² <https://ebsynth.com/>.

²³ The spelling of the word in British English adopts the American spelling when specifically referring to computer programs (Cambridge Dictionary, n.d.).

style. I then began to search for software that would enable me to apply an artistic style overlay to the initial image frame. The research into a neural algorithm of artistic style by Gatys et al. (2016) resulted in the creation of the online platform DeepArt.io²⁴. The style transfer is achieved by a convolutional neural network inspired by the human brain (Gatys et al., 2016). Firstly, the image to which a style is to be applied, is uploaded. Then, a style is selected from examples available from the website. Lastly, the program applies the selected style to the desired image. Figure 1 displays the three-step process, where content is created through identifying stylistic elements of one image and applying them to another.

Figure 1

Process of applying stylistic transfer by DeepArt.io algorithm.



Note. The style, imitating that of Henri de Toulouse-Lautrec's *La Toilette*, is applied to my image.

²⁴ <https://deepart.io/>.

The result was very promising, despite two downsides, namely the time it took to render an image – between 20 and 30 minutes – and the quality of the image. The quality was impacted by the small dimensions of the image, although larger sizes were available for purchase. Since the objective of this study was to keep production costs as low as possible, this option was not viable. I then attempted to import the stylised image into EbSynth. This was not possible, as the dimensions of the image were required to match those of the video. In this case, the art overlay image was smaller than the video. Through the use of the freeware graphics editor GIMP, the dimensions of the image were increased. Although this enlarged the image, it decreased its quality. The next challenge was the fact that EbSynth would not apply the artistic overlay to the actual footage, but rather to every frame. Video content consists of a certain rate of frames per second (fps). This allows the brain to perceive the series of images as a moving picture.

It was necessary to find software that would allow the footage to be exported as an image sequence. The list of video editing software in the WACDA (2020) technical resources file was consulted. Unfortunately, the video editing software cited in the document did not yield any results. Two of the programs listed were pay-for-use, and the other was only available on Apple devices, to which I did not have access. The pre-installed Windows 10 video editor has a function allowing the user to save a frame of a video; however, it is only possible to save one frame at a time. If one creates video content at 30fps, 30 unique images are required to create one second of footage. The footage selected for the artistic style transfer was ten seconds long. Therefore, 300 frames would have to be exported, one at a time. This method would be far too laborious and time-consuming, which led me to Google search to find a solution. Fortuitously, the video editing software used to remove the background in the preliminary test footage, HitFilm Express, allowed video content to be saved as an image sequence with the click of a button. This was a function of which I was previously unaware.

With this problem solved, the image sequence and stylised image were imported into EbSynth. The software commenced to apply its algorithm to 300 frames. Each frame was rendered in eight seconds, with the whole process lasting approximately 40 minutes. The time it took to render only ten seconds of footage made it untenable to apply this process to the full production, as it would take seven full days of only rendering to complete. The algorithm can only apply the overlay to subject matter found in both the initial stylised image, as well as the video material. It cannot apply the overlay to the entire 30 minutes of footage from only one stylised frame. A new stylised image is required for each new element, angle or character introduced into the footage. This increases the time spent on creating one element of a multi-layered project. The time could be better spent by focusing on other aspects of the production. Interestingly, the DeepArt.io website also provided a service to apply their artistic overlay to video footage. This was not a free service, and would cost €969 (approx. R17,200²⁵) per 5 minutes, totalling €5,814 (approx. R103,480) for the full 30 minutes. It would therefore not be viable to apply any artistic overlay to the foreground (footage of the performer) by means of this procedure.

Next, applying an artistic style overlay to the background would be attempted. The opening scene of the opera was chosen for this trial. As the design for this scene was not yet created, it was necessary for the method of creating the scenic elements to be developed first. DeepArt.io cannot apply its overlay to 3D images, and therefore the techniques used in my previous operas would not be suitable. 2D imaging was required for the overlay to be adequately applied.

The scene description of Act 1, found in the study score, notes that the landscape consists of trees, with mountains in the background (Mozart, 17/911985). Creating one tree

²⁵ As on 10 February 2021.

would be easier than a complete forest or mountain range. To create the image, a silhouette of a tree was created in Microsoft PowerPoint. It was then imported into DeepArt.io using the same style overlay as in the initial test. The result is displayed in Figure 2 below.

Figure 2

Application of style transfer on tree silhouette.



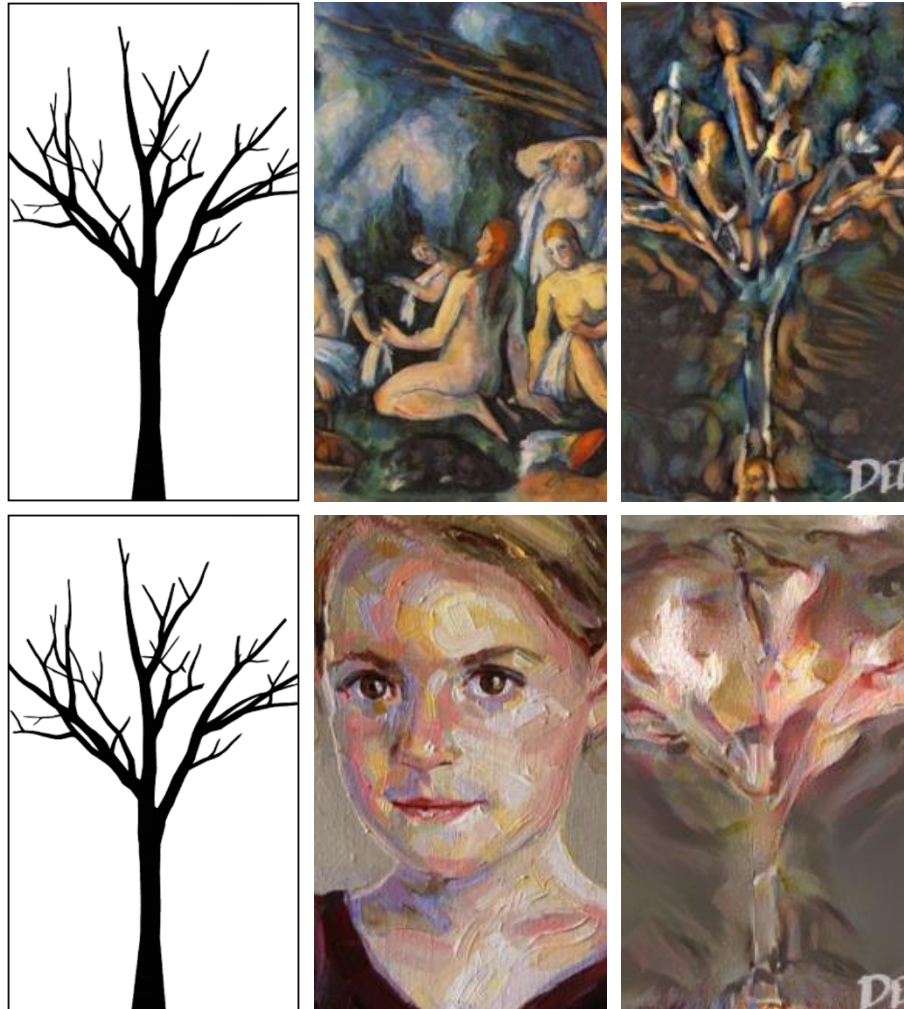
Note. Applying the same artistic overlay, as found in Figure 1, to a tree silhouette.

This did not achieve the desired effect. To establish the cause of the vast difference between the results in Figures 1 and 2, two more artistic styles were applied to the same silhouette. Figure 3 displays the results.

These results were even less satisfactory. Alternating between styles was ruled out as the variable causing the difference in result. The image used in Figure 1 was a photograph, which contained a rich colour palette. I added a grey background to the silhouette to see if this would change the result. This is displayed in Figure 4.

Figure 3

Second and third attempts at style transfer on tree silhouette.



Note. The styles of Paul Cézanne (top) and Liz Lindström (bottom) were applied.

The trials displayed in Figure 4, demonstrated that colour palette, even with a variation as small as the difference between black (tree) and grey (background), was the essential variable that would determine the desired result.

Figure 4

Fourth and fifth attempts at style transfer on tree silhouette.



Note. The styles of Henri de Toulouse-Lautrec (top) and Paul Cézanne (bottom) were selected.

The strategies explored up to this point allowed for the creation of individual elements, which could be used in the composite imagery. A process that would allow the layering of different elements into a composite whole had to be developed. Two previously mentioned video editing software packages were assessed, namely VSDC and HitFilm

Express, as well as Smode Studio²⁶, Blender²⁷, and DaVinci Resolve²⁸. Smode Studio was first developed with the VJing (video jockey) community in mind, allowing for real-time compositing and creation of effects. Blender is known as the premier freeware and open source 3D creation and compositing platform. As part of an ever-expanding palette of procedures and applications, it also allows for the editing of video software through the Video Sequence Editor. DaVinci Resolve has both a free version and a paid pro studio version. The website hails it as the software used by Hollywood professionals, owing to its main focus on colour grading and special effects. All five of these programs allowed the layering of elements. The difference came in how the layering was applied, the interface used, as well as in procedural design. From the five software packages, VSDC and HitFilm Express were selected as they were more user-friendly.

While both software programs have certain general video effects in common, HitFilm Express was found to be more robust. The main difference was in how the composites were layered. VSDC allows images and videos to be placed over each other, but these remain on the same plane. Due to the lack of depth, it was difficult to distinguish the different layers from each other. HitFilm Express allows 2D elements (images and video material) to be placed on a 3D virtual stage, which allowed for a more visually pleasing result. It further allows the placement of virtual lighting, adding an extra artistic layer to the composite images. The aesthetic created by this process closely resembles a scenery technique used in staged productions. One design method in real-world performances specifically makes use of

²⁶ <https://smode.fr/smode-studio/>. At the time of publishing this research, Smode Studio was no longer maintained by the parent company, and was replaced by the paid program Smode Designer.

²⁷ <https://www.blender.org/download/>.

²⁸ <https://www.blackmagicdesign.com/products/davinciresolve/>.

painted flats²⁹ on which scenic elements are depicted. This has been in use since the early sixteenth century, and was used during the original staging of *Die Zauberflöte* in the Freihaus Theater auf der Wieden (Untiedt, 2013). The software also has artistic overlay effects that could be applied to the footage of the performance. These effects were not as sophisticated as those achieved by EbSynth, but the process was much simpler and still yielded adequate results.

Creation of the scenic elements was achieved by the following process:

1. Individual elements were created in Microsoft PowerPoint, or if necessary, GIMP.
2. Effects were applied to the relevant elements in PowerPoint.
3. Created content was imported into HitFilm Express.
4. Components were composited on different layers, combined with virtual lighting elements, to create depth.
5. If necessary, other effects were applied in HitFilm Express.

5.2.1.2 Recording of video footage

It was envisaged that recordings of the scenes would take place during specifically scheduled recording sessions on a virtual platform. This would allow both director and participants to be present during the filming. Due to the latency experienced during these online sessions, each participant was recorded separately. Two popular online video conferencing platforms were explored to determine which would yield the best result. Google Meet was investigated first, as it had already been used during the rehearsal phase. Due to conflicts in digital permissions, which did not allow the recording of sessions, this application was unsuitable. Although the freeware Open Broadcaster Software³⁰ (OBS) for video

²⁹ A lightweight timber frame covered with scenic canvas (Primrose, 2021).

³⁰ <https://obsproject.com/download>.

recording and streaming allowed the recording of the Google Meet sessions, the quality was insufficient for our purposes. Zoom was the next platform to be investigated, as it allowed the recording of sessions. A further advantage of Zoom was its virtual background option. This function allows the user to select a background image that would replace the real-world background. As an experiment, a participant was supplied with an image simulating a green screen. If successful, it would allow a simple background removal technique when compositing the scenes. The result of the test can be seen in Figure 5.

Figure 5

Zoom session with simulated green screen set as virtual background.



Note. In this screenshot, a virtual background was selected to simulate a green screen.

Although the virtual background function seemed promising, the test footage depicted in Figure 5 proved that there were still some inconsistencies. Despite our best efforts, the results did not improve. When the participant was close to the camera, the application removed the background; when the participant moved further away, he disappeared into the

green background. This would not be sufficient, as various angles and distances away from the camera were needed to create a visually dynamic production. Furthermore, the quality of both audio and video footage was compromised, as it was subject to the internet connection of the participant. Ensuring access to better quality and stable internet was not possible. Online conferencing platforms were thus ruled out as a viable option for the recording of the subject material.

The only other option available was for every participant to record themselves on their own device and to submit their recordings. They could either use a laptop, smartphone or any other recording device already in their possession. Although this solved the problem of video quality, the variance in sound due to the distance of the participant from their device's microphone was still problematic. Each participant would therefore submit two recordings of every scene, one with only audio and a second with audio and video. The sound from the video recording would be discarded if it was found to be unsatisfactory. It was, however, important for the singer to still sing in the video recordings, rather than to lip-sync, in order to maintain integrity of the performance.

5.2.1.3 Background removal

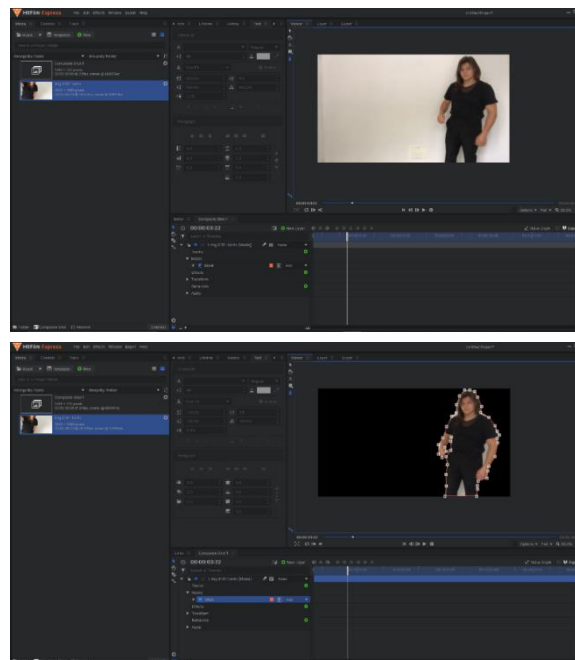
Removing the background of participant's video material proved to be as challenging as creating the visual elements. This process required many different strategies to be investigated. Although all participants attempted to follow the supplied guidelines, there were uncontrollable variables that impacted the video footage. The first challenge encountered was the fluctuation in lighting. Scenes were either over- or underexposed. Causes for this ranged from the amount and type of lighting fixtures available in the recording location, to the weather impacting the light level. One soloist in particular found it difficult to make adequate recordings during a weeklong rainy spell. The only room in the house where he could record

uninterrupted had inadequate lighting. It was necessary to film in natural light, which was made this impossible by the cloudy days. In this case, the only solution was to postpone the footage submission date.

The second challenge encountered was the lack of contrast between skin colour and wall colour. There were several variants of this problem. At the lower end, sections of the performer's face or body were removed with the background, as the software could not distinguish between similar colours found in both the background and subject. When removing backgrounds, one can either remove a particular area, or a specified colour. Removing a desired area can be achieved through rotoscoping. This process entails manually selecting areas to be retained or discarded. An example of this may be seen in Figure 6.

Figure 6

Screenshot of rotoscoping in HitFilm Express.



Note. Original footage (top). Rotoscoping applied to the video footage (bottom). Points are connected to enclose an area to be retained. All other parts of the footage are discarded.

The technique is difficult to master, and is further complicated if one wishes to achieve crisp edges. Every minute detail of the organic shapes created by the human body, clothing or even hair, has to be traced by hand. This is a very slow and laborious process, as it has to be executed point by point, and frame by frame. It was concluded that, as with the artistic overlay, this technique would require too much editing time.

Another option is to remove a specific colour from the footage by applying a video keying effect. The chroma-key effect has been used by the television and film industries for decades (Raditya et al., 2021). This is the technique used to remove the colour background in blue/green screen footage. Variances in colour within the video footage allow editing software to discard all elements of a specific colour value. Colour variance can be measured either in hue, luminance or RGB³¹ value (Foster, 2014). In HitFilm Express, there are various keying effects. The chroma-key effect is a pay-to-use add-on, and could not be accessed. There were, however, five other keying effects that could be applied. From these, the hue and RGB key was most effective. Figure 7 displays the result of this effect.

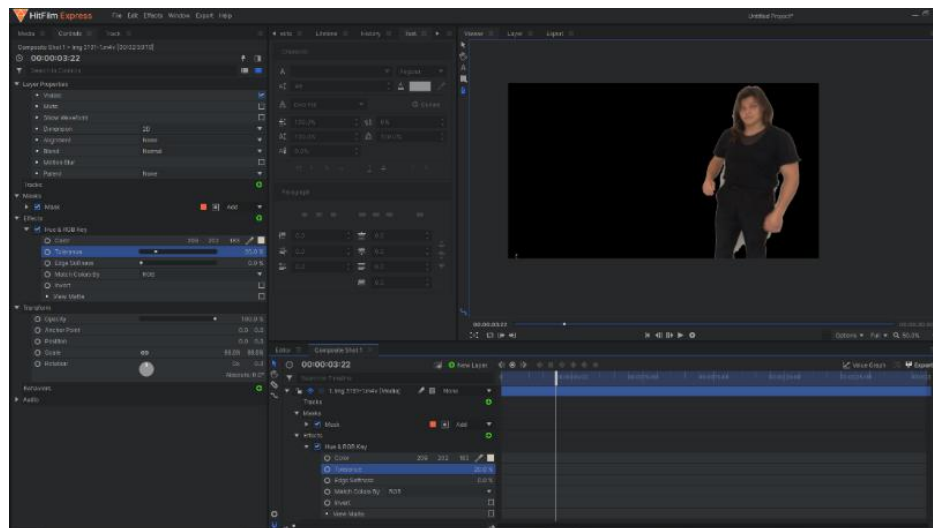
Figure 7 displays one of the more successful attempts at removing the background. Figure 8 is an example of colour similarities causing parts of a participant's face to be removed when the background colour was selected.

Parts of the face were removed with the background due to the software perceiving the different areas to have the same RGB values, within a 24% degree of tolerance. It is possible to set the tolerance value to zero, but this resulted in only small sections of the background being removed. For this particular issue, the solution was found in combining the two samples, only using the facial areas. The result is visible in Figure 9.

³¹ RGB stands for red, green and blue. The mixture of these three colours creates the entire palette of colours visible on a computer screen. Each colour therefore has a unique RGB value (Foster, 2014).

Figure 7

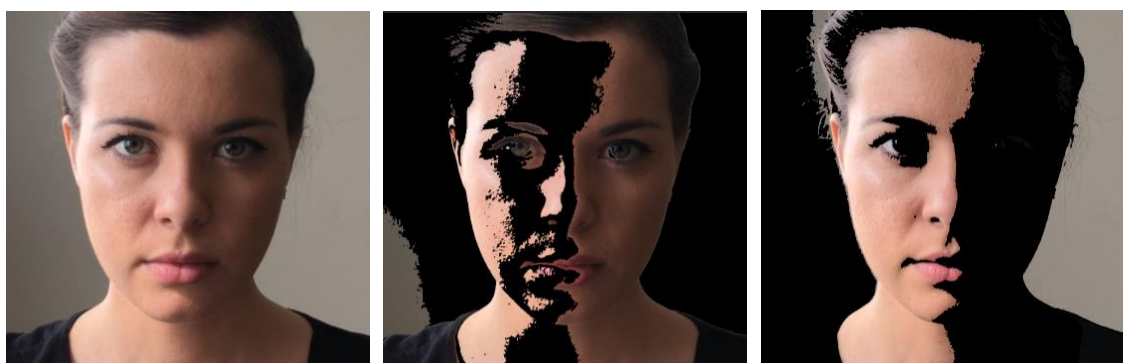
Screenshot of hue and RGB effect in HitFilm Express.



Note. Video footage as supplied by participant (top). Result of the hue and RGB key effect on the footage, after the RGB value of the wall colour was selected to be removed (bottom).

Figure 8

Hue and RGB effect colour similarity in HitFilm Express.



Note. Two examples of the effect being applied to the same scene. Video footage as supplied by participant (left), shows a clear colour difference in the background, with darker shades on the left and lighter shades on the right. Lighter colour of the wall selected for removal (centre). Darker hue selected for removal (right).

Figure 9

Composite scene of facial areas in HitFilm Express.

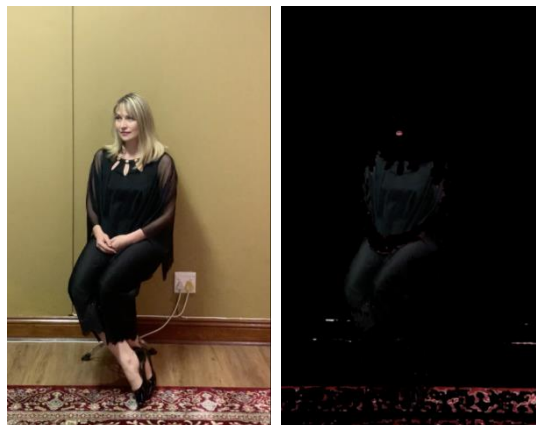


Note. Composite shot created using the masked-off facial areas of the two clips.

Other issues were more difficult to resolve. One participant recorded herself in front of a wall painted a warm colour with yellow undertones. When the same hue and RGB keying was applied, most of the video footage was removed, as depicted in Figure 10.

Figure 10

Removal of warm-toned background.



Note. Identical hue and RGB keying, with 24% tolerance, as was applied in previous background removal procedures. Original footage (left), keying applied (right).

Different strategies were implemented to mitigate the outcomes, but no solution could be found. I endeavoured to identify solutions within the software to solve all the challenges faced, without having to ask participants to re-record. No other suitable recording spots could be found in the above participant's home. Fortunately, she found a large white tarp, and subsequently used it to cover the wall. The new footage allowed for more contrast between the performer and background, and was more suitable to the keying effect. Thus far, the process followed and challenges encountered followed the same progression as the development of keying in the industry. The reason for the use of blue and green screens is the fact that these colours are not present in any human skin hues. When reflecting on the disparity in results between my preliminary tests (footage of myself in my own home) and the material submitted by participants, the answer was simple. In my footage, I was standing in my kitchen, with ample natural light, in front of a blue wall. Although I was also wearing a blue jersey, the contrast between the light blue wall and my dark blue jersey was clear enough for the clothing to remain visible without being dissolved (Figure 11).

It was unfeasible to control all the variables that would result in perfect footage for background removal. It was decided that footage would still be used, even if some areas could not adequately be removed, provided that it did not detract from the overall performance. Keying effects were also tested in Blender and DaVinci Resolve 17, but were found to either yield the same results or to show only marginal improvement. I reverted to using the tools available in HitFilm Express to carry out all the keying work. In contrast with the digital element creation, there was no single method that could be applied to all the footage to remove the background. It would not be practical to report on all the settings that were used on the background removal for each recording.

Figure 11

Preliminary test footage and background removal.



Note. Original footage (left), keying applied (right).

5.2.1.4 Compositing of video material

After all scenic elements were created and participant footage processed, the compositing of the individual scenes could commence. As both elements were created in HitFilm Express, it was practical to complete the compositing in this program. The first step was to import the participant footage as a layer within the composite scenery (Figure 12).

The result was not as desired; the footage seemed out of place. The participant appears to be several metres tall in relation to the size of the pillars and the rest of the hall. Virtual lighting within the scene also did not affect the footage as expected. Better integration of the scene and participant was needed. The scene depicted above had a total of 24 different layers, with the participant footage as the top layer. Moving the participant's layer further down in the composite did not adequately ensure integration with the scene. This only served to move the participant behind the pillar layers, but resulted in him seeming even taller. Two

possibilities are available when compositing a scene in HitFilm Express – placing objects on either a 2D or plane. The composite scenes were created on the 3D dimensional plane, as this allowed for more depth within the images. When this option is used, the program adds a virtual camera that can be moved within the 3D environment. It was therefore possible to change the point of view of the scene. First, the camera was paired to the participant footage. This meant that the camera would retain this footage in the foreground, regardless of where it was placed in the virtual stage. The camera was then moved through the scene until a more desirable angle was achieved. Figure 13 shows that the footage is better integrated with its surroundings.

Figure 12

Scene compositing.



Note. Footage of participant, with background removed, added as a layer to the composite of the scenic elements.

Figure 13

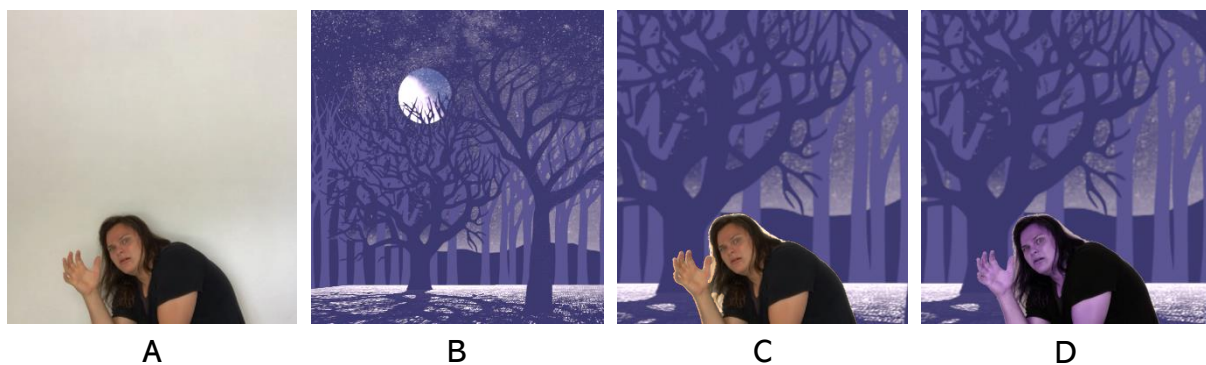
Scene compositing with attempted integration.



Note. Participant footage sized in relation to the virtual surroundings.

Figure 14

Progression of scene compositing.



Note. **A:** The raw footage as provided by the participant. **B:** Scene background, created in layers of individual scenic elements. **C:** Integration of A (with background removed) and B, by placing the subject in relation to elements found in B. **D:** Result of adding lighting effects to participant footage to further integrate all visual elements in the scene.

The final step was to align the lighting effects of the participant footage to that found in the rest of the scene. The compositing of every scene therefore followed the procedure depicted in Figure 14.

5.2.2 Audio content

Similar to that of the visual content, the creation of the audio tracks also required various processes. Although I had some experience with editing music files, it did not relate to the recording of singing or the creation of digital accompaniment. The learning curve of this discipline was far steeper than that of the visual content, although the processing of the material did not require as many steps. As with the visual content, the audio also included both foreground and background elements, with the orchestral accompaniment underpinning the vocal performance.

5.2.2.1 Orchestral MIDI accompaniment

In section 4.3.2, the procedure for the creation of rehearsal tracks is discussed. The orchestral MIDI accompaniments were created from these tracks. During the creation of the rehearsal tracks, the built-in synthesiser of MuseScore was used, which allowed the notes to be performed with a piano sound effect. Notation can be interpolated by any sound effect provided that a separate notation line exists for each instrument. Each of these lines can then be associated with the corresponding instrument's sound effect. This was attempted with the music of "Bei Männern welche Liebe fühlen" [In men, who feel love], as the accompaniment consisted mostly of strings³². Instrumental sound effects were selected to correspond with the instrumentation as designated by Mozart. The other instruments (clarinet, horn and bassoon) which only appeared sporadically, were omitted during the trial. The expectation was that

³² An orchestral string section consists of first and second violins, violas, cellos and double basses.

some approximation of the real orchestral accompaniment sound would be given. However, when played, it sounded as though only five instruments were playing, since there were only five notated lines. The number of staves were increased, effectively multiplying the number of instruments, in an attempt to simulate a larger virtual orchestra. Unfortunately, this was not successful, as there was no discernible difference. The sound effects also sounded artificial and were unsuitable. It was thus necessary to find different program to synthesise the MIDI notation.

Through a Google search, it was found that several websites and blogs recommend the use of a Digital Audio Workstation (DAW). Although the well-known DAW GarageBand³³ was highly recommended, it is only available for Apple devices. In the list of suggested free DAWs was Audacity³⁴, which was already installed on my laptop. However, it was not possible to create the accompaniment track with Audacity, as it has no MIDI compatibility. Another highly rated freeware platform is Cakewalk³⁵. There were several YouTube tutorials on the use of the DAW with specific focus on orchestral film scores. The MIDI notation was imported into Cakewalk and each separate instrument track was associated with the corresponding sound effects. The sound effects library was pre-installed on the program. Regrettably, the result was still not satisfactory. Subsequent research into creating more authentic sounding tracks revealed that Cakewalk was compatible with other sample libraries. Many of the free virtual instrument platforms specialise in instruments not traditionally found in the orchestra. I eventually came across LABS³⁶ by Spitfire Audio, a free resource with professional quality string samples.

³³ <https://www.apple.com/ca/mac/garageband/>.

³⁴ <https://www.audacityteam.org/>.

³⁵ <http://www.cakewalk.com/>.

³⁶ <https://labs.spitfireaudio.com/>.

The new sample library, as well as the sounds associated with the relevant instruments, was installed. Finally, an acceptable result was achieved. The sample associated with the first and second violins, as well as the viola section, was that of an entire string section, instead of only one instrument. Although this proved to be a valuable resource for the string section, none of the other instruments required in the score were available. It was decided to combine the instruments of Cakewalk and LABS in order to have the accompaniment performed by the entire virtual orchestra. During the process of creating the orchestral tracks, I received an email from the Spitfire Audio group. In this missive, they advertised a limited time offer for LABS users to sample their new instrument library, created in collaboration with the BBC Symphony Orchestra, free of charge. I simply had to register on their platform and wait for the download to be made available. The next day, I received the link and promptly downloaded the new samples. The instruments of the entire orchestra were now available to me in professional quality. It is however important to note that, although samples of the instruments were of a high quality, the full spectrum of articulation that is performable on the real instruments was not available. If the full range of articulation samples were sought, it would either cost £399 (approx. R8,300³⁷) for the core edition, or £899 (approx. R18,700) for the professional package. After the orchestral accompaniments were completed, the MIDI files were converted to MP3 format.

5.2.2.2 Compilation of audio tracks

Following a process similar to that of compositing the visual scenes, the audio tracks were compiled from several different sound layers. I first attempted to accomplish this within Cakewalk, layering the vocal submissions over the orchestral accompaniment. Participants were asked to record their vocal lines without the accompaniment being audible on the

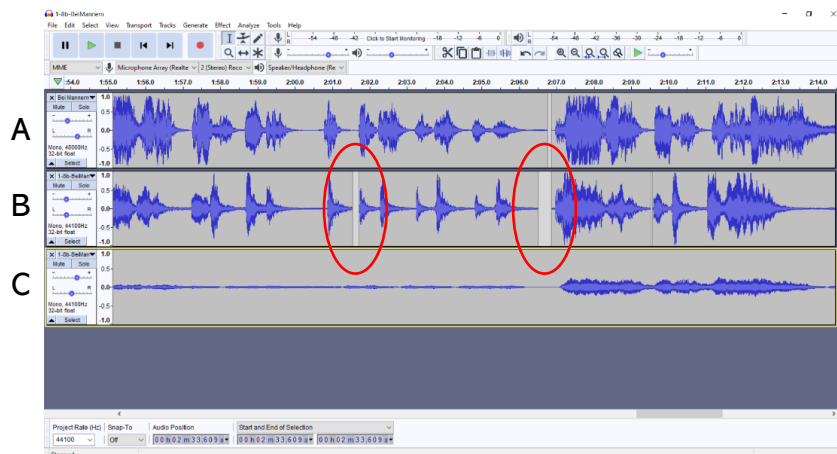
³⁷ As on 12 March 2021.

recording. This was achieved with the use of earphones, which still enabled them to hear the music. This method allowed for the editing of vocal lines. Although singers strive to perform their music with precision, it is inevitable that there will be instances of breaths being taken differently, vocal attacks being early or late, or consonants being pronounced out of sync, particularly in ensembles. When the vocal parts are recorded remotely, as in this case, these differences are even more pronounced. Editing the different layers in Cakewalk was extremely challenging.

I decided to revert the compilation of the audio tracks to Audacity, as it is more user-friendly and I had prior experience of working with this program. The audio is visualised as a waveform, making it easier to see if entrances or ends of phrases are aligned. If a discrepancy is encountered, the section that is out of sync can be trimmed from the rest of the melody and moved into the correct position. This process is depicted in Figure 15.

Figure 15

Screenshot of editing waveform in Audacity.



Note. Waveform of “Bei Männern welche Liebe fühlen”, with the three separate audio tracks: A (soloist 1), B (soloist 2) and C (orchestral accompaniment). Encircled in red are instances where B has been cut and shifted, allowing the musical entrances to correspond to the waveform peaks of both A and C.

Again, it must be noted that there were many variables with which to contend. Quality of recordings were impacted by factors including, but not limited to, distance from the microphone, device used, ambient background noise, acoustic variances and submission platform. One of the challenges addressed was the variances in room acoustics. Every space has a unique acoustic profile, which affects the amount of reverberation in a recording. Options for recording spaces were limited, as participants were restricted to the confines of their homes. Therefore, no two recordings shared the same acoustic properties. As the aim of the performance was to bring singers together, it was evident in the final compilation that recordings were made remotely. Artificial reverberation effects were applied in Cakewalk to each individual submission in an attempt to mitigate this problem. The results still varied, but an improvement was noted.

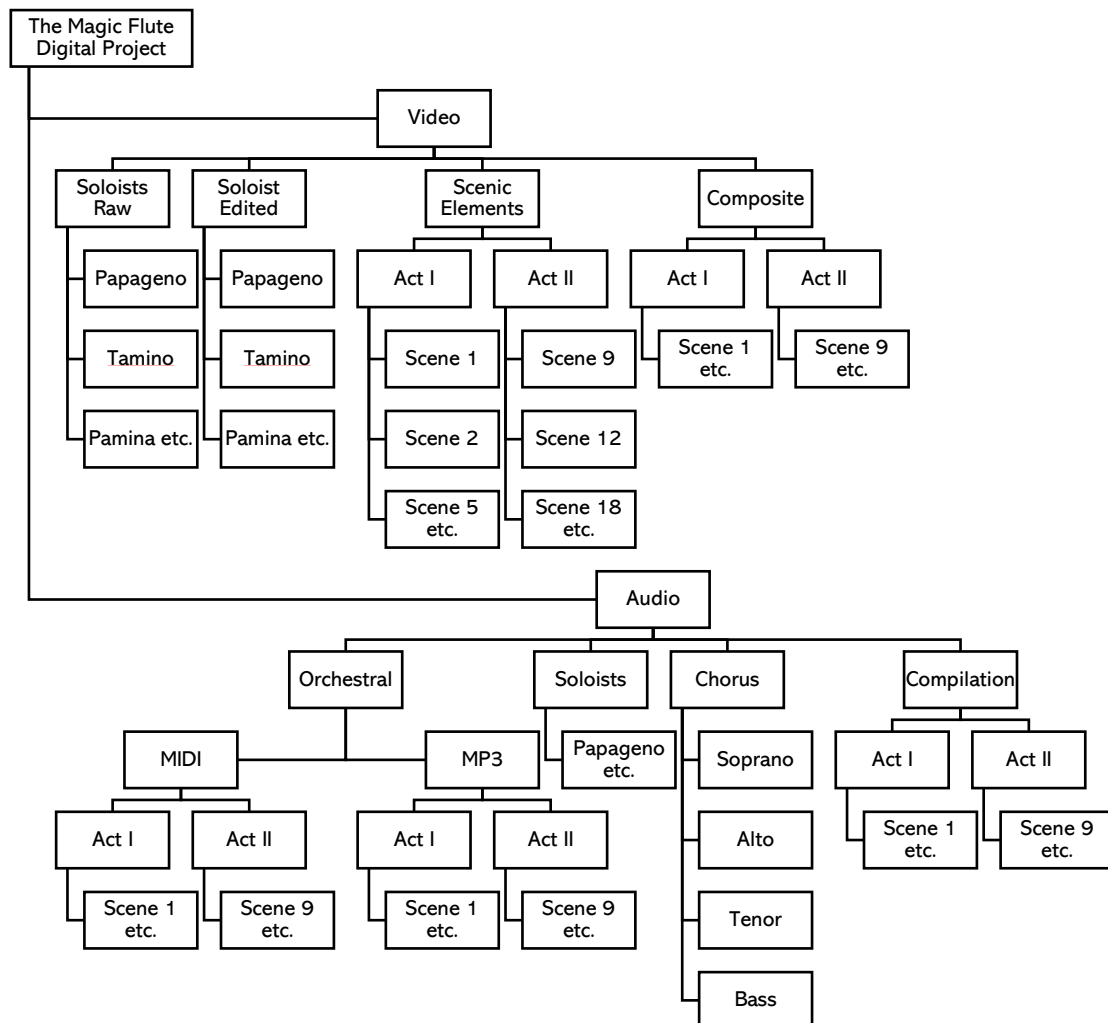
5.2.3 Other considerations

Although there are examples in the literature of how digital presentations are created (NCCO, 2020; WACDA, 2020; Whitacre, 2010), it soon became evident that certain practical considerations were not presented. One of the main challenges I faced was to organise all the footage and audio recordings. Initially, all material was placed into a single folder marked “Magic Flute - Digital Project”. The folder was soon filled with hundreds of raw and edited video clips, audio snippets and images. Keeping track of who submitted what became untenable. File names also did not always contain the participant’s name, the name or number of the piece, or a logical description of any kind. Devising a filing system for all the material was vital. Firstly, the parent directory was divided into two main categories: audio and video. Secondly, each of these had four sub-categories, labelled to reflect the level of the action to be taken in the processing procedure. Finally, the sub-categories were separated into either character/role designations or scene numbers. Figure 16 displays the filing system. A

Microsoft Excel file was also created with tables that correspond to the filing system. As each required item was received, or action was taken, it was marked in green. Red was used for outstanding elements, and yellow for work in progress. Another consideration is the amount of hard drive space required for all these files. The total amount of space used was just over 25 gigabytes (25,000 megabytes).

Figure 16

Folder layout utilised for sorting files.



Note. Extract of the filing system used in the study. The parent directory had two sub-folders, from where files were further categorised.

Participants used a range of devices to record their material, resulting in different file formats being submitted. In general, Apple and Android operating systems use unique applications and file formats. The audio files did not present any challenges, as all the formats were compatible with Audacity. Not all the video formats were supported by HitFilm Express. Several free video converters are available online, from which HandBrake³⁸ was selected, due to its user-friendly interface and the number of formats it supports. One of the soloists, portraying the First and Second Ladies, experienced great difficulty with recording videos on her device, in the end only her voice recordings were used. Alternative footage was shot, as well as duplicating the Third Lady's video footage where possible, in order to keep the visual integrity of the scenes.

The final consideration was a practical arrangement rather than a technical issue. Costumes play an important role in productions as they help to set the stage. Circumstances surrounding the constraints, as set out at the beginning of this project, dictated that participants could only use what they had at hand. Not everyone was able to find items of clothing that aligned with the aesthetic of a fantasy setting. There was, however, one form of attire all had in their wardrobes – black concert dress. Participants were therefore asked to wear black clothing and shoes. It was better for everyone to be dressed in the same colour than for only a few participants to be in costume and others in normal clothing.

5.3 Selective scene discussions

Leonardo Da Vinci is reported to have said: “Art is never finished, only abandoned.” (Cultivating Culture, 2014). In the preceding sections, the methods and actions taken regarding the techniques employed, challenges faced and mitigation of these problems, were

³⁸ <https://handbrake.fr/>.

described. However, procedure and technical application do not form the entire iterative cyclic web, as described by Nimkulrat (2007). In order to accurately report on the creation of an artistic artefact, it is essential to also examine the creative process. To this end, three scenes were selected to display how the creative process informed the studio action, as well as to give insight into the progression of the visual narrative.

5.3.1 Act 1, Scene 1. “Zu Hilfe! zu Hilfe!” [Oh help me, oh help me]

Creating the first scene of any opera is of great importance, as it sets the tone for the entire production. For this reason, this scene was selected to inform the technical process. If the envisaged visual aesthetic could not be achieved with this scene, the interpretation of the entire opera would have to be reconsidered. The setting is described as a mountainous terrain populated by trees (Untiedt, 2013). A decision was made to first focus on the trees, and to add a mountain range or rocky landscape in the background at a later stage. When designing for the stage, it is important to create depth by placing scenery on different levels. This technique was employed to ascertain whether it would yield a similar effect. Trees were placed on three distinct layers, with slight variations in the branches to counteract a monotonous effect. Lighting also plays an important role, as it deceives the audience into thinking that the stage is deeper than it really is. As has been noted, the struggle between Light and Darkness is of great importance in this opera. The scenes would progress from dark and sombre to light and triumphant throughout the entire opera. Only silhouettes of trees were used, as these would create the impression of a scene devoid of light. The tree silhouette layers were placed in front of a blue background, with a black plane at the base to portray the ground level.

This design was not satisfactory, as depth was not achieved. In a landscape in the real world, the further away objects are, the greyer they appear. To mimic this effect, the colour of the three different layers of trees were altered. The first remained black, the second had a

medium grey hue, and the third a light grey hue. More depth was indeed achieved, as can be seen in Figure 17.

Figure 17

First iteration, Act 1, Scene 1.



Note. Layering of trees, which appear lighter towards the background, simulating depth.

At this point in the creative process, the intention was still to apply a stylistic overlay to the background with DeepArt.io. Contrary to expectations, the effect detracted from the overall appearance rather than enhancing it (Figure 18). After experiencing no success with the application, it was decided to forgo the use of DeepArt.io altogether.

Figure 18

Stylistic overlay applied to first iteration of Act 1, Scene 1.



Note. Applying the effect rendered the image without any depth or definition.

New techniques to improve the first iteration of the scene had to be explored. The scene was pleasing, but still lacked a sense of realism. I recalled being advised by a colleague during the lighting design of my first opera, that including a natural light source within a scene creates a naturalistic atmosphere. Nighttime was the most appropriate for this setting, and so a moon was included in the scene. In the scene setup, the virtual light was moved to correspond with the moon, which would allow the moon to appear as if it were emitting light. The black plane, suggesting the forest floor, was lacking a grey gradient, further detracting from the scene's realism. Subsequently, a gradient and sketch effect were added. Although the results were pleasing, no shadows were cast, despite the fact that there was a light source (the moon) behind the trees. First, the back row of trees was removed. All lights and element layers in HitFilm Express can either receive or cast shadows. Both the moonlight and the second layer of trees were set to cast shadows, whereas the forest floor was set up to receive

the shadows. Finally, the blue background was changed, as it appeared too textured and distracting. The result was positive (Figure 19).

Figure 19

Use of virtual lights and shadows in HitFilm Express.



Note. Reworking the elements while retaining their original positions completely altered the scene. The result of the shadow effect can be seen in the bottom right, where the second level of trees appears to cast a shadow on the forest floor.

I now proceeded to insert the third layer of trees and to move the different layers until I was satisfied with the composition of the scene. This resulted in the second iteration of the opening scene, as depicted in Figure 20.

All that was missing from the scene was the rocky landscape. However, before this was added, it was important to reflect on how the scene would be used. On the stage, décor elements often remain static for the duration of a scene. It dawned on me that the scene was designed for the stage, and not a virtual platform as intended for this study. Tamino is meant to be pursued by a serpent, but in this scene the prince was not supplied with much room to move. All the layers in the scene, with the exception of the moon, were duplicated and

layered next to each other, side by side. This allowed the virtual camera to pan across the scene, creating motion that would complement the action of a character running through the forest. The moonlight now danced between the branches, and the shadows of the trees grew longer and shorter as the animation progressed. A mountain range was added to the background, but it was barely visible; this layer was therefore omitted.

Figure 20

Second iteration, Act 1, Scene 1.



Note. Second iteration of Act 1, Scene 1.

The scene was very pleasing. While watching the animation play a few times, the moonlight seemed to guide Tamino through the forest. Although it now seems logical that the moon could be a representation of the Queen, it took all the time creating the scene to realise this. Thus, a way was found to include the Queen in our opera after all. This image brings to mind the famous stage design by Friedrich Schinkel (1781–1841), where the Queen of the Night arrives astride a crescent moon. For our production, however, she would be the

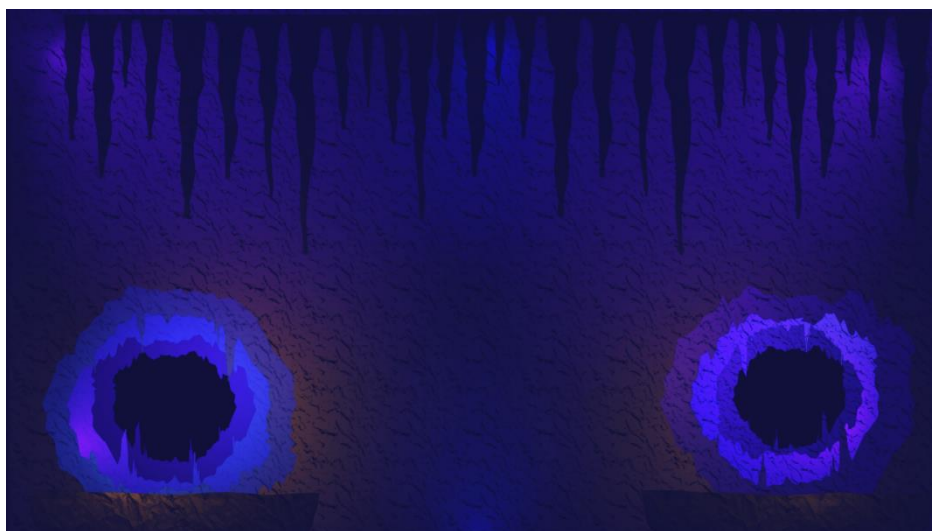
celestial body, an ancient power long since banished from the earth, only allowed to observe the inevitable victory of love over all.

5.3.2 Act 2, Scene 12. “Wie, wie, wie” [How, how, how]

This quintet is traditionally set in a forecourt to the Temple of Wisdom (Untiedt, 2013). Tamino and Papageno are led into the hall by two priests with torches. As the priests leave, the two men are left in darkness. Without alerting the priests, the Three Ladies find their way into the hall. It is possible that Sarastro allows them to enter the Temple unhindered, to see if Tamino and Papageno would uphold their vow of silence. When determining the layout for this scene, it was decided to deviate from the original setting. The scene was set in a cavern beneath the Temple, with Tamino and Papageno placed on outcrops on either side of the scene. Two openings in the cave wall lead to where the two men are stationed (Figure 21).

Figure 21

First iteration, Act 2, Scene 12.



Note. This first attempt did not achieve the intended result. The scene composition had to be modified for the desired effect to be attained.

The same layering technique as in Act 1, Scene 1 was attempted, so that the openings appear to lead far into the distance. Initially, these openings were placed as a way for Tamino and Papageno to enter the cavern. However, this was not necessary, as there was no dialogue before this scene, which would open with the two men already in position. Increasing the size of the entrances did not yield the desired result, nor did doubling the number of layers. The only other option was to abandon the two openings and to replace them with one large opening in the middle. This immediately improved the composition of the scene. Experimenting with the lighting caused the opening to appear like a huge eye in the cave wall. This soon became another way of incorporating the Queen in a scene. It is not clear whether the Three Ladies traditionally enter the Temple in physical form or as spirits. In modern interpretations, directors have used projections that show the Ladies flying around between the two men, tempting them to break their silence. The same is done in our production, under the watchful eye of the Queen. The moonlight is once again used as the natural light source (Figure 22).

The scene looked more pleasing, but something was still amiss. It became clear that this was due to the lack of rays emitting from the moon. Incorporating rays of light in scenes is regularly used in film, and is normally accomplished by shining a light through smoke created by a smoke machine or hazer. This effect is called volumetric lighting. It is possible to achieve this effect digitally, but HitFilm Express unfortunately did not have this function available free of charge. A Google search yielded a tutorial on YouTube describing how to achieve a similar effect in HitFilm Express (Film Sensei, 2017). The steps, as set out in the video, were followed and resulted in the scene depicted in Figure 23. The different layers of the cave opening were also modified to appear more organic.

Figure 22

Second iteration, Act 2, Scene 12.



Note. The two openings were changed to one, and the moon was added, resembling a giant eye peering at Tamino and Papageno.

Figure 23

Addition of volumetric lighting to Act 2, Scene 12.



Note. Four different effects are combined in HitFilm Express to produce volumetric lighting.

This scene also created the opportunity for including social commentary. Having the two men on either side of the scene implies social distancing, and Tamino and Papageno were asked to wear face masks during this scene. The masks had a dual symbolism. Firstly, the masks are viewed as devices that enforce silence, in the same way that singers had been silenced by the pandemic. Secondly, the scene speaks to the controversy of wearing masks for preventative measures. Wisdom (Sarastro and his followers) is confronted by superstition (the Queen and Three Ladies), and breaking the protocol will lead to the new initiates' demise, which is the same punishment for breaking their vows of silence. Papageno struggles with his mask throughout the piece, but Tamino remains steadfast until the end.

5.3.3 Act 2, Scene 18. “O Isis und Osiris” [Oh, Isis and Osiris]

The original stage setting is described as a grove of palm trees, with trunks of silver and leaves of gold. The tallest palm trees are placed centre stage with a large pyramid (Mozart, 1791/1985). Again, it was decided to break with tradition and devise a new design for this scene. Up to this point, no Masonic imagery had been included in the production designs. In this specific design, the triangular shape of the pyramid would be implied. The scene was also envisaged as taking place inside the temple, rather than outside. A vast interior, filled with rows of columns, would allow for depth and a dynamic scene. Two layers of six columns were used, complete with carved hieroglyphs to further promote Egyptian symbolism. The same blue background used in Act 1 Scene 1 was utilised to create the impression that the hallway leads to the outside. The openings between the pillars suggest the pyramid shape (Figure 24).

Figure 24

First iteration, Act 2, Scene 18.



Note. Scene composited from five element layers and three virtual lights.

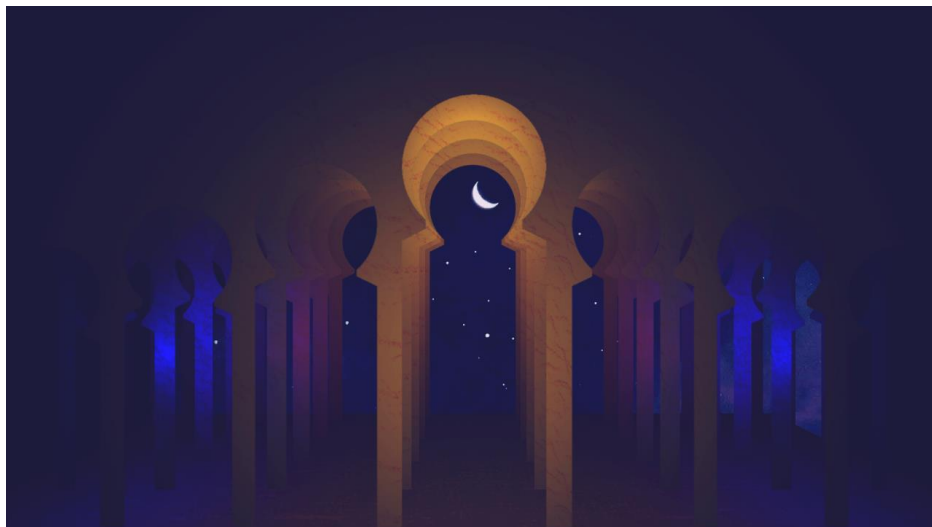
The use of the specific columns was unsuccessful, as the desired perspective within the scene was not achieved. It was clear that a different shape for the columns had to be used, with larger spaces in between that would allow the rows to align, creating a corridor. A new pillar design was created, with rounded openings above suggesting Middle Eastern architecture. Additional virtual lights were included in the scene to bring in more colour. Lastly, the background was changed to include the moon in the centre archway – the crescent moon representing the Queen shielding herself from Sarastro (Figure 25).

Although the new iteration was more complex than the previous versions, the columns still did not align. Several attempts were made to achieve this, but to no avail. I also endeavoured to find a way to retain the hieroglyphs, but this pillar design was too narrow and could not accommodate the markings. Using the moon as the only source of light in yet another scene felt redundant. Furthermore, it was problematic that the only light within the Temple would be supplied by the Queen. A third iteration was needed that would incorporate

the positive aspects of the previous two while improving on the overall scene. The process started with a new pillar design, more ornate than the previous two. The hieroglyphs were now inscribed on to the walls, appearing to be sacred incantations. More virtual lights were added to create interesting shadows on the floor and walls. The rows of pillars lined up to create perspective, leading the eye not to the open sky, but to the new source of light in the Temple. Behind the rows of columns, a resplendent pyramid fills the hall with light. The ancient artefact is the source of Sarastro's power and symbolises the triumph of Light over Darkness (Figure 26).

Figure 25

Second iteration, Act 2, Scene 18.



Note. Layers increased to eight, and virtual lights to five.

Figure 26

Third iteration, Act 2, Scene 18.



Note. This final scene is composited from 18 unique layers, and six virtual lights in different colours.

5.4 Conclusion

Examining the creative processes involved in bringing this project to fruition reveals why there are so many artists involved in the staging of a production. The musical interpretation, no matter how accomplished, becomes ineffective if not underpinned by a unifying visual narrative. Designing a scene starts with a conceptual ideal; the challenge is to bring it to fruition. One by one, elements are added, bringing into focus that which, up until this point, only existed in the mind's eye. The strength of these individual elements impacts an entire scene. When a desired result is not achieved, the process of imagining and creating starts anew. There are times when the skill of the creator falls short of the envisaged idea. In these cases, there are two options – forgoing the creative ideal or searching for different tools with which to accomplish the task. It is clear from this chapter that there are myriad tools available to those who take the time and effort to explore. Each application may not have the

functionality to complete the action at hand, but in conjunction with another program, a new, workable method can be found. Of all the skills necessary to create, resilience and perseverance are the most important.

It is easy to be overwhelmed by the number of tasks to be completed. Therefore, organisation is imperative to the success of a creative project. An opera has two distinct components, audio and visual. The creative process for this production was subsequently devised to represent this structure. Each of these categories posed its own set of challenges, brought to the fore by the aims of this research – creating a digital opera production under constrained conditions. Video and audio quality were compromised by variables beyond the control of all parties vested in the success of the project. These shortcomings could, however, not be allowed to impact the overall quality of the production. True creativity is shown not just in the artistic artefact itself, but also in the techniques by which it is accomplished.

Nimkulrat (2007) suggests that, in the creation of content, there is a choice between improving particular objects or discarding them altogether. The reasoning behind these choices may be informed by technical aspects, aesthetic ideals or practical reasons (Nimkulrat, 2007). This process is evident in the section presented on the creation of the three selected scenes. There is no single answer to creative questions; the only way to achieve contentment in the creative output is by embracing the iterative cyclic web.

CHAPTER 6

Phase 3: Reflection

6.1 Introduction

Chapter 6 concludes the study and serves as a reflection on the two preceding phases. First is a brief summary to provide an overview on the remainder of the thesis. In the next section, the key research findings are evaluated in relation to the research aims and questions. This section will also include a discussion on the value and contribution of the study, as well as a review of the limitations of the study. Finally, opportunities for future research are proposed.

6.2 Summary and conclusion

The main objective of this study is to evaluate processes that would allow for the creation of a digital presentation of Mozart's *Die Zauberflöte* under constrained conditions. The rationale for this production was to ensure that the students in the Classical Voice and Opera Studies programme at the School of the Arts, University of Pretoria, still had a performance opportunity during a period where university campus activities were restricted. In an attempt to curb the spread of COVID-19, campuses were closed and teaching was interrupted. This corresponded with lockdown restrictions imposed globally, affecting all sectors of daily life.

A practice-based approach was followed to investigate the creation of the opera. This was augmented by the use of the iterative cyclic web model to better evaluate the synthesis between theory and practice throughout the study. It was important to adopt a research design that would complement the creative cycle. The design suggested by Steele (2016) was used, and the creative process was categorised into three distinct phases, namely planning and

preparation, practical studio action and reflection. The actions taken and procedures implemented during each phase were documented in a practice journal. In the case of this research, the journal took the form of a Microsoft PowerPoint presentation, as this program allowed for a practical presentation of both written notes and images generated during the development of the production. These detailed records facilitated the retrospective overview found in the discussion.

6.2.1 Digital migration of music performance

The declaration of a global pandemic by the WHO in March 2020 irrevocably altered the world as we know it. All aspects of life were disrupted as people were confined to their homes due to the implementation of stringent lockdown restrictions. The immediate prohibition of non-essential activities extended to the closure of all live performance venues. Those who were fortunate enough to have an online presence could still reach their audience through this medium. However, performing artists whose livelihoods were dependent on live entertainment engagements were unexpectedly faced with no means to earn an income. This necessitated a large-scale migration to digital performance platforms, with either live or pre-recorded events being streamed via YouTube, Facebook or other popular streaming services.

While digital music performance has a long history stretching back to the development of audio recording, the advent of the smartphone has not only made it possible to have audio-visual entertainment in the palm of one's hand, but it also provided a means to record oneself. With access to recording and filming studios prohibited, adequate performance footage could still be created, even by those who had no previous experience or specialised equipment, due to the proliferation of digital recording devices. This offered a practical solution to solo performers, allowing little lead time between the recording and

presentation of the performance. Collaborative performances, however, require more time and planning to create.

6.2.2 Opera in the time of COVID-19

The performance of opera was impacted by COVID-19 in the same way as the rest of the performing arts, as no performances were allowed. It was not known for how long opera houses would remain closed; practical solutions to the performance of this highly collaborative art form were also not immediately apparent. Several projects predating COVID-19 involved the investigation of digital music performances by larger groups. In the field of classical music, this was led by choral conductors and composers seeking to unite singers from remote locations in song. Pre-recorded footage of individual performances was compiled into a digital representation of a group performance.

The first digital opera performances during the initial stringent lockdown period were made possible by this solution. The accompaniment, mostly performed on a piano, was combined with the solo performances of the singers during editing. Productions during this time also showcased a variety of works, ranging from the performance of operas from the standard repertory to newly composed pieces that provide a glimpse into singers' personal experiences of being confined during lockdown. During the interpretation of some of these performances, a visual aspect was incorporated. This allowed digital technology to form part of the creative process, rather than merely to serve as the platform through which to present the production. Other productions sought to further integrate digital elements by creating virtual performances.

One of two strategies was implemented for the creation of these virtual operas; either the use of green screen technology or the creation of virtual performers. Both of these methods allow the singers to be superimposed onto virtual performance spaces. Green screen

footage has been used in the film industry for many years as a technique to apply a different background location to film footage. This is achieved by filming a performer in front of a green screen, which can later be removed in video editing software post-production. In recent years, it has also been used in the creation of live virtual opera productions, allowing for the integration of singers' performances with digital elements in real time. Although this technique was implemented during post-pandemic virtual operas, it was not possible to facilitate live integration of performances due to internet latency. The green screen method proved to be the most popular; however, it could only be achieved after lockdown restrictions were relaxed, as access to green screen studios was necessary.

The second strategy was more unique, as only one example thereof was found. For this method, avatars represented the singers within a virtual city, allowing the narrative to unfold through the eyes of these digitally created performers, whilst their voices were provided by singers for the music interpretation. Both of these methods have substantial monetary implications and require the use of professional equipment. Furthermore, a large team of collaborative artists is needed for the creation of the virtual platforms and digital elements, editing of footage and compilation of the final presentation.

6.2.3 The advantage of performance experience

The pandemic did not only impede the performance, but also the study of opera. A national state of emergency was declared by the South African Government on 18 March 2020, followed by the implementation of a stringent level 5 lockdown from 26 March to 30 April 2020. This resulted in the suspension of academic activities at all tertiary institutions during these five weeks. As these severe restrictions were imposed without prior notice, universities were mostly unprepared and scrambled during this time to devise strategies to ensure the continuation of tuition. In the hope that the academic year could still be completed

as scheduled, processes were put in place to move teaching to online platforms. Virtual conferencing platforms were used to facilitate classes, as these allow several participants to partake in the same class at the same time. Both theoretical and practical tuition in the performing arts had to move online. Although classes could continue, this mode of teaching cannot replace in-person training in practical courses such as vocal training and stage technique.

The CVOS programme stages a production every year during the University of Pretoria Music Festival. With the suspension of all on-campus activities, the festival was postponed indefinitely. The supporting literature indicates that success in the opera industry cannot be determined by talent or technical proficiency alone. Young singers can only hone their art on the stage. It would therefore be most advantageous if the classical voice students still had the opportunity to perform in an opera. Other than practical experience, there were additional considerations. Significant psychological effects were brought on by the lockdown and the uncertainty caused by the pandemic. This uncertainty is amplified in those who have only started to embark on their future career paths. Allowing students to participate in activities that were present pre-pandemic brings a sense of normalcy. Evidence is presented that making music with others promotes camaraderie, which in turn promotes overall mental health. Therefore, it was of great importance to find solutions that would allow opera students to safely perform in a production.

6.2.4 *Die Zauberflöte* as vehicle for creative interpretation

This need created by the pandemic led to the premise for this thesis – creating a digital presentation of an opera under constrained conditions. It was important to select an opera that would be both beneficial for the students to perform and suitable to a digital presentation. After consultation with the singing lecturers and programme coordinator, *Die*

Zauberflöte KV 620 by W. A. Mozart was selected. The rationale for selecting this specific opera was based on several considerations, and its use in tertiary vocal training, workshops and student productions is well documented. One reason is the large cast necessary to perform this work, as it grants performance opportunities to more students. The opera still enjoys great success 230 years after its premiere and remains part of the standard repertory, with hundreds of worldwide performances every year. Thus, it stands to good reason that experience in performing this opera would be valuable to students pursuing a performance career. The use of digital designs and effects enables the designer to create scenes that would not be possible to use on the physical stage. For the imagination to be able to take flight, subject material that promotes creative license is needed. *Die Zauberflöte*, with its fairy-tale setting and enigmatic characters, provides ample room for creative interpretations. It was further decided that the opera would not be performed in full, but that it would be presented in an abridged format.

6.2.5 Proposed strategies for the creation of digital opera presentations

It was important to contextualise the digital component of the production as part of the creative expression, and not merely as its footage, in accordance with prior virtual opera performances. As on-campus activities were postponed indefinitely, it was imperative to explore methods that would allow the production to adhere to the constraints imposed due to the pandemic. Therefore, the constraints reflected in the research correspond to those implemented during level 5 lockdown. This meant that there could be neither in-person contact of any kind between myself and the participants, nor an exchange of equipment, as the sale and transport of non-essential goods were prohibited. During the filming of their performances, participants would only be allowed to use devices, props and costumes already in their ownership. Filming locations were also restricted to their places of residence. A

further layer of complexity was added by the fact that I only allowed myself to investigate freeware and shareware applications in the editing and creation of the digital presentation. This would allow for more sustainable strategies to be developed, and would ensure the reproducibility of the study, even by those who have limited financial means.

6.2.5.1 Phase 1: Preparation and Planning

All preparations for the opera took place online; the necessary materials were provided digitally, including the prepared production score, scene layout, practice aids and rehearsal schedule. Rehearsals took place once a week on the Google Meet platform, during the two-hour long Stage Technique class. During this period, preliminary tests were also conducted to inform a proposed method for the video recording of the performances. Due to challenges experienced with latency, affecting both synchronous performance and image quality, a strategy which did not involve the use of a virtual conferencing platform had to be found. The only other available option was for participants to record themselves on either a smartphone or recording device they already owned. This strategy presented its own challenges, as the audio quality was greatly dependent on the participant's distance from the recording device. In order to facilitate a better visual and audio performance, participants were asked to submit separate video footage and sound recordings.

6.2.5.2 Phase 2: Practical studio action

To promote iteration during the development of the techniques, various software applications were investigated. The same task would be performed on all the platforms to determine which would be most practical. This was undertaken with the processes underpinning both the creation and compilation of video and audio elements.

The first step taken during the practical studio action was the creation of the digital scenography. Finding a method that resulted in aesthetically pleasing scenes required many

iterations. The process that was eventually adopted started with the design and creation of individual 2D elements in Microsoft PowerPoint, after which all elements were imported into HitFilm Express for compositing. HitFilm Express was selected, as it was found to be more user-friendly than other platforms investigated, and also had the capability of layering elements on a 3D stage, thus allowing for the creation of scenes with realistic simulated perspective. Furthermore, HitFilm Express was designed to be a video editor and digital effects program. Therefore, it was also used in the editing of the video material. In order to layer the participants' performances into the digital scenery, it was necessary to remove the background found in the footage. This action proved challenging, as all participants did not have access to adequate resources. In lieu of the availability of green screens, participants were instructed to film themselves in front of an open wall. Notwithstanding the participants' efforts, different keying effects were applied in HitFilm Express to remove most, if not all of the background footage. With this action completed, the video footage could be composited into the scenes. A realistic perspective was achieved by ensuring that the participant footage was correctly sized in relation to the surrounding virtual elements. Furthermore, virtual lights were added to achieve better integration between the different scenic and video layers.

This was followed by the creation of the audio elements, consisting of orchestral MIDI accompaniment and recordings of participants' vocal performances. The creation of the orchestral accompaniment began in the music notation software MuseScore, which allowed the editing of pre-existing MIDI files. However, the synthesised sounds that could be associated with the notation did not produce a satisfactory result, as the application was not created for this purpose and required the use of a DAW. Cakewalk was selected from the programs investigated, as it was compatible with most instrument sample libraries and was relatively easy to use. First, the built-in library was used, but this also proved unsatisfactory. The BBC Symphony Orchestra Discover sample library from Spitfire was selected, as this

provided realistic digital representations of orchestral elements, with specific focus on the stringed instruments.

6.2.6 Final reflection

The main aim of this production was to test the viability of creating a digital presentation of an opera with resources that were freely available. It was foreseen that this would be a point of departure on which we could build in the future. However, it is prudent to give a critical analysis of the artefact created to establish what aspects can be improved on in subsequent projects.

There were varying results in the seamless integration of performers' footage with the digital backgrounds. This was largely caused by the variances in image quality between the supplied footage and scenic elements. Participants were only allowed to record with devices already at hand. The fact that not all models are equal in their recording ability, impacted the quality of some of the submissions. The grainy quality of some recordings made it challenging to remove the video backgrounds, in some cases causing residual pixels to still be visible around the performer, which can be distracting. In other instances, outlines of the participants were softened to avoid this problem. The downside was that it removed some finer facial features when the orientation of the performer changed.

In some of the ensemble numbers it is more apparent that the interaction between participants was simulated. Again, some of this is due to the variation in video quality making it apparent that performances were recorded at different times; however, discrepancies in video angle also contributed to the failure in depicting intimacy. This could not be avoided as there was no practical solution to ensure that all participants have their cameras set up in the exact orientation as everyone else. It would also have been impractical to ask participants to make endless adjustments to their camera setup whilst recording

individually. The recording technique that needed to be adopted made it difficult for participants to react to fellow performers as, during the recording, there was no one to interact with.

Perhaps the greatest weakness of the production is the sound quality. As with the video footage, there were many variances in the quality of recordings received. There are certain nuances to audio recordings that cannot be enhanced or amended during editing, such as articulation and vocal colour. It was not possible in all instances to balance the audio recordings in such a way that it sounded like a homogenous performance. In future productions it would be preferable to have a designated music director, as participants did not have access to a répétiteur during the rehearsal period, nor the opportunity to work with a conductor. This illustrates the importance of the musical preparation of students for an opera production. Furthermore, The MIDI orchestra accompaniment was not always satisfactory. As there were only limited articulation options, not all the music could be performed as was intended by the composer, which greatly impacts the integrity of the music.

For all its misgivings there are positive results that have come from undertaking this project. Robust, sustainable, and equitable techniques have been developed that can be applied in the creation of any digital opera presentation, not only those who have similar constraints or challenges. Furthermore, it has supplied the classical voice and opera students a chance to perform in a time where there was no other alternative. For many of the participants this was their first opportunity to perform a solo role, for others their first opera production altogether. The study has also shown that there are positives to creating virtual operas that can add value to opera tuition, even after the pandemic has passed. Young singers can often become disembodied from their character whilst performing, focussing solely on their vocal technique, continuously sensing, feeling, and making physical adjustments. In my experience of working with many young singers and partly a recollection of my own personal

journey as an opera student, even everyday actions can become hard to achieve whilst singing. I have often been asked: ‘What should I do with my hands?’. It can be hard to assess your movements and actions on stage, even for professional singers, making it difficult to improve your acting skills. Often the director is your only point of reference as to whether you accomplished your objectives through your physical portrayal. Not all directors have the necessary aptitude, patience, or time to assist young performers in fine-tuning their performances. However, through the recoding process associated with the creation of a digital production, students have the added benefit of an audio-visual record of the entire arc of their portrayal of the character, from the first rehearsal to the final performance.

There are several considerations to keep in mind when attempting the creation of a virtual opera. Above all, the time it takes to create a digital presentation should not be underestimated. There were numerous challenges to contend with during the planning, preparation and practical studio action phases. Many of the predefined methods and techniques did not produce the expected results. Although there were numerous setbacks, this process of creating through trial and error resulted in the development of more dynamic systems. It was important to resolve them as they occurred, as these issues could impact the overall aesthetic and musical integrity of the opera. The cycle of developing techniques, reviewing their effectiveness and making adjustments, or moving on to new methods if not successful, highlights the importance of iteration. The same is true for the creation of individual artistic elements. Embracing this cycle of successes and failures builds resilience, which above all may be the most important skill an artist needs to acquire.

6.3 Recommendations for future research

More research into the creation of digital opera presentations is required, and may be achieved through exploring software platforms or techniques other than those discussed in

this study. Another area of interest would be to examine the viability of creating a full-length opera by applying similar methods. Furthermore, future research in this field should involve an investigation of the effects of collaboration with other creatives on the design and creation of a digital presentation, as opposed to the method followed in this study, where one individual fulfilled the roles of director, designer and creator.

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Appendix A

Letter of approval for research study, Office of the Registrar



Office of the Registrar

2020-08-18

Mr A Spies
School of the Arts
Faculty of Humanities
UNIVERSITY OF PRETORIA

Email: u11357895@tuks.co.za

Dear Mr Spies

APPROVAL OF RESEARCH STUDY

The UP Survey Coordinating Committee has granted provisional approval for your doctoral research study titled "Constrained creativity: A digital presentation of Mozart's *Die Zauberflöte*".

The proposed research study has to strictly adhere to the associated study protocol, as well as the UP Survey Policy and the Research Ethics Committee of the Faculty of Humanities.

A final electronic copy of the research outcomes must be submitted to the Survey Coordinating Committee as soon as possible after the completion of the study. Please liaise with the Market Research Office in the Department of Institutional Planning (carlien.nell@up.ac.za) to officially register the study and to finalise the survey procedures and the field work dates.

Kind regards



Prof CMA Nicholson
REGISTRAR
CHAIRPERSON: SURVEY COORDINATING COMMITTEE

Appendix B

Participant informed consent form



School of the Arts

Information on Participation in Research Study

Dear Classical Voice and Opera Studies student,

I would like to invite you to participate in my research study that forms part of my DMus studies.
Below please find the information on my study:

Title: Constrained creativity: A digital presentation of Mozart's *Die Zauberflöte*.

Aims of study:

This research seeks to examine the creation of an opera production, through means of a video performance, with students from the Classical Voice and Opera Studies programme, School of the Arts, University of Pretoria, during the period of Lockdown as necessitated by the coronavirus disease (COVID-19) pandemic. Furthermore, it aims to explore the computer freeware platforms available during this time to facilitate the creation, editing and presentation of the video performance.

Research procedures:

Should you agree, you will be asked to make both audio and video recordings of yourself performing the prescribed sections from the opera. You will record yourself on your own electronic device (either mobile phone or laptop) in your own home. Detailed technical specifications and directions will be supplied.

After recording your various sections, submit the files through email by means of your university enabled UP Tuks Gmail address. This will allow you to attach the files as Google Drive files. The UP Tuks Gmail address allows unlimited storage of Google Drive files. I will then edit and compile the audio recordings and video footage into the desired formats and final production.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

School of the Arts

After completion of the production, there will be a private screening via the official Classical Voice and Opera Studies YouTube channel available to all participants, their friends and family.

All recordings will be held safely at the University of Pretoria in a password-protected electronic format in the School of the Arts: Music cluster for a period of 15 years, after which they will be destroyed. The study may culminate in an article which could be published in a scientific journal.

Risks and benefits:

No risks or personal discomfort is foreseen. If, however, you experience any distress you are encouraged to make use of the services rendered by the Student Counselling Unit, offered free of charge to all University of Pretoria students.

By participating you will gain the following direct benefits:

1. Learning new repertoire to add to your performance resume.
2. Learning how to prepare for any production, aiding you in your future endeavours on stage.
3. Participation will allow you the ability to still practice your future craft whilst you are away from the campus and theatre facilities.
4. Being part of an innovative digital presentation of which the processes can be replicated for any production or entrepreneurial performance project.

You have the right to withdraw from the study at any stage, without negative consequences to you. You have the right to access any data that you submit during the research study.

You are asked to complete the Informed Consent form below. By signing this form, in order to allow the full use of your audio recordings and video footage, you will waive the rights to said recordings. You will however be credited in the study for your contribution.



School of the Arts

If you have any queries, feel free to raise it with either myself or my supervisor.

Yours sincerely



Contact details of student:

Mr Abraham Marthinus Spies

Tel: +27 83 612 0244

Email: u11357895@tuks.co.za



Contact details of supervisor:

Dr Hanli Stapela

Tel: +27 12 420 5467

Email: hanli.stapela@up.ac.za



Prof A Johnson

Head: School of the Arts



School of the Arts

Participant Informed Consent Form

Researcher: Mr Abraham Marthinus Spies

Research Title: Constrained creativity: A digital presentation of Mozart's *Die Zauberflöte*.

I have read the contents of the information to participate in the research study above. I fully understand its contents. I understand that I have been invited to participate in this study and that my participation is voluntary.

I hereby waive any rights to my audio or video recordings and assign said rights over to the researcher. The researcher is therefore free to edit or enhance my recordings and may use the recordings, or part thereof, at his sole and complete discretion. Such use includes, without limitation, any and all recordings and formats now or in the future of my performance, the display, publication, transmission, or otherwise use of recordings, photographs, images, and/or video recorded.

(Signature of participant)

(Date)

(Signature of researcher)

(Date)

Appendix C

Participant survey

Die Zauberflöte Digital Presentation - Participant Survey

Dear cast member, please complete the following survey and kindly return to
 Mr Spies (u11357895@tuks.co.za).

{Please indicate the appropriate response with an "x". Supply more information in "Other" where applicable}

<u>STATEMENT</u>	<u>TRUE</u>	<u>FALSE</u>	<u>OTHER</u>
I am able to use a laptop for recording purposes. <i>{in "Other", please indicate brand/operating system. Ex. "Windows"}</i>			
I am able to use a smartphone for recording purposes. <i>{in "Other", please indicate brand/operating system. Ex. "iPhone"}</i>			
I have access to GoogleMeet on my device.			
I have access to adequate data to allow the sending and receiving of files and recordings.			
I have walls painted in a uniform colour in my residence. <i>{Please specify colour in "Other"}</i>			
I have downlights in my residence. <i>{If possible, please supply temperature, either "Cool" or "Warm"}</i>			
I have a big window across from an open wall (with no fixtures on the wall) in my residence.			

Thank you for completing this survey. Please forward completed survey to:

u11357895@tuks.co.za

Appendix D

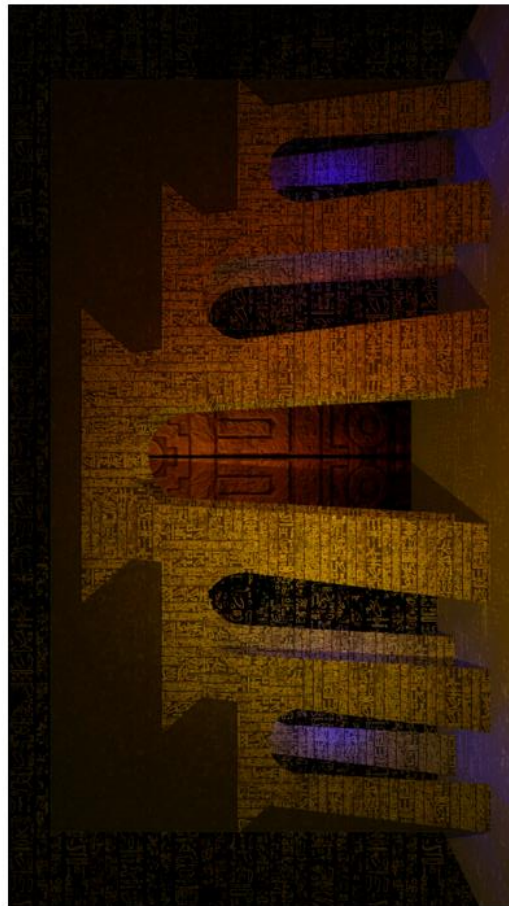
Practice journal excerpt

21.3 "Tamino mein, o welch ein Glück!"

Atmosphere:

Dark and mysterious.

Background to use



Scene timing – Shot description:

00:00:00 – Pamina close-up

00:13:15 – Tamino close-up

00:21:24 – Temple wide shot A

00:28:00 – Tamino close-up

00:35:05 – Pamina close-up

01:16:15 – Thunder flute creation scene

01:44:00 – Couple shot

02:19:00 – Temple wide shot B

02:29:10 – Temple door open

Appendix E

Intertitle text

Intertitle 1

Papageno finds the stranger unconscious on the forest floor. Tamino is made to believe that it was Papageno who saved him from the monster. But it was the Queen of the Night who sent three of her Guardian Stars to protect Tamino. Papageno, who is quick to claim the victory, is punished for his lie. The Queen locks his mouth, and it will remain so, until he has learnt his lesson.

Intertitle 2

The Queen pleads with Tamino to save her daughter Pamina, who was abducted by the evil Sarastro. Papageno is sent ahead to find Pamina in the forest. He rescues Pamina from Sarastro's priests, and informs her of the Queen's plan. Before they set off to find Tamino, they ponder on the virtues of love.

Intertitle 3

The two new companions travel on in search of Tamino. But an evil spirit dwells in the forest. They should be weary not to awaken him.

Intertitle 4

Sarastro welcomes Pamina and Papageno, and later Tamino, to his realm. They soon see that Sarastro is wise, and that his intentions are pure. Sarastro sees hope for the waning universe in the union of Tamino and Pamina. But first, Tamino and Papageno, have to prove their worth.

Intertitle 5

Tamino and Pamina are triumphant through the power of the Flute. Although Papageno has not proved himself steadfast... the merciful gods still grant him his heart's desire... a wife.

Appendix F

Software selection

The following software packages were used during the creation of the content. The exact versions used is presented after the software title. Each is categorised under the action it was utilised in.

Visuals

Digital element creation

GIMP 2.10.4

Microsoft PowerPoint 16.0.14527.20234

HitFilm Express 2021.1

Background removal

HitFilm Express 2021.1

Scene compositing

HitFilm Express 2021.1

File conversion

HandBrake 1.3.1

Audio

MIDI accompaniment

MuseScore 3.6.2

Cakewalk 2021.6

Spitfire Audio 3.2.17

Track compilation and editing

Audacity 2.3.3

Appendix G

Hardware system specifications

All content was created on the following laptop, with specifications:

Computer system

Model name: Hewlett Packard (HP) Pavilion Power 15
Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz
Installed RAM: 16,0 GB (15,9 GB usable)
Operating system: Windows 10 Home 64-bit

Hard drive 1: Hitachi Global Storage Technologies SSD 238.47 GB
Hard drive 2: Toshiba SATA 931.51 GB

Graphics card 1

Card: Intel(R) HD Graphics 630
Dedicated memory: 128 MB

Graphics card 2

Card: NVIDIA GeForce GTX 1050i
Dedicated memory: 4019 MB

Sound card

Card: Realtek High Definition Audio

Integrated speakers: Bang and Olufsen