An investigation into gender dynamics in saxophone teaching methodology in South Africa

by

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Declaration

I, Ashley Laity, declare that the work presented in this thesis is my own, except for acknowledgements that indicate otherwise, and have been cited and referenced. This work has not been, or previously ever been, submitted in part or in whole for another degree at any university.

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Finally, to Shannon, who enlightened me and reminded me that my voice has validity.

Here's what I have to say -

Abstract

This dissertation investigates the physiological differences between men and women with regards to the breathing process, and how this may impact women saxophonists' learning experience in jazz pedagogy in South Africa. Breath control and techniques are fundamental for woodwind instrument musicians. Universally, although there are woodwind publications that address breathing techniques and breath control, there is little mention of these physiological differences and what adjustments can be made in teaching to aid these differences. This research is rooted in the critical pedagogy framework, which seeks to conscientize both the student and the teacher through transformation in conversation and education.

Quantative comprehensive literature review of medical research and a comprehensive review of woodwind pedagogical publications were conducted. Qualitative methodology was used to ensure the learning experience of women saxophonists remained the focal topic. Interviews were conducted with both male and female saxophone jazz educators and performers in the music industry in South Africa. These semi-structured interviews allow for all interviewees to narrate their own teaching philosophies and learning experiences in saxophone. The interviews were then analysed, and common themes were identified and explored.

The physiological differences and their impacts for women saxophonists generate a gendered bias in the music industry, where it is assumed that these performers are not able to perform to the same standard as their male counterparts as they are women – the biological predisposition for difficulty in breathing is not taken into consideration for women performers. Accounts given by interviewees revealed a lack of awareness of the physiological differences between males and females, and consequently a lack of adjustment of teaching techniques to adjust for these differences. The failure to account for the difference in needs for female saxophone students was revealed to have contributed to gendered bias, and exacerbated anxiety-related medical developments.

This dissertation argues the impact of these physiological differences, and suggests what adjustments can be made in the saxophone curriculum in South Africa to help aid women players who are predisposed to breathing difficulties. This study further argues that despite these differences, women performers are fully capable of performing with the same skill as their male counterparts, and covert bias within the saxophone curriculum should be addressed - thus the conscientization of jazz saxophone education in South Africa. This dissertation extends the critical education and sociology of music framework and suggests that implementing a solid framework for breathing techniques in saxophone that incorporates physiological differences deserves further research.

Table Of Contents

Chapter One: Introduction

Breath control is a significant fundamental that professional woodwind instrumentalists must master, as it determines the quality of the sound produced. However, this fundamental can be difficult to control if a person is not aware of the breathing processes or existing auxiliary aid that can be used to achieve the desired result. Students and educators alike might turn to woodwind literature in order to broaden their understanding of this topic. However, upon analysis of said woodwind journals, it is evident that there is a significant literature gap regarding breath control or breathing techniques. Jevtic-Somlai (2019:1) states the scarcity of woodwind journals that include breath control, and that they "often fail to address this aspect of performance and pedagogy in depth." Although this thesis specialises in saxophone pedagogy research, it is important to note that all woodwind instruments have the same fundamental breathing technique, and thus woodwind journals of other woodwind instruments may be used interchangeably.

Specific modern-day saxophone breathing techniques were largely founded in Henry Lindeman's Method for Saxophone, the first saxophone breathing method publication (Chen, 2017). Although there have been publications after this, they are largely rooted in Lindeman's methodology, and not much additional material on this subject has added since then. Lindeman's book focuses on the fundamentals of saxophone playing, namely: articulation, embouchure and tongue-on-reed placement, finger placement and posture, but does not provide an in-depth analysis of breathing techniques (Chen, 2017). The same applies to most modern saxophone breathing journal publications as it is a procedure to articulate the breathing processes to musicians because they are primarily performers and educators, not physicians. However, it is the educator's responsibility to ensure that they consistently update their teaching methodology and learn new material. Furthermore, teaching is primarily a philosophy and a '*One size fits all*' should not be adopted in teaching as each student and teacher alike are unique. There should be a benchmark of certain information and knowledge requirements passed on from teacher to student so that the individual can be equipped with these tools for optimum performance on the instrument.

Additionally, none of these woodwind journals address the physiological differences between genders, and how these may impact playing ability. Historically, jazz literature fails to address the "constructions" of gender dynamics (George, 2020). Several medical studies have been conducted to examine the biological differences between genders regarding pulmonary respiratory function, and

the consensus is that women generally have; smaller total lung capacity, smaller lung volume, shorter diaphragms, and fewer bronchioles (air passages in the lungs). This means that the ability to be able to produce consistent airflow through a woodwind instrument is biologically more challenging for women (LoMauro et al., 2018).

This research investigates the physiological differences between men and women saxophonists, and how these differences may impact women saxophonists' learning experience in South Africa. It should be noted that medical outliers are not included in this research, and findings are based on the general consensus of each medical study. It is possible that there may be a male woodwind instrumentalist who has weak pulmonary breathing function, but it is not the medical general consensus.

Ten interviews with male and female performers and educators were conducted, and their layered experiences within the jazz saxophone pedagogy framework were uncovered. The interviews were analysed in a critical pedagogy methodology, in order to illuminate the themes that were evident in the interview data. These semi-structured interviews included questions relating to the interviewee's learning experience in saxophone, and what consciously competent knowledge they may have of breath control or breathing techniques. The interviews largely discover the role gender dynamics play in the saxophone educational discourse in South Africa. This study explores how women saxophonists experience a disadvantageous education in saxophone that does not factor in any physiological differences, or provide any adjustments to aid their playing. Additionally, this research highlights how women instrumentalists continue to contribute and contest to the jazz saxophone curriculum and surrounding environment that historically invalidates such contributions (George, 2020). The findings within this research largely mirror my own perception of reality and lived experience within the jazz pedagogy framework in South Africa, and further substantiate the medical and sociological findings presented in other research worldwide.

In my own reflexivity and positionality as the researcher, it is important to note the personal nature of this research. I identify as a student and emerging female saxophonist in South Africa, and have encountered instances of gender bias, as well as difficulty in breath control, throughout my educational experience in saxophone. I further witnessed such instances with other female students and performers. It may be argued that my subjectivity may lend bias to my role as the researcher. However, the critical pedagogy theory and methodology supports such subjectivity from researchers in order to produce findings that highlight the direct experience of social dynamics and marginalisation that do not conscientise individuals in a particular educational framework. This

research topic highlights my passion for critical thinking, and some largely unaddressed educational concepts within the jazz education discourse. I aim to investigate the impact on students of educators who are not critically enlightened. The research further explores how these physiological differences coupled with the social dynamics at play further disillusion women saxophonists with their own playing capabilities.

This research project consists of six chapters. The first chapter is this introduction, whereby I set the scene for the scope of this research. Chapter Two is an extensive literature that showcases medical findings with regards to the physiological differences between men and women, and existing literature on jazz saxophone and gender in South Africa. Chapter Three shapes the research methodology, summarising the critical framework presented in this research. It also includes the motivation behind the use of qualitative data in a quantitative contextualisation, the data collection procedure, the research ethics considered and reflexivity and positionality from the researcher. Chapter Four presents the coded themes and subthemes that were analysed from the interviews. These themes include the critical context of the saxophone curriculum, teaching styles and adaptability, the gendered impact in music education, the effects of stress and anxiety relating to the saxophone educational discourse and the conscientisation of the ten interviewees in South Africa. Penultimately, Chapter Five reintroduces the focal research question and examines the considerations and findings from the literature review and the interviews, with critically supported external literature that further substantiates the lived experiences of these interviewees. Chapter Six serves as the conclusion, whereby the limitations of this research are discussed and critically evaluated. The findings from all interviewees allude to the need for conscientisation within the saxophone pedagogy framework in South Africa. Additionally, the female participants account for the resilience and resistance displayed towards a hegemonic epistemological belief in jazz saxophone education that further invalidates their place. Finally, the need for further research within jazz academic discourse and the importance of the physiological differences and adjustments needed in breath control and techniques were advocated.

Chapter Two: Literature Review

The socio-cultural and pedagogy theories presented herein follow Paolo Freire (2000) and Ruth Wright's (2010) contributions to critical pedagogy. Freirean Richard Fraull (2005) argues that there cannot be a "neutral education process." He argues that education is either a framework of logic for younger generations to conform to, or it becomes the "practice of freedom", whereby men and women partake in their own transformation through a creative and critical framework (Freire, 2000:34). Freire's pedagogy framework informs my basic understanding of how education should integrate in a musical setting and how it is a tool that should be used as an empowering practice. An important question posed within Freire's theory's framework is as follows: "If the teacher does not facilitate a change in a student's perception of reality, then no learning or education has taken place. How does conscientisation[1] occur in both the student and the teacher? What kinds of change constitute as transformation?" (Abrahams, 2005). This dissertation argues the physiological differences between men and women with regards to breathing process, detailing how this may impact woman saxophonists' learning experience of the saxophone. Furthermore, this dissertation argues for the conscientisation of jazz education in South Africa (Abrahams, 2005).

Freire's (2000) ideologies are not devised in relation to the jazz idiom, but I would argue that the bias that is created through the pedagogical framework in saxophone methodology drives further marginalisation according to gender dynamics that are deeply entrenched in the sociocultural climate in South Africa. Tewell (2015) argues that educators have a responsibility to students to ensure they have the cognitive abilities relative to critical thinking, and can interact with complicated topics and have access to critical information literacy. Tewell and Freire's existing research helps to further explore the medical processes of breathing in order investigate how that correlates with the implicit bias caused by the lack of critical literacy available. My thesis adopts the notion of importance of "emancipatory education" and further explores the ramifications of a non-liberated educational curriculum in South African saxophone teaching.

There is compelling medical evidence to support this core proposition, however, there is very limited research done universally which takes into account the biological differences between men and women with regards to breathing functions and processes. In South Africa, research involving gender

[1] Montero (2014: 296-299) defines 'conscientisation' as a neologism that "conveys the idea of developing, strengthening, and changing consciousness". It is noted that Freire was the first to use the terminology and define it, linking it to social sciences and the liberation in educational frameworks.

differences and jazz is limited, as a direct result of the socio-political macroclimate that is evident in academic texts. Women and femme-identifying people are largely excluded from academic studies (Dries et al., 2017). The experience of women saxophonists' in jazz education is of utmost importance; therefore this literature review expands on the physiological differences and considers to what extent these differences can disadvantage women's ability to sustain breathing in order to play the saxophone. The areas under critical review explore the medically summarised processes of breathing, the impact these physiological differences between genders have on saxophone playing, and the medical contextualisation for a greater understanding of this nuanced topic.

Finally, I review South African pedagogy research, and whether or not these biological differences have ever been taken into account or adjustments have been made to aid these differences. The lack of worldwide research woodwind material that incorporates these physiological differences alone supports my key argument regarding this topic and is expanded in my own research focus and contribution to South African saxophone academic texts.

2.1 Decoding the body and soul: what is breathing?

In order to understand the complex processes of breathing and the physiological differences between male and females in regard to pulmonary functions, it is important to contextualise this information presented in medical journals in a way that is accessible for students and teachers who do not have a medical knowledge of the human anatomy.

The act of breathing in and out is embedded in our unconscious competence – it is an act that does not require conscious thought. However, it is a topic that is largely avoided in woodwind breathing journals, as many educators struggle to correctly articulate the process of breathing. This lack of research is largely responsible for the highlighted pedagogy gap that this research project aims to address. Jevtic-Somlai's (2019) findings highlight major misconceptions and contradictions within medical texts and woodwind breathing journals. This literature review aims to provide the reader with a holistic understanding of breathing processes, and ultimately to enhance the teaching of this topic. Breath support is interchangeably used with the term breath control and is the primary fundamental technique needed for any performer to execute a desired tone production (Stufft, 1998:30). Jessica Wolf (2006: 8-9) writes, "Breath is always in motion, flowing through you, and you want that flow to be free and unrestricted."

The general process of breathing, and the main body structures required for this, are detailed here for a greater understanding of the physiological aspect involved in breathing. Becklake and Kauffmann (1999) distinguish the term 'gender' as an implicit factor of one's sociocultural and environmental determinants. The term 'biological' is used chiefly to describe sex and the reproductive organs. The basic breathing functions of the body are the same, where the airpath follows the same route in each body. Therefore, this chapter is focused on familiarising the reader with the overall breathing processes and body parts that are vital for this process. The physiological differences between males and females will also be discussed. For the purpose of this literature review, only the main breathing structures will be discussed in depth. Although the mouth and throat are a part of the breathing process, they are secondary functions in terms of the breathing process. However, the mouth and throat are primary factors in sound production with regards to saxophone playing. It is important to note the difference, as sound production comprises of the air that is pushed up by our lungs during the breathing process. The lungs and supporting muscles and skeletal structure surrounding the lungs form the primary breathing process function.

The process of breathing simultaneously makes use of almost the entire body, viz. the respiratory system, the nervous system, the muscular system, the brainstem, the circulatory system, and the skeletal system. These systems work together to facilitate the gas exchange in the lungs, which is the fundamental process of breathing. Jevtic-Somlai (2019) argues that, due to the internal breathing process, educators and practitioners need to rely on auxiliary observations and techniques to further understand what breathing actually entails. Further misconceptions of the breathing process fail to address a fundamental saxophone pedagogy topic and "can prevent the learner from reaching to his or her full potential" (Jevtic-Somlai, 2019:4)

The official medical term for breathing is pulmonary ventilation. Pulmonary ventilation comprises of inspiration and expiration. The main mechanisms of breathing involve the atmospheric pressure from the alveoli. Alveoli are miniscule air sacs that are found in the lungs, and are responsible for facilitating the oxygen and carbon dioxide gas exchange in the lungs. Atmospheric pressure is the air pressure within the alveoli, and drives the amount of air that is moved into and out of the lungs (Betts et al., 2013).

Inspiration is the act of air entering the lungs, and the diaphragm and external intercostal muscles contracting. Expiration is the process of air leaving the lungs, and the external intercostal muscles and diaphragm relaxes. The terms inspiration and expiration are used interchangeably with

inhalation and exhalation in various medical texts and refer to the differences of air pressure between the atmosphere and lungs (Betts et al., 2013). This causes the act of respiration, the gas exchange of carbon dioxide and oxygen in one's lungs. Respiration is not a term that is interchangeably used with breathing, but is a biochemical metabolic process in the body that provides the cells with energy from the oxygen taken in from breathing (Betts et al., 2013). A respiratory cycle consists of a single sequence of inhalation and exhalation.

The natural inhalation process is triggered by the brain through the phrenic nerve – the nerve that controls the diaphragm and sends signals to allow it to contract (Oliver & Ashurst, 2021). During inhalation, the brain is triggered by an increase of carbon dioxide that is present in the blood (not a lower level of oxygen). There is medical debate as to when the breathing process actually begins – whether it is by the act of inhaling air or exhaling. However, it is agreed upon that inhalation occurs when the brain is triggered by increased levels of carbon dioxide in the blood and activates an involuntarily muscle, the diaphragm (Oliver & Ashurst, 2021).

2.2 Autumn in Anatomy – the breathing process and differences explained

The diaphragm is a very thin dome-shaped muscle that is located underneath the lungs and is the main muscle of pulmonary ventilation. It is positioned roughly halfway up the torso, and is generally considered the main muscle of the inhalation process. To reiterate: as air is inhaled through the mouth and fills the lungs, the diaphragm contracts; causing an increase in chest activity and lowering of internal pressure. This causes inhalation. The depth of the breath during the inhalation process determines how far the diaphragm and rib cage contract. During inhalation, the contraction of the diaphragm to allow for the lungs to expand causes a negative air pressure relative to the atmospheric pressure (Jevtic-Somlai, 2019). Medical texts refer to Boyle's Law to describe the relationship between air volume and pressure (Betts et al., 2013). Boyle's law states that the volume of a gas at a constant temperature is inversely related to its pressure. This means that if volume increases, pressure will decrease. If volume decreases, pressure increases. As mentioned with Boyle's Law: in order to equalise this equation, air that is taken into the lungs increases the internal pressure in the body and fills the pulmonary system with fresh air. Once this exchange has occurred, the exhalation process will take place. The fresh air and oxygen are then used for the process of respiration, and allows for the body's cells to regenerate their energy from the glucose formed from the fresh oxygen taken in from inhalation. This is also referred to as the gas exchanges of carbon

dioxide and oxygen that take place in the alveoli. Around these processes, the diaphragm and rib cage return to their normal positions after the expansion caused through inhalation.

The intercostal muscles that surround the ribcage are subdivided into internal and external muscles, but their function remains the same. The intercostal muscles stabilise the upper body and aid in the breathing process. These muscles displace the balance of elasticity in the thoracic tissue through muscular contraction (Beers et al., 2020). It is the external intercostal muscles that are responsible for pulling back the ribs from their extended position during inhalation. During exhalation, these muscles relax and as the lungs, diaphragm and ribs retract, so its equilibrium position is restored. The internal intercostal muscles are responsible for increasing thoracic capacity during exhalation.

Noam Buchman (2013) describes this process of inhalation and exhalation involving the thoracic cavity and muscles as akin to the swinging of the pendulum. When there is no force, the pendulum is at rest. This is due to the gravitational force. However, when the pendulum is pushed one way or another – in other words, an external force is acted on the pendulum, it will swing one way or another until it retains its resting position. This is the same action that occurs to the ribcage when the diaphragm and muscles contract until the equilibrium position is restored (Buchman, 2013:28-31). The diaphragm is only active during inhalation, as the converse occurs in the exhalation process. The human body does not have complete control of the diaphragm as it has nerve endings where it is attached to the ribs. This is important to note, as it may cause some difficulty in correct breathing techniques for some individuals.

In correlation with Boyle's Law, exhalation occurs when the internal air pressure of the lungs decreases, and the diaphragm and rib cage return to their equilibrium position. The sequence of respiration begins again when the brain is triggered from the phrenic nerve to start the contraction of the diaphragm, and thus the process of breathing once again. Because the diaphragm is an involuntarily muscle due to its connection to the phrenic nerve, the body relies on the use of involuntary secondary inspiratory muscles such as the mouth and throat to aid in breath control. However, it is important to note that these muscles may not be actively engaged in the cycle of respiration, and is unique for each individual's breathing requirements (Cosette et al., 2010:42).

Niall O' Riordan (2015) cautions educators and learners alike not to equate a tightness in the chest cavity with abdominal support, as this has dire consequences of muscular overuse for performers. These consequences include advances in chest collapse, due to the prevention of full thoracic cavity and rib movement, leading to pain and injury from nerve path irritation and damage.

The diaphragm supports the intercostal muscle structure. These are the muscles that surround and protect the ribcage, and chiefly separate the abdominal and thoracic cavities (Britannica, 2023). The term thoracic refers to the chest, which contains the lungs and heart. The function of the diaphragm and intercostal muscles account for over 75% of the inhalation activity (Merrell & Kardon, 2013:4027). Arya Nezhad (2013) argues that, due to the fact that the majority of the respiratory system's muscles are connected to the skeletal structure – i.e., the spine and neck - having good posture and awareness of these intercostal muscles can help aid in a better tone production and breathing support. There is an important sex difference that has been medically researched with regards to the volume and configuration of the ribcage. Females are characterised by a disproportionately smaller rib cage size than males (LoMauro et al., 2018:131-140). This affects the volume of air present in the lungs, and the amount of air one can inhale in a breath. Males are also characterised by a deeper rib cage than females of the same stature. Air volume also affects the air pressure present in the alveoli. A lower air volume results in a lower air pressure for each breath, and a weaker respiratory cycle for women, as there is less oxygen present to provide the cells' energy. Furthermore, it has been found that females generally have diaphragms that are around 9% shorter than males at various stages of lung function, in both capacity and volume of the lungs. This size difference in the diaphragm is significant, as it affects the inhalation process of pulmonary ventilation in females.

Respiratory muscles are sub-categorised into three different groups: the diaphragm, the ribcage muscles (also including the intercostal muscles, scalene and neck muscles), and the abdominal muscles (Aliverti, 2016). These muscle groups help aid in the inhalation and exhalation breathing processes. Most of these respiratory muscles are connected to the skeletal structure through means of the cervical and lumbar vertebra (Aliverti, 2016). These muscles affect the stability and posture of the spine, which in turn affects the quality and speed of breathing. Additionally, smaller thoracic and muscular size and volume will impact breathing processes and air pressures, as this means there is simply less capacity and breath support to inhale and exhale a larger breath. Mead's study of dysanapsis supports this conclusion, as it has been proven that women generally are pre-disposed to a greater contribution of respiratory muscles required for a period of exercise compared to men (Mead, 1980).

The spine, ribcage and diaphragm surround the lungs. The ribcage and spine are made of bone, so their movement is rigid. It is the costovertebral joints, the cartilage joints that allow the ribs to move

during the breathing process ("Call for papers", 2009). Miller (2006) argues that the spine constitutes a crucial role in the breathing process due to its connection to the ribs. Miller's argument does not factor in the biological differences in the breathing process. LoMauro et al. (2018) found that men's ribcages are more horizontally-oriented than those of females. Bastir M. et al. (2019) support these findings, as these differences may be a result of the different orientation of the spinous processes in men and women. They are more horizontal in females and more caudal in males. LoMauro et al. (2018:131-140) writes, "Such greater dorsal orientation of the transverse processes of men may reorient the ribs leading to greater radial ribcage diameters."

Another primary objective of breathing is the function of the lungs. The lungs are a respiratory organ and occupy most of the chest cavity above the diaphragm. Although the lungs are passive during the inhalation process, they are the fundamental mechanic of ventilation as they provide the space where air is able to move through the passages of different pressure gradients. The pressure is produced by the muscular movements of the diaphragm and intercostal muscles in the inhalation process. The lungs consist of five lobes that contain the bronchioles and alveoli. Bronchioles are tiny passageways in the lungs that carry air to the alveoli. Alveoli are the air sacs where the gas exchange in the lungs takes place. These are significant in the process of respiration (Becklake & Kauffmann, 1999).

It is important to note that the lungs can never fully be out of air. Air is a gas, so it will always travel from a high pressure area to a low pressure area. When reference is made to "emptying the lungs", this is used to describe the internal action of thoracic volume capacity. This is when the diaphragm cannot ascend any further, nor can the ribcage contract (Wilson, 1998). The lungs are covered in a thin membrane called the pleura (Mahabadi et al., 2022). The pleura is a two-layered membrane that is attached to both the chest wall and the lungs. The pleura aids the ribs in their expansion during breathing. The mechanisms of pulmonary ventilation are dependent on the pressure relationships found in the lungs. Pulmonary ventilation comprises three main pressures, namely atmospheric, intra-alveolar, and interpleural pressures. Atmospheric pressure is the pressure of the air outside the body (SEER Training Modules, n.d). Intra-alveolar pressure is the pressure of air within the alveoli, and is subject to change during breathing. Interpleural pressure is the pressure in the pleural cavity. These pressures are vital, as they facilitate the movement of the diaphragm and intercostal muscles around the ribcage in the inhalation and exhalation process. It is the combination of these muscular contractions and air pressures in the body that allow the amount of air flow during pulmonary ventilation.

Medical research has proved that from birth, females have smaller lung capacity and fewer bronchioles than males. Physiologically speaking, this means that women have less air volume in their lungs. Because of this sex difference, males also have a larger total surface area of alveoli present in the lungs, which means that their ability to breathe more air in at a higher pressure is physically easier for them than it is for females (Becklake & Kauffmann, 1999).

Lung function is calculated from the displacement of air volume; the inspiration of oxygen and expiration of carbon dioxide. This is known as total lung capacity, which is the sum of all lung volumes (Ranu et al., 2011). Total lung capacity is important to understand, as it is the measurement of how much air can be inhaled by an individual. This measurement is the benchmark of many medical journals and what breathing techniques are effective. Simply put, tidal volume is the amount of air that is breathed in and out of our lungs in one respiratory cycle (Guyton & Hall, 2006). Inspiratory residual volume refers to the air that can be further inhaled after a breath has been taken. Expiratory reserve volume is what can be further exhaled after breathing out (Pryor, 1998). Lastly, residual volume is the amount of air that is in the lungs after exhalation, where as a consequence, there will always be an amount remaining as the lungs can never completely be out of air. So residual volume is essentially the same concept as “emptying the lungs” (Wilson, n.d.). LoMauro et al. (2018) found that males have lungs that are bigger in both absolute volume and volume variations. It is noted that men have a much higher average for all pulmonary variables compared to women of the same stature. LoMauro et al. (2018) investigated the biological differences between pulmonary lung function to find that “all the prediction equations for normal values include sex as a discriminating factor” and the afore-mentioned sex-differences in both structure and function are vital during peak exercise.

There is an important medical study conducted by physician Mead, who described the term Dysanapsis (LoMauro et al., 2018). This term is used to describe the disproportionate growth between the airways and the lungs between genders. Dysanapsis shows that growth between the airways and lungs beginning during pregnancy, which continues from birth to adulthood for women. Mead’s (1980) study concluded the following: females have approximately 17% smaller in lung diameter than that of males, and females’ lung sizes are smaller and generate lower respiratory pressures at all ages compared to males. Generally, all chest wall dimensions are greater in males than in females. Cory (2015) also found that women had higher instances of dyspnea evaluations when compared to men, due to women’s reduced maximum ventilation capacity.

LoMauro et al. (2018) state that these biological differences in the structure and function of the respiratory system are critically important during dynamic exercise. Bouros et al. (2018) medically proved that playing a woodwind instrument is one of the most stressed respiratory activities, as it requires continuous respiratory muscle training exertion required for sound generation. Furthermore, when playing saxophone, each player has to overcome the resistance of the instrument itself, which alone may be considered as a continuous form of exercise (Dries et al., 2017). Mead's (1980) study suggests that due to females' lower air pressure, reduced airway diameter and lung capacity, the physiological cost of breathing in and out requires a larger amount of effort from women. LoMauro et al. (2018) shows that during peak exercise – which includes playing saxophone for a period of time – women are more susceptible to larger resistance and turbulent air flow during peak exercise. These findings also support Martinez's research into sex differences in severe pulmonary emphysema (Martinez et al., 2007:247). These various medical studies researched different age groups, size, and stature of women, and still produced the same results. Martinez's (2007:247) findings show that women, relative to men, exhibit "anatomically smaller airways" with thicker airway walls. Women were also more likely to describe greater pulmonary symptoms and exhibit worse health status because they "perceive a given physiological perturbation" differently.

Finally, the upper end of the respiratory activity includes the mouth, pharynx, larynx, and the trachea. During inspiration, air is breathed in through the mouth or nose, that travels through the pharynx, larynx, and trachea in order to reach the lungs. The pharynx is the oral cavity passageway between the larynx and the oesophagus. The larynx is the collection of muscle groupings and soft tissue that form the vocal cords, positioned next to the oesophagus.

Swodoba (1991) found that the larynx actively contributed to the support of the air column. The trachea, or throat, is a series of tubes that chiefly carries air and oxygen cells throughout the body. McGraw-Hill (2013) states that both the mouth and nose have sense receptors so that the air movement can be felt. Weikert and Thier (1999) argue that sound production of the saxophone takes places with the resonating vibration of the reed and the mouthpiece, which is found at the top of the saxophone. They include breath pressure as a major factor in saxophone sound production. Their findings showed that the larynx plays an essential role in controlling the air stream, but their research did not factor in the interaction between the upper end of the respiratory organs and the diaphragm, or the importance of the primary breathing process systems. Furthermore, this research was only conducted on male saxophonists, and did not factor in any women saxophonists or their physiological differences in the study.

Inamoto et al. (2015:673-674) researched 'strong gender-related differences' in their comprehensive study relating to the larynx and pharynx. The authors found that on all average values, the volume and length of the larynx, and the distance and length of the vocal cords were significantly larger in men than in women. The study also notes height and ages as contributing factors. Inamoto et al. (2015:673-674) also stated that "gender differences in laryngeal anatomy are well known" but is not included in universal woodwind breathing technique literature. These gender differences may impact women instrumentalists' ability to control their airstream and resonance on reed vibration when playing saxophone.

2.3 Tea for two: Types of breathing

Ritz and Roth (2003) highlight the importance of breath control with regards to the control of psychological states, stress management, and the relaxation and improvement of organ function. So far, this chapter has explained the biological processes that occur when breathing takes place, but has not explained the unconscious competent aspect of how the brain affects breath control.

The brain controls the respiratory system, which is largely linked to the nervous system, and controls the rate at which one breathes. This system, which is responsible for alerting the respiratory muscles when to contract and relax during the breathing process by amounts of carbon dioxide present in our blood, consists of two parts, called the medulla and the pons. The medulla is found near the spinal cord, and is tasked with maintaining breath control. The pons is responsible for our breathing patterns. This process is often referred to in medical texts as the metabolic control of breathing.

Breathing is a unique system to the body, as it can be voluntarily controlled. Other systems such as the digestive or cardiovascular system cannot. Guz (1997) describes playing a woodwind instrument, speaking, or singing as actions that form under the control of breathing. This aspect is located in the brain's cortex, the outer layer of nerve cell tissue. This part of the brain is fundamental for any high-processing thinking, problem-solving, or emotional stimuli, and functions relating to your senses (Cleveland clinic, 2022).

Jevtic-Somlai (2019) found that despite differing approaches to breath control and techniques in universal woodwind texts, many authors refer to awareness principals such as the Feldenkrais method, the Alexander Technique, and body mapping. All of these methods vary in their approach, but fundamentally help people reconnect with their bodies and how to improve posture for a

greater ease of movement (“Call for papers”, n.d.). These principles take a holistic approach to improving the mind in connection to the body.

In breathing methods, the pranayama and diaphragmatic breathing methods are essential in applying behavioural and metabolic control in the breathing process. Sovik (2000) explores the pranayama breathing that is performed in yoga and meditation, which aims to shift the balance of the autonomic nervous system from a “sympathetic dominance” (Novotny & Kravitz, 2007). Sovik (2000:7) notes that pranayama breathing is meant to “increase awareness and understanding between cognitive states, physical functioning and breathing styles.” Sovik further argues that pranayama breathing is aimed at allowing a person to consciously control their respiratory movements to reduce stress and integrate a higher mental functioning. Jerath et al. (2006) support these arguments, and interestingly note several types of yoga breathing that are specific to respiratory organ groups – these include the complete yoga breath (lung breathing), interval or patterned breathing, and belly breathing. Collins (1998) notes that yoga breathing – which includes pranayama breathing – originated from a philosophical framework whereby the mind, body, and spirit are encompassed on a journey of health and spiritual growth. Collins (1998) also provides insight as to why people may not be aware of these breathing methods, as some of these breathing techniques used with the yoga methods are complex, and require independent practice. If it is not properly applied, or the correct breathing methods used, yoga breathing may lead to hyperventilation. When exercised correctly, pranayama breathing has numerous benefits, and helps coordinate the nervous system, lungs, and cortex with one’s conscious control of breath.

Diaphragmatic breathing forms part of pranayama breathing, but focuses on the expansion of the abdomen during respiratory activity. Diaphragmatic breathing helps the individual to identify the sensation of the rib cage expanding and contracting, and aids in optimal breathing patterns that are “smooth, deep, even, and without pause” (Novotny & Kravitz, 2007). Slow breathing is vital as it allows for the homeostasis of the cells in the body, which is the internal state of balance for the human body to survive and function properly (Jerath et al., 2006). It is important to note that throughout all these medical texts referring to breathing methods and procedures, emphasis is placed on a balanced state of mind, in order to breathe consciously competent and correctly.

2.4 Qualitative vs. quantitative contextualisation

It is important to contextualise these quantitative findings so they may also provide qualitative insight into the gender paradigm that affects women's education in saxophone. Quantitative findings relate to numerical findings in order to contest a hypothesis (Williams, 2007) and are aimed at finding conclusive results. Qualitative methods rely on the lived experiences of subjects, in order to create a holistic understanding of the topic and formulate common trends. The qualitative method achieves this by means of interviews and discussions. This dissertation addresses both the medical qualitative results and the researched quantitative methods in order to address an educational framework topic.

These various medical quantitative results can be qualitatively evaluated through dyspnea, which is a complex sensation of breathing discomfort (Cory et al., 2015). This study also supports the findings of Martinez et al. (2007). Cory et al. (2015) shows that breathing discomfort is significantly higher in women during peak exercise than men. This research also finds that women adopt a more shallow and rapid breathing pattern than men, further confirming the fact that women, biologically, have more difficulty breathing than men. Dyspnea, akin to breathing, is a subjective experience as it can be challenging for individuals to describe how their breathing feels. However, the main findings of this research shows that women, during peak exercise, are more likely to describe their qualitative breathing description as follows (Cory et al., 2015:1001):

"My breath does not go out all the way"

"I cannot get enough air in"

"My breathing feels shallow"

"I cannot take a deep breath in"

"Breathing in requires effort" and

"My breath does not go in all the way."

Women are more likely to report difficulty breathing or 'unsatisfied and shallow inspiration' at the end of exercise. Cory et al. (2015) also state that women displayed significantly higher end-inspiratory lung volumes relative to total lung capacity throughout exercise, compared to men. This further exemplifies the interaction with biological factors and sociocultural factors. Becklake and

Kauffmann's (1999) comprehensive study found that the perception of altered respiratory function is more sensitive to women, but is less specific when asked to describe their breathing process than men. This finding may be due to the fact that women's lung function was subject to disproportionate growth throughout their reproductive years. Cory et al.'s (2015:119) findings also concluded that women are subject to "smaller lungs, smaller diameter airways, weaker respiratory muscles, and a decreased surface area for pulmonary gas exchange." These biological limitations may predispose women to greater pulmonary function capabilities during peak activity, as women also have a higher total work of breathing than men at a given level of ventilation. This is driven by an increase in flow resistance from women's smaller-sized airways. Cory et al. (2015) found that women's respiration mechanics required a higher cost of oxygen in breathing compared to men. The critical outcome across all these highlighted medical articles is that awareness of these biological differences that affect genders should always be taken into account, rather than "standardising" the sex differences (Becklake & Kauffmann, 1999).

These physiological differences and their affects can be noted worldwide. Women make up less than 10% of jazz scholars in tertiary institutions, even less are woodwind instrumentalists (Hope, 2017). However, the sociocultural factors affecting women may not have been taken into account. McCarthy (2003:12) writes, "Curriculum in music education, like other subjects, is informed by a synthesis of philosophy, psychology or learning theory and praxis." Music pedagogy fulfils its mandate where it becomes a framework that acknowledges students for who they are, so as to better their musical ability in their own capacity. In critical pedagogy, which forms the foundation for most worldwide jazz teachings, there should be a co-partnership between the student and teacher. However, if there is little to no publication on this topic in woodwind breathing journals, teachers and educators cannot transform and evolve with their students if they are unaware of this existing critical literacy required for saxophone teaching.

Wehr-Flowers (2006) writes that women scholars lack confidence and are "far less willing to attempt jazz improvisation than males" in their educational capacities. Although there may be varying psychological factors that may affect women performers' capabilities, there has been no research this far to correlate the social impact of these biological factors that this dissertation aims to address.

2.5 Stella-r Saxophone Pedagogy Framework explored

Macedo (2000:379) highlights the origin of the term 'pedagogy' from Greek origin, and means to 'lead a child.' He argues that the pedagogy framework is fundamentally meant to liberate an individual from their own inherent unconscious bias and transform their philosophical anthropology. Educational texts refer to South African music, particularly jazz music, as a "multidimensional social and sound world" (Ramanna, 2016:7-8). Ramanna (2016) argues that the learning of South African jazz music is a simultaneous practice of bodies of works, texts, audio and visuals, compositions and 'musicking'. The South African jazz scene was largely founded in its protest to historical, socio-economic, and political effects of apartheid and colonial oppression, and the paradigm of power that peaked in the 20th century. Ramanna (2016) argues the social ramifications that affected the South African music learning experience; the memory, amnesia, and space of imagination were deeply endangered for the creative. The social framework is a key methodology component in most South African jazz history texts, as the socio-political landscape of capitalism, colonialism, gender, and race dynamics shaped the history of South African music.

Freire's (2000) critical pedagogy framework resonates with the context of South African jazz history. Freire himself was a Brazilian educator, and his educational framework was aimed at creating a new state of conscious competence with scholars who have lived through the experience of systemic diaspora. Brazil's history shares many similarities with that of South Africa – both were economically developing countries, both have faced systemic oppression stemming from colonialism, and both have suffered social dynamics as a result of a turbulent history. Freire's (2000) framework highlights the response of a creative mind and sensitive conscience formed from the social dynamics he experienced. Wright's (2010) sociology studies support Freire's framework, and provide a deeper insight into the social dynamics at play in music education that affect the impact of people's learning experiences.

Universally, the saxophone as an instrument is symbolic of jazz as a musical genre. Merz (2016) argues the popularity of the saxophone is in accordance with its prominence in jazz music, which is largely due to the distinct sound of the saxophone. Christopher Ballantine's *Marabi Nights* (1993) shows that early South African jazz was rooted in popular big band style of music, and improvisation was not a key element in the audio recordings. It wasn't until bebop recordings that made their way on ships to port cities such as Cape Town and Gqeberha in the late 1950s that saxophonists found a creative freedom to explore the saxophone's technicality and sound. Kippie Morolong Moeketsi, one

of South Africa's first saxophonists, developed his own style and sound on the saxophone. Merz (2016) describes Moeketsi's contribution to South African jazz as elevating it beyond a big band section playing, and his virtuosic technique and improvisation. Moeketsi inspired generations of saxophone players after him, to develop their own sound, and can be seen in the attributions his protégé, Barney Rachabane, made to the harmonic developments to South African jazz. However, it must be noted that there is no mention of any female saxophonists or their aided contribution to the South African jazz saxophone framework that was established during this period.

2.6 My Contribution

Wright (2010) explores the symbiotic discourse of power and culture within a pedagogic device relative to musical education. The literature review cites compelling arguments regarding the physiological differences between men and women, and the impact these differences have on the breathing process. Furthermore, I have noted how the socio-cultural dynamics in music education and pedagogy play a role in one's learning experience, and how South Africa's jazz music is a product of historical protest. A critical exploration of women saxophonist's learning experiences in music education is vital to show the impact of these have on relevant breathing processes. The literature has highlighted the vital physiological differences through various medical studies undertaken, and the impact this may have on women's saxophone pedagogy and learning experience.

Freire's (2000) important framework question, "What kinds of change constitute as transformation?" reveals the unmarked question this dissertation aims to address. The investigation of gender dynamics in saxophone education aids the conscientisation of jazz pedagogy in South Africa. Woodwind journals are universally scarce in in-depth breathing process explanations, and fail to highlight these physiological differences with regards to the breathing process, or what teaching adjustments can be made to aid females who are predisposed to a greater difficulty of breathing. Acclaimed academic writers such as George (2020), Rennie-Salonen (2016), Moelwyn-Hughes (2013) and Stoltz (2002) add vital insight into the gendered narrative women face in the South African music industry and useful woodwind breathing techniques. My research is built upon the compelling medical evidence shown throughout my literature review, the socio-cultural dynamics at play, and experiences and knowledge of saxophonists in South Africa. I hope to investigate and analyse the impact of women saxophonists' learning experiences in South Africa, and how these have impacted their ethos as performers and educators. I also investigate the teaching philosophies male saxophonists and educators participate in, and how their learning experiences shaped their

philosophies, as well as their knowledge of these biological differences and adjustments they possibly make to aid women who struggle with breath control. With the arguments outlined throughout my literature review, I have undertaken a dual engagement with both male and female educators and performers in South Africa to contextualise these physiological differences and highlight the evident pedagogical gap that has accumulated from covert bias in the music education curriculum.

Chapter Three: Methodology

The purpose of this dissertation is to explore the physiological differences between men and women, and how these differences and the biological and socio-cultural dynamics of education may impact the learning experiences of women saxophonists in South Africa. This chapter introduces the research methodology rooted in critical pedagogy and sociology frameworks, which serves to highlight a medically backed educational topic that is not present in woodwind texts relating to breath control and breathing. I analyse the experiences and knowledge of ten interviewees – six female and four male saxophone performers and educators – relative to their own learning experience in saxophone, performance, and knowledge relating to breathing and the biological differences. Through these interviews, I ask the following question: "What is the conscientisation of saxophone jazz pedagogy in South Africa? What adjustments are made to factor in women's physiological differences with regards to breath control?"

3.1 Theoretical framework: Critical pedagogy and sociology in music education

The concept of critical pedagogy and research is vast and varied, due to the critical definition for the "call to develop theories" that allow for the production of sociocultural and epistemological beliefs (Kincheloe et al., 1987:236). However, by definition, the core concept of critical research is to allow "change, disagreement, and growth" (Kincheloe et al., 1987:238). Critical pedagogy institutes a criticality for social justice, and is ever-evolving.

Freire's adoption of a critical pedagogy framework is rooted in "emancipatory education", whereby educational curriculums are correspondent with "traditional and social context" (Mahmoudi et al., 2014:126). There is debate surrounding the history of Freire's critical framework, as some schools of thought believe the framework is politically motivated. Freire believes in the revolution of progress, and in that process period social concepts, such as class, race, and gender limitations should not be taken into account. The individual can rely on their own capabilities to overcome the oppressive structures that hinder their state of consciousness (Mahmoudi et al., 2014). Critical theorists pursue the questions of normalised "notions of democracy" (Kincheloe et al., 1987:236) and denounce systems of power that uphold political structures that oppress social groups, such as classism, racism, gender-oppression, and heteronormativity. As a framework, critical pedagogy acknowledges

diverse ontologies and epistemologies that affect the learning experiences and "subjective constructions" of an individuals' critical consciousness (Kincheloe et al., 1987:236).

Freire argues that education is meant to serve as a state of consciousness, and their environment is not a "fixed reality" (Fredrick et al., 2009: 1). The critical pedagogy discourse serves to allow the symbiotic relationship between critical thinking and open dialogue between students, where consciousness in an individual is the goal. The critical framework challenges "traditional" educational methods, and calls for action in a problem-solving dialogue in the learning process. In critical pedagogy, Freire argues that the fundamental "why", "what", "how", "for whom" and "for what purpose" questions are vital in any learning process. The critical framework encourages an environment in which the student and teacher learn simultaneously. Bartlett (2005) argues that the student and teacher have different roles, and are able to exchange roles throughout the educational process. However, this does not take away from the skill or level of the teacher.

Freire's critical pedagogy extends the foundations of sociology. Sociology is a broad horizontal scope of paradigms of thought, but uses the "sociological imagination" that challenges to creatively identify and enquire about social life (Wright, 2010:2). In a sociological framework, dualisms exist between various theories, and understanding how individuals relate to society. Craib (1997:7) positions these theories to reduce intricacies in sociological frameworks, and asks the following key questions:

"How does the individual relate to society?"
"How does society relate to the individual?"
"How do individuals relate within society (social integration)?"
"How do different parts of society relate to each other? (system integration)?" (Wright, 2010:3).

Within the critical pedagogy methodology, the "evolving criticality" of "bricolage" is identified as an emancipatory research ideology (Kincheloe et al., 1987). Bricolage refers to the method critical researchers employ in multidisciplinary research. The analysis of one-on-one interviews, observing and philosophical analysis all constitute the "methodological bricolage" (Kincheloe et al., 1987). In contemporary bricolage methodology, researchers are able to substantiate a new praxis and "knowledge production" within academic disciplines (Denzin, 2003; Kincheloe & Berry, 2004; Steinberg, 2011). Kincheloe et al. (1987:244) distinguish the significance of bricolage methodology, as it exists "for the complexity of the lived world." The bricolage of critical pedagogy is rooted in an

epistemology of complexity, which is illuminated between the research and social domain. In this context, the "researcher-as-bricoleur" (Kincheloe et al., 1987) themselves has to adopt a new paradigm of critical consciousness and awareness of the context or political agenda in which the researcher operates. As the bricoleur investigates the embodied subjectivity that shapes an individual's narrative, the bricolage methodology ensures the personal relationship between the bricoleur's own personal history and objectivity of the "social location" (Kincheloe et al., 1987).

Wright's (2010) *Sociology and Music Education* shaped my consciousness as a researcher in the field of sociology in music education. It informs my thinking as she links relationships between culture and power within an educational device relative to music pedagogy, and provides in-depth applications of the sociological framework in music education, and how to address literature gaps and problems discovered in the relevant fields. My research is not purely confined to the framework of critical pedagogy or sociology in music education, as I make use of multidisciplinary qualitative medical research to substantiate my argument, and do not participate in the fieldwork or participant observation of sociological or anthropology. However, this study is an intersectional investigation on jazz saxophone pedagogy philosophies and the learning experience of women saxophonists in a South African context. In researching this topic, I have adopted the role of a critical thinker, learner, and musician. I use critical pedagogy and sociological frameworks to navigate and analyse this study that has yet to be substantially addressed within the South African saxophone curriculum paradigm.

Critical pedagogy encourages students to question their reality and the surrounding environments that shape it, "its power structures, contradictions and flaws" (DNS, 2022). Giroux (1997) explains that critical pedagogy is meant to allow students to become "cultural producers" who are able to critically analyse their own reality from teachers who enable them to do so. There is a vast and diverse discourse of intersectional networks with regards to critical pedagogy, and all texts contribute towards an "authentic philosophy" (DNS, 2022).

Within the scope of critical pedagogy, it is important to note the feminist framework that focuses on the "question of women" (Chege, 2014). The feminist theory is an intersectional framework that includes advocating for a "social explanatory frameworks of gender" (Kiguwa, 2019). Although my political agenda is not solely rooted in feminist ethnomusicology, the fact that this research shines a spotlight on women and their experiences allows for this research to support and substantiate feminist theories. The learning experiences of women saxophonists are used as "significant indicators" (Chege, 2014) in the analysis and findings of this dissertation.

3.2 Round Rationale

Intersectional critical research, such as this, aims to illuminate “key issues” prevalent in music education (Wright, 2010). Throughout this dissertation, the noted lacuna surrounding the physiological differences between men and women was argued. The relevant socio-cultural and historic environment is explored, and provides insight into the lack of academic representation. Within this research, a dualism is uncovered, which impacts the education and consciousness of women saxophonists in South Africa. It is a right, not a luxury, to have access to education that is equitable.

This dissertation supports the various instances of critical pedagogy and sociology in music education, as it explores “acquiring critical consciousness” (DNS,2022) with regards to saxophone education in South Africa. It also lends its support to the feminist theory, as the investigation of women saxophonists’ learning experience in saxophone is highlighted. Through qualitative interview methodology, I am able to uncover the “theoretical complexity” (Freire, 2000) within the jazz saxophone pedagogy philosophy that is currently being taught. The qualitative narrative allows for a deeper understanding of what socio-cultural factors are at play, and how these may impact women saxophonists’ learning experiences. As previously discussed in Chapter Two, quantitative methods are focused on conclusive numerical results. For the purpose of this study, qualitative research is best, as it provides an insight into the lived experience of an individual. Ryan (et al., 2006:313) supports this methodology, as interviews are “useful gathering tool in qualitative research.”

My research explores the learning experiences of male and female saxophonists, and how their lived experiences have shaped their teaching methodologies. It is structured to reveal the methodologies and thought processes put into practice in saxophone pedagogy, and how individual learning experiences shape their own teaching style. A qualitative method allows me to delve into a deeper insight into the critical thinking of these saxophone educators, and their “ontological vocation” (Mahmoudi et al., 2014) towards problem-solving pedagogical paradigms. I hope to address the aforementioned literature gap that is prevalent regarding breath control, and how the “power of music delineations” can “override even the best intentions” of educators alike (Wright, 2010:31).

3.3 Sample at the Savoy

Standard sociology and critical pedagogy research is rooted in a critical methodology. The core aim of critical framework is to create a process of learning that theorises the experiences that the dialogue process allows (Freire, 2000:17). Through this methodology, current educational texts challenge the current frameworks and practices to "deconstruct certain philosophies" (Alhazmi, 2018:13) that may involve prejudices towards certain social groups. The theoretical approach employed in critical methodology allows the empowerment of marginalised social groups and the impact of the social environment around them. My research investigates the physiological differences between men and women with regards to breath control, and how the saxophone teaching methodologies currently in practice may impact the learning experiences of women saxophonists.

Through the means of one-to-one interviews, I was able to gain a deeper insight into the "situational and subjective objectives" that shape the consciousness of the individual (Foster, 2006). My primary source of empirical data is theorised from the semi-structured one-on-one interviews that revealed the critical consciousness and teaching philosophies of each saxophone player interviewed. All participants were self-identified performers. The four male participants were aged between twenty-five and sixty, and are of different social and racial groups. The six female participants were aged between twenty and forty-eight, and are also of different social and racial groups. The varied group of participants allowed for "polarizing binarism's" that appeal to the discourse of the educational learning experience (Freire, 2000:18). All participants contribute to the jazz community as performers, educators, academics, bandleaders, and composers. The self-identified educators within the participant group are widely recognised as highly skilled saxophonists by the jazz saxophone community in South Africa. No judgments were made of the skills of the self-identified performers and students. In order to ensure that the data analysed was level with regards to breath control and function, it was noted that each participant practised saxophone for a minimum of three hours a day, at least five days a week during the academic term.

All interviews started with an introduction to the lives of the participants; their learning experience in saxophone from the age that they started, what made them pursue saxophone, and how their learning experience on saxophone shaped their understanding of music education. I encouraged participants to include any social dynamics that may have impacted their learning experience, as their lived experience is vital to the research investigated. All

participants speak to an unconscious competent knowledge with regards to breath control – they have basic knowledge of it, but there is no cognitive insight into how it should be included in the saxophone education curriculum. It is assumed that is covered by the student, although the educators themselves never came across the topic in their own learning experiences as students. All participants were asked if breathing was a struggle in their learning experience in saxophone, and what adjustments they made to improve that aspect. They were also asked how the educational structure impacted their lives personally and professionally. Lastly, the conversation of social dynamics was also addressed – and in what ways it may have affected the learning experiences of these musicians.

All the interviews made use of a semi-structured abstract of information that allowed the participant to elicit any "unanticipated responses and issues" (Ryan et al., 2009:310), which altered the succeeding schools of questioning. Even in these instances, there was a circular movement of certain themes and topics addressed that ensured all primary topics were covered. The role of the interviewer involves "active listening" (Ryan et al., 2009) through both verbal and non-verbal cues. Non-verbal cues that I took note of were tone of voice, body language, facial expression, and hand gesture. I ensured that all participants were at ease, and felt comfortable to share their answers with me. The questions formulated are in line with the flexibility the critical pedagogy framework allows, and many responses from the participants allowed for the deeper exploration of further topics I had not previously considered when undertaking my research. Lincoln and Guba (1985) note that credibility, transferability, dependability, and confirmability are important aspects establishing trustworthiness within qualitative research. The relationship of trustworthiness of an interviewer with their interviewees aids in the validity of the research.

Braun and Clarke (2006) explore the importance of a systematic coding system in qualitative research that ensures recurring themes and patterns are correctly identified and established. Coding of the one-on-one interviews was undertaken to ensure the researcher had time to identify and analyse emerging themes and paradigms that developed from the data. Wright (2010:60) refers to the music education coding system as an "autopoietic" binary coding system that distinguishes observed occurrences in the music educational field. Constant comparison is a process used to compare new empirical data to existing data, and the ability to analyse and reanalyse the thematic material emerging from the research (Birks & Mills, 2011; Urquhart, 2013). This research is not comprehensive, nor does it suggest that all male educators are to

blame for any implicit bias caused within a pedagogical paradigm. Rather, it highlights the layered impact women saxophonists may experience within the existing saxophone cultural educational field.

3.4 Research Ethics

Dewey (1985:369) writes that the aims and values in music education-related research ethics are "themselves moral" as they deal with the ideals of the individual's life and character outside of the pedagogical praxis. The methodology forms the basis for practising ethics within the critical pedagogy framework. The role of the teacher is paramount in ethical considerations, as it is the transference of their own assimilated knowledge and consciousness that allows for deliberation across changing landscapes (Allsup & Westerlund, 2012). Freire (1998:124-148) explores how social structures seek a "revitalised notion" of an educator that is "nether scapegoat nor saviour", but as an agent of adaptability and change. A moral dilemma is present with regards to teaching methodologies. Allsup and Westerlund, (cited by Dewey LW 325, 2012:124-148) explain the dualism within the research ethics, "intelligence is critical" in applied methodology and conduct, but the "issue is one of choice" as choice propagates alternatives. A "moral intelligence" is a prerequisite in social action within ethical consideration in music education research. Therefore, educational ethically-supported research must struggle openly with the "possible contradictions" of educational and sociological ends that form the learning process paradigm (Allsup & Westerlund, 2012).

Qualitative critical pedagogy research is rooted in the core principles of critical thinking, reflexivity, empathy, trustworthiness, and credibility. As a researcher, I am incredibly aware of the transparency required for handling these lived experiences of the participants, and to ensure that each participant has expressed explicit consent for the story to be told. Some instances spoke of social dynamics that may be psychologically and emotionally exhausting to relive, where the highest care of confidentiality was ensured for all participants. Only myself, and each individual interviewee, bore knowledge of their interview. Each interview was transcribed fully, stored on an external hardrive, and kept in a secret location that only I know . Each participant was informed of the summary of this research's literature review prior to the interview, and given the option to stop the interview at any stage or retract any statements they felt were necessary. No participants retracted any statements. To respect the confidentiality of the

participants, all interviewees have been given pseudonyms, and any names of fellow educators, institutions or distinct names are anonymised.

Ryan et al. (2009:312) describe the role of the researcher to "minimise the risk of bias" to ensure the research is credible. However, the subjective nature of critical pedagogy research has proved challenging, rooted as it is in social action for a total transformation of our philosophical and conscious praxis (Kincheloe et al., 1987). I am critically aware that my role is that "of a researcher" (Ryan et al., 2009:312) and that role is fundamentally clear to the participants, as I cannot act in any other role besides that of a "researcher" that may impact their authentic responses.

Critical pedagogy research is a "critical ontology" (Kincheloe et al., 1987:248), which initiates a conversation involving observing and interpreting the world around the specific research topic and its individual subjects. Kincheloe et al. (1987) note the challenge of critical pedagogy researchers, as the "processual" nature of the methodology makes "interresearcher reliability" a difficult goal to achieve. As an insider of this research, I take note of my own "subjective embodiment" (Williams and Annandale, 2014) and how I am able to navigate this research through my own critical understanding of the intersectional contexts I am engaging in with regards to this investigation.

3.5 Reflexivity and positionality

Qualitative research is a method of understanding how individuals construct their own narratives from their own lived experiences and meanings (Jootun et al., 2009, p. 44). Reay (2007:611) understands reflexivity as "giving as full and honest an account of the research process as possible" and the awareness of the researcher. The researcher themselves undergoes their own transformation in their cognitive competence, and how their role as a researcher impacts their research. Reflexivity is both a concept and a process (Dowling, 2006), and allows the researcher to be critical of what is told and interpreted. This process serves to give the participants their own "voice" and understand what they are saying, and how they represent themselves (Palaganas et al., 2007:434). Reflexivity is a cornerstone of critical pedagogy research, as the practice allows the "researcher to become a participant" and the "participant to become a researcher" (Kincheloe et al., 1987:254). Critical pedagogy research challenges the "regularly employed" (Kincheloe et. al,

1987:254) traditional approaches to research, as the contributions of the critical discourse shape our understandings of the human experiences of a given political and social environment.

Critical pedagogy research challenges the "unimethodological" (Kincheloe et al., 1987) approaches traditional research cocoons. The evolution of critical research has developed an academic landscape, where equitable research seeks to develop a praxis towards a world founded on freedom and "social responsibility" (Kincheloe et al., 1987). Bourke (2014) argues that total neutrality and impartiality does not support critical research, as it does not acknowledge the researcher's embodied subjectivity in their own socio-political landscape.

Positionality is a concept that may be difficult to articulate, due to its subjective nature. Holmes (2020) describes positionality as the position researchers adopt in their research, having identified socio-political contexts and their own awareness of their bias. There is a symbiotic relationship between reflexivity and positionality. Reflexivity requires the researcher's sensitivity and self-consciousness about the context of their research, and positionality requires both the "acknowledgement and allowance" (Holmes, 2020:2) of their own self-reflection. My positionality is central in my own research and analysis. I have identified myself as a learner and musician in South Africa, while being a woman has impacted my own educational learning experience. The participants were people who have shaped my understanding of my own narrative, as well as women who have reflected the same experiences in their educational learning experiences, where the saxophone pedagogical framework is rooted in a socio-cultural paradigm of power. It is also a reflection of the conscientisation required in the jazz saxophone educational epistemology.

After George (2020) and Wright (2010), I am able to establish common ground due to my "emic account" of positionality (Holmes, 2020:5). I have been taught by several of the participants, and have a personal relationship with them. I have also shared stages and educational concepts with some of the participants. I believe my interview process to be ethically sound, as I did not experience any hostile or unwelcoming attitudes from the participants. My role as a researcher was made clear to participants, and allowed them to freely express their responses without fear of judgement. With the critical context of this research, multiple themes revealed themselves in the interview; some of which were inter-locking, and some opposing. Many participants had no conscious competence towards this topic prior to their interviews, and navigating a largely unaddressed educational terrain proved to be an incredibly rewarding challenge as the researcher.

I acknowledge how my own embodied subjectivity as a jazz scholar in context with my social, economic, and political environments shaped perceived reality and experiences within the jazz saxophone educational discourse in South Africa. However, the accounts from the participants illuminated my own struggles with regards to breath control, and the lack of accessible knowledge in the saxophone curriculum. I relate to the struggles mentioned of frustration, feelings of inadequacy in their saxophone playing, and anxiety relating to performance. I did not expect to uncover how deeply the socio-cultural landscape within the saxophone educational system impacted the consciousness of the female saxophonists, and to what extent the trauma and anxiety relating to this context affected their embodied subjectivity as creatives. In my own experience, my positionality is further complicated as their recollections mirror my own personal experiences, and requires self-introspection and acknowledgement of my own bias.

As a female saxophonist in South Africa, I struggled to find texts or methods in woodwind journals to aid in my own breathing process, or what the conscious competent notion of breathing as a practice actually was. This research was informed by my own critical research approach, motivated to address the epistemological gap between the physiological differences and socio-cultural contexts between men and women. I battled to find a connection to the saxophone itself as it felt like a mechanical procedure as opposed to the extension of my own voice. I discovered that this was largely informed by my own struggle with breath control; playing saxophone was not just a battle between the instrument, but also an internal struggle to blow enough air that resonated. I questioned why it seemed that women in particular seemed to have these same breathing struggles.

This research is rooted in its critical pedagogy framework, which makes the qualitative data gathered central to understanding the sociological consciousness from each participant and their perception and understanding of their own lived reality. My intention with this research is to investigate the what impacts breath control, address its impact within the saxophone field, and how it can be adjusted in the saxophone pedagogical framework. I hope to address a largely avoided topic in saxophone pedagogy, with the hopes that the impact will allow for a higher level of critical awareness with regards to the saxophone curriculum, thereby creating a more inclusive space for performers to explore.

I am acutely aware of how my role as the researcher impacts not only the research methodology, but the interpretation of the data analysis itself (Bourke, 2014). Throughout my research, I am constantly and consistently addressing assumptions I may have made in the research process, and

addressing my own critical consciousness and reflexivity. I address my own perceived reality and how it has impacted my research, as well as the possible positionality as perceived from the participants. It is also my ethical responsibility as a critical researcher to acknowledge how I may play a role in subsequently marginalising other people in my research process.

Chapter Four: Analysis of data and findings

4.1 Critical context – classical vs. jazz pedagogy approach

4.1.1 The ontological construction of the saxophone curriculum development

The first theme analyses the context in which the participants started music, what genre of music they first studied, and how their starting instruments played a role in their music education trajectory. Throughout the data analysis process, a myriad of overlapping themes became evident, as the interviewees themselves underwent a process of critical enlightenment and expansion of their perceived reality and educational understanding through the interview structure itself. For all participants, music was a primary educational source of eagerness and willingness to broaden their cognitive consciousness, it was a passion that they all followed. Many of the participants did not start on saxophone as their first instrument, but later changed to it. This unconsciously competent multidisciplinary approach allowed these participants to explore the various aspects within music as a field, and to adopt the various roles they practice. Additionally, the knowledge accumulated on these different instruments, paired with their experiences with their own teachers, undeniably shaped their understanding of breath control and how they employed it in their own playing. Most participants describe their own identity as a musician and educator. Within their identity, their gender-defining identity of “female” and “male” saxophonists are highlighted. The roles of composer, bandleader, writer, and director are also noted as significant attributions towards the identity of some of the participants.

The participants chose saxophone, as this represented a personal association for them. Talia and Hayden were the only two participants that formally began their musical journey on saxophone. Both started saxophone in a classical pedagogical framework at around ten years of age. For participants such as Jara, Otis and Kai, their starting instruments varied from: mandolin, voice, and Eb clarinet as choices of starting instruments. Many participants had educators that did not play saxophone, but ranged from: trombone and piano, to voice and flute. The general trajectory of most participants was starting on smaller woodwind instruments such as recorder, flute, or clarinet, and swapping to saxophone in high school, as they grew physically. Jara notes the role physicality has in playing saxophone “as our fingers grew, so our instruments grew.” Otis shares a similar sentiment with regards to physicality, but rather the negative impact of it. His initial interest in tenor saxophone was hindered by his teacher’s opinion that he wasn’t “tall or strong enough” to play saxophone. Otis’s experience with his first teacher does not however allude to any mention of breath control.

Several participants note from the start of their interviews the significant role music had as a shaping factor in their own perceived reality and critical awareness of education. Andrea noted, “So I started recorder in primary school, and I thought it was the coolest thing ever, and it really was. And then I wanted to move onto a different instrument, and I used to watch my dad. He was in a jazz band, and I would go and watch his gigs. I would go and sit in the front, and the saxophones were in the front, and that kind of inspired me to play the saxophone.” This is mirrored in Jara’s account, as she credits her family environment as the starting point for her exposure to saxophone and other woodwind instruments.

When asked about their own knowledge about the breathing process and breath control as it was taught to them, the participants offered diverse approaches and understandings of the mechanics involved. Sandi speaks to the “layman’s terms” regarding breath control and how it impacted her learning of the concept relating to saxophone. “It’s really difficult to articulate” she says, highlighting the challenge most participants faced when their educators attempted to explain the breathing processes, or how it may impact their saxophone playing. “I think the furthest that any educator has probably gone in my schooling career, was that we need to almost feel as if we are breathing from our tummy to get that full diaphragm movement, and not feeling like we are breathing from our chest. And to make sure that we weren’t using all our airflow immediately, to try a softer and slower exhale.” Besides “utilising the diaphragm”, Sandi was never offered an explanation that fully explained the process of breathing, types of breathing she could use to strengthen her respiratory system when playing saxophone, nor was Sandi ever incentivised to research this topic for her own growth as a musician throughout her schooling career. This is similarly recounted by other participants. Eloise describes her understanding as informed by her school educator as “It was always just, ‘breathe through your stomach’.”

Hayden’s experience is much like Sandi’s with regards to the explanation of breath control in his learning experience during his schooling years. He elaborates how his educator noticed that his breaths were shallow, and suggested that he should “feel” and “breathe into” his diaphragm in order to create a larger sound on the saxophone. “He obviously wants you to breathe deeper, not breathe through your nose and not take shallow breaths like you’re running. But you’re doing an intense breath in. And that always stuck with me.” There was not much explanation with regards to the breathing process in Hayden’s saxophone tutelage, and this explanation without the in-depth cognitive understanding is how Hayden still approaches breath control in his saxophone playing.

Admittedly, Otis also speaks of an experience during his musical career, whereby a highly acclaimed jazz educator presented a saxophone workshop at the tertiary institution at which he was teaching. He recounts the educator "smacking everybody's stomachs" to test for breath control and support. However, no explanation was given as to how that would aid the diaphragm movement during the breathing process, or the relationship the respiratory system has with various other parts of the body that factor the breathing process. Furthermore, it was noted that there weren't any female saxophonists present in that workshop.

Uniquely, Jara provides a substantial explanation of the breathing process and applying it in individual one-on-one lessons. She credits yoga breathing for her enlightened knowledge towards breathing. Jara explains that her critically conscious approach is largely based on her own investigation into the internal sensations that occur during saxophone playing. She notes how certain "pressure" feelings in her lower abdominal region during her playing help with overtones and other exercises that help the sound when playing saxophone. Jara also highlights the role of the mouthpiece and tongue position with regards to air volume when playing saxophone. However, she does not mention the significance of how having a lack of air volume from the lungs during inspiration may impact the volume of air that is then carried to the mouth and mouthpiece during the breathing process. Uniquely, Jara notes how exercises involving the throat differ between her male and female students: "But guys, there's a thing with the Adam's apple. I found that working with male students, we worked on throat exercises, opening the throat. And they found that easier… I remember thinking that's quite weird, because with girls it didn't seem to be so easy to do… I found when we spoke about opening the throat, it was easier for guys to do that physiologically." Jara however does not perceive her lung volume to bother her in her saxophone playing.

Theo presents a visual analogy he uses to help describe the breathing process to his students. He notes that he does not understand the physiological understanding behind it. He uses the description of a "massive elastic band" to describe the function of the body during the breathing process, and how his students should approach the evenness of their sound on saxophone.
"The way I explain it to my students is, if you breathe in, the easiest thing to do is to let it out easily. Your body wants to naturally get it out really easily and quickly. And the thing is, when you're playing, I was aware that you can't do that."

Eloise mentions her struggle with breath control from the start of her learning journey on saxophone, "It probably took me like almost a week to get my first note out, because I wasn't able to blow enough air and I was using a very weak reed. Like a one and a half size reed. So it took me a

week to blow my first note on it." She notes how her teacher refused to start her lessons until she produced a sound on saxophone. Her lack of consciously competent understanding of the breathing processes, paired with the possible physiological impacts caused by the sex differences in the respiratory system, may be contributing factors towards this. Although not recognised by all participants, several noted the effect of these differences. Primary school educators such as Sandi added, "In terms of physically speaking, now that I think about it, once the boys have got their embouchure technique down, and you can generally point out the breathing structure, they don't need as much breath support as the girls need." Kai shared a similar observation regarding these biological differences: "It could be a number of things causing one issue. It could be embouchure, it could be a million different things, so I personally at this point don't know if any of those factors are in play. However, the boys tend to get a note out on the saxophone quicker and faster than my female students."

Although it was not explicitly stated, all the participants value the role their fundamental educators, or lack thereof, played in their cognitive competence in their music education trajectory. Furthermore, their roles as "female jazz saxophonist" and "male jazz saxophonist" impact their socio-cultural landscape that shapes their learning experience entirely. In the following themes, I explore each participant's relationship with their saxophone, their impact of their learning experience, and how they have assimilated their own perceived notion of educational frameworks that they teach.

4.1.2 'Blowing' over the changes

Each participant's relationship with their first and primary educator correlates with their approach or frustrations towards breath control and breathing techniques. Kai's experience mirrors the realities many of the female saxophonists face within the jazz saxophone community in South Africa. He recalls how his experience with his first educator was incredibly negative, and resulted in high feelings of dread and anxiety towards his saxophone lessons. He says, "I was anxious all the time, I hated going to my music lessons. And absolutely. I had no breath control, no control of my fingers. It affected everything. And obviously, if you can't breathe, it's useless." Although Kai's struggle with breath control may not allude to physiological differences, he does point out a distinct and emerging social theme that is prevalent in many of the female participants' accounts. He further explains the complicated nature of his learning experience: "He was a terrible teacher, who used anger and aggression to get the point across, which I don't think is ideal for any child. Moving onto high school,

saxophone became a bit more important to me than singing, and it became a point of toxic men [educators].” Kai’s account shows the significant impact fear, stress, and anxiety can hinder one’s ability to play saxophone properly, and to produce enough airflow to overcome the resistance of the instrument itself. His account also highlights systemic issues that stem from historic patriarchal social paradigms.

Kai’s assimilated knowledge and improvement in breath control only really came into play once he had changed educators, and played in an environment in which he felt safe and comfortable. Here, he was taught by an educator whose instrument was saxophone, but many fundamental saxophone exercises relating to breath control and sound were covered. He stated, “There was a lot of fundamental things that were covered that I think are important. Like long notes; my teacher at the time would always force long notes.” Furthermore, Kai’s account explains his journey with saxophone sound and breath adjustments. “I may not know biologically or scientifically what was happening, but I think my lungs became stronger and I learnt how to control the resistance of the saxophone itself. Which became second nature, and is such a crazy thing to think about, because I never do. I look back now, and I think how much that one thing – which wasn’t explained in great detail – changed my way of playing and sound, and ability to produce a loud or soft sound.” The “one thing” refers to the long notes exercise. This is when a player chooses a single note, and in one continuous breath plays the notes with varying dynamics (soft to loud, loud to soft) without hearing the note “wobble” or become thin in sound texture. This exercise forces the unconscious competence to conscious competence in a player, as the player is forced to actively engage with listening to their sound and how their respiratory muscles feel internally when they are busy with this exercise. Kai also notes posture as a conscious adjustment he made throughout his playing, because “if you’re slouching or angled wrong, it’s taxing on your lungs.”

Otis reiterates how stress and anxiety may impact saxophone playing from an educator’s perspective. He notes how the consciously competence of the breathing process takes a long time for the player to notice in their saxophone playing. “A lot of times, you’ve got so much pressure that you’re using a lot of energy and you’re not allowing the air to travel more freely so that you’re physically hurting yourself. And as soon as you start doing that, you start becoming more nervous and tighten up, and it becomes a catch-22.” Otis doesn’t explicitly state any consistent struggle he had towards breathing when playing saxophone. He notes in his formative years as a student, he had some trouble playing the “low notes” of the saxophone correctly, but this problem went away once he was taught by an educator who provided him with some explanation of the breathing process. He recalls, “He exposed me to using my diaphragm and expanding here rather than my intercostal

muscles, as you are limited at the top half of your chest." However, Otis noted that very little was discussed about the sound or breathing process regarding saxophone playing.

Otis notes listening to saxophone-specific music as a significant attribute in internalising and enlightening his consciousness with regards to the sound and breath control on saxophone. "Getting to play in school bands, listening to records, going to live concerts, so I got the sound in my ear that way." He goes on to further explain how listening and emulating someone playing forces the saxophone player to fully engage with what a good sound on saxophone should sound like, and emulate where you should be taking breaths for breathing. "I didn't realise it at the time, but it helped me develop my sound and breathing, because I could relate…" Otis identifies this technique as being helpful in his development as a musician. However, with this technique, which is identified by a few participants, a majority of the historically famed jazz saxophone recordings jazz saxophone students listen to are male, and no mention is made of adjustments that could aid those who cannot emulate specific breathing points if they struggle with breath control.

Hayden did not note any struggle with breathing throughout his student journey on saxophone, but states, "There was no like methodology to it. [breath control] It's just being aware of it and thank goodness I got that advice early on." He found that playing baritone saxophone was beneficial to his unconscious competence in breathing, as he had to ensure he was producing enough air to resonate within the baritone saxophone. However, Hayden also notes that none of his formative years in saxophone pedagogy was spent in-depth with regards to breath control or techniques.

Uniquely, for Theo, his struggle with breathing and breath control on saxophone started after contracting COVID-19. He explains, "Recently, for some reason, I don't have the lung strength I used to. It could be COVID – I had really bad COVID when it was at its prime, about two and a half years ago. I got really sick, and couldn't breathe and nearly went to the hospital. I'm not 100% sure if it is that, but I find now myself breathing a lot more in my playing." Prior to this, Theo did not experience any difficulty with breathing. The adjustment Theo makes in his saxophone playing post-COVID mirrors the adjustment many of the female saxophonists admitted making on a regular basis with their saxophone playing. Sandi, like Theo, also contracted COVID-19. She states, "I have experienced that feeling like I couldn't get enough. I felt there was still more breath to be taken but I couldn't take it or fulfil that. And that was actually heightened post-COVID. It's only then when I really realised that I had also had it pre-. It was sort of like I just thought, 'Oh I'm tired after playing', which obviously you shouldn't be. Very tired." Unlike Theo, Sandi admitted to struggling with breath control and the breathing process throughout her saxophone learning experience. When asked what

adjustments or advice were given to help Sandi better understand the breathing process, or what she should practice or focus on to aid in her playing, she responds, “I was always encouraged to just take a bigger breath.”

Eloise describes her learning experience in saxophone and breathing as a constant struggle. Like many of the participants, Eloise was never taught the breathing process, nor was she incentivised to research exercises or adjustments that could aid in her playing. “There hasn’t been any guidance or anything to help me” she says, and explains her frustrations with her struggle towards breathing further, “I still struggle to this day with producing those solid notes from the get-go. I genuinely have been told that I play soft all the time, but it’s because it’s always such a resistance when I play.” Andrea’s account shares Eloise’s struggle with breath control. As for Eloise and several other participant accounts, Andrea’s learning experience did not provide an in-depth analysis, “I can’t quote a book or anything, I would just take little things that my teachers would tell me” She explains. As an educator, Andrea also highlights the evident literature gap that affects saxophone pedagogy for women, “I focus a lot on sound production, which inherently also focuses on breathing and breath support. But I’ve never found a resource – because my students, especially at the beginning, are always like, ‘how should I breathe? What should I do?’ and I teach mainly females.” Andrea illuminates the struggle of lack of educational resources that factor in women’s physiological differences in the breathing process, or how an educator could approach the topic. She further explains how she teaches her own female students in the method in which she was taught, which lacked the in-depth explanation of the breathing process. Andrea highlights the need for academic literature that includes this topic, “I wish there was some kind of resource that I could tap into, that was not written by a male for a more male-focused physiology. So sound production for me is very important, but I feel that there is a lack of literature in that regard.”

Uniquely, Inga’s classical background on a different instrument gave her the opportunity to be consciously informed about the breathing process and different exercises to help aid her playing on woodwind instruments. She recounts that “flute was far more focused on the technical aspect and breathing… if your embouchure is bad or you have bad technique, you can lose a lot of air and volume.” Inga was also shown various breathing activities. In one example, she was made to lie on the floor and consciously engaged in different styles of breathing, and noticed how her respiratory muscles felt when she was engaged in breathing. Inga also referred to different analogies educators would explain to her to aid with her breath knowledge, such as she should “think of yourself as a balloon” during the breathing process. However, no mention was made regarding the biological process of breathing, or the physiological differences that may impact the breathing process. Despite

Inga's knowledge of breath control, she admits to still struggling with her breathing at times. "I feel like I want to breathe in an unnatural spot." Inga recounts a male band member questioning why she was making pencil marks all over her music, "I'm reminding myself to take a deeper breath." Inga continuously has to make adjustments in her playing when she feels that she's "going to run out of air before the end of the phrase." For Inga, these adjustments include dropping her volume on saxophone, and "holding back" in her improvisation so that she doesn't run out of her airflow before she's finished playing a phrase. Both adjustments are detrimental to saxophone playing, as they hinder the player from resonating freely with the horn. Inga's account challenges Hayden's suggestion of breathing approach, "Look at the phrase marks, cut it off where it feels natural, don't just cut it off in the middle where you have to breathe. Anticipate where you have to breathe next." Inga's physicality may be hindering her ability to provide enough air to avoid having to cut off a phrase early.

Talia likewise found that her breathing improved once she was shown in-person how to breathe, and what exercises she should focus on in the classical saxophone masterclasses she attended. She found that prior to these explanations, her level of playing on saxophone had plateaued and she struggled to improve without the explanation of the breathing process. "With that knowledge [from the masterclasses], it changed my whole perception of it, and it definitely helped. It also allowed me to investigate circular breathing and all that, which I could incorporate into my playing." However, Talia still mentions her struggles with breathing whilst playing saxophone, despite having the breathing aid to do so. She simply states, "Some of the pieces – that's why I had to learn circular breathing[2] – they are so continuous, and some of the phrases are so long. With one breath that I take, I sometimes couldn't get through the whole phrase that you have to. Because if you break the phrase, the music is destroyed, you know? It was definitely an impact, and I found my male lecturer could play through these phrases in one breath, where I couldn't." Talia also notes how her formative years in saxophone playing where established in a safe environment, and she felt comfortable with her educator to explore the boundaries of saxophone in a classical framework. She highlights a prevalent theme, where many women who studied saxophone in a jazz framework did not experience the same feeling of safety than those studying in a different music stream. The educational topics covered in jazz saxophone education are severely lacking in terms of the incentivised education Talia received.

[2] Circular breathing is a type of breathing technique that allows for a musician to continuously breathe through for a period of time, without taking a breath. The process involves the player storing excess air in their cheeks, and pushing that air out when needed.

Jara highlights the exclusion women saxophonists face with regards to the topic of breathing and their learning experience as a whole. She recalls an interview she had listened to, where a world-renowned university held a summer workshop. It was noted that there was a female student saxophonist that was displaying a "timid sound." By the end of the workshop, the girl's ability to produce a larger volume of air through her saxophone that impacted her sound was noticeable. When she was asked what had changed in terms of teaching, the girl mentioned that a female saxophonist was able to show her which muscles she was supposed to be using, and put her hand on her stomach to help aid the demonstration. Jara explains, "Now a man can't do that in this age" and illustrates an emerging theme of the socio-cultural dynamic that is later analysed in this study, which impacts the educational framework in saxophone: "I think the problem with the gender battle is that good male teachers are scared of doing anything wrong." Jara alludes to the larger systemic issue based in a patriarchal system that impacts the learning experiences of women.

Jara's account shares similar themes with Talia's. She too studied saxophone in an environment where she felt safe to do so, and was incentivised to explore the saxophone. Like Hayden, Jara only became conscious of her competence in breathing when she was put on baritone saxophone, "There was always a focus, my father has a very good sound. He's a prominent teacher… My dad has this really big sound. So you'd stand next to him, and he'd play, and you would copy that. So you do whatever it takes, without probably being very conscious of it." She also notes how assimilating sound as mentioned by Otis was also a significant factor for her. "The breathing thing, it was always just a matter of doing."

4.1.3 Don't stop, 'til you get enough' (air!)

Many of the adjustments made by some of the female participants are found to be detrimental, and lead to greater difficulties with breathing and breath control while playing saxophone. Similarly, Kai's initial struggle with breath control and breathing also supports the experiences of many of the female participants in the jazz saxophone community and education framework. Inga shares the unconsciously emotional aspect of such a continuous struggle with breathing on saxophone, "One thing I get depressed about is not having enough air to blow more air through and project." As Inga plays lead alto in certain instances, having a loud saxophone sound with lots of volume is pertinent. She explains, "For me it's a thing of volume. I need more air if I'm going to play louder, and I do feel that I'm not happy with my sound at the moment. I'm not projecting as much as I want to."

Akin to Inga, Eloise also found having to mark breathing passages or the word “Breathe!” on her music was an adjustment she continuously makes in order to get through a piece of music. Eloise discloses her frustration when playing saxophone, as her breathing impacts her ability to sustain her breath long enough to play what she needs to play. She notes how this difficulty with her breathing adds further stress and pressure when playing saxophone: “For me to put air through my horn, it has to be a conscious decision that I make every time I decide to play a note. It doesn’t just come.”

Despite these feelings of frustration and these hindrances, all the female participants are still actively part of the saxophone scene. They display a great sense of resilience, overcoming not only the resistance of the saxophone, but their own internal resistance to the internal and external obstacles that impact their journeys on saxophone. This section uncovers the crux of the unconsciously competent knowledge of breath control, and how it is not incentivised in saxophone education frameworks in South Africa. Furthermore, the physiological impacts on women saxophonists are explored, including how these may contribute to their difficulty in playing.

4.2 “Those who can’t do, teach”

4.2.1 Unconscious to conscious competence in teaching

Throughout the interviews, each participant themselves underwent a form of cognitive enlightenment, whereby they were able to critically assess new information that was shared with them and apply it to their own sense of reality. As the researcher, I was able to gauge with certain phrases and body language that helped inform the critical consciousness within the interviewee. In this section, the enlightenment in teaching styles and approaches are established.

For many of the participants who are educators, phrases such as “funny enough” or “now that you mention it” were commonly associated with their own critical enlightenment. Theo demonstrates this in his response to whether or not he found that he had to spend more time on breath control with his female students than male students: “I think that now that you’ve pointed it out to me; yes, it is something that has come up a lot more in conversation with my female students about phrasing and they would say, ‘I’m running out of breath’ and I would help find breathing spots in those materials.” He also notes how he made adjustments in his teaching style to aid the students who were struggling to breathe whilst playing saxophone. Sandi’s account corroborates Theo’s. Sandi adds that she found as an educator, her female students required affirmation and “a little more emotional encouragement and support” than her male students. Kai’s account supports Sandi’s and

Theo. “It’s an involuntary action. It’s funny that we’re speaking about this” he responded, highlighting the unconsciously competent action many educators struggle to correctly explain. Kai also added, “Not that breathing into a saxophone is easy, or creating a good sound is easy, but understanding the importance of it can change and revolutionise the way you teach and deal with the student.” This overarches into an emerging theme of what constitutes as a good teaching methodology in saxophone pedagogy in South Africa.

4.2.2 Knowledge vs. knower in adapting teaching methodology

On several occasions, the participants who identified themselves as educators highlighted the emerging theme of how they believe saxophone ought to be taught. Teaching methodology is often presented in a duality of coded themes: the idea of “knowledge”, which is the need to learn special skills, or the theme of “knower”, the unconsciously competent “natural ability” shown in a student (Wright, 2010). All participants acknowledge how their own perceived notion of saxophone was largely assimilated from that of their own educators. Uniquely, Jara did not view herself as having a teacher, but rather that the incentive starts with her, as that is the driving factor that “will get you through everything.” Jara’s view highlights the next emerging theme of what role a teacher should play in a student’s music education process.

Hayden highlights the “trial and error” component that is paramount in any one-on-one saxophone teaching framework. In the jazz pedagogy, “subjective” and “self-exploration” are used by many of the participants to describe how an individual should approach the jazz saxophone curriculum. However, there is no consideration made for women who are hindered in this creative approach, due to their struggle with breathing on saxophone. Hayden further explained the limit at which educators can cross in a “knower” theme: “I can’t make you play well in jazz.” Theo shares a similar commonality within this existing dualism, “You have no hope of developing your sound unless you are listening to saxophone players. There’s the technical and breath control and embouchure side, but the other fifty percent is if you’re not listening to what your ear needs to hear…” Many of the participants who are also educators share the significance of active “listening” and “resonating” with the sound of the saxophone in order to internalise it and emulate it.

Sandi shares her empathetic sentiment with regards to developing a saxophone teaching style in this dualistic framework. She states how her teaching philosophy promotes a safe and comfortable teaching environment, where the student does not feel judged while they are learning saxophone.

Sandi highlights the emotional aspect of teaching, “Of course you want the child to be able to play comfortably and to create a good sound, but that every child requires an individual approach as every child learns in a unique and different way. So I think while I try and focus on the music side of things and fluency on their instrument, it’s also more about a personal journey per child.” Andrea shares a similar sentiment. She further mentions the importance of “individuality” within the saxophone teaching framework, “I focus on what my students enjoy… I allow my students to voice what they want to do… I think that is kind of my focus and what is important to me, because it kind of gets lost in schools, where kids are forced to be something that they don’t want to be.” Jara’s account further debunks the ‘one-size fits approach in teaching, “I am only interested in the individual. There is no standard approach on this.” She also further explores the notion of creative emancipation within the boundaries of a mechanical instrument, and how that instrument should be used to encompass what a musician has to say musically. “It starts with me. How do I become a resonating chamber for my instrument? There’s no me end and saxophone start. That’s what I’m after. So how I achieve that is through breath.” Jara uniquely further identifies herself as someone as an “auto-deduct” who has been successful in filling literature gaps and finding what works for her. However, Jara’s opportunity to interact with teachers who were able to provide the knowledge she was looking for was not based in South Africa. Talia explains the challenge she faced in the local tertiary saxophone framework, “It’s so hard in South Africa because it’s so hard to find someone who actually specialises and can teach saxophone at a tertiary level, you know? To me, the people weren’t informed enough, which was a tragic thing.”

4.2.3 Scapegoat or saviour – what is a “teacher”?

The role and responsibilities of how a teacher is meant to facilitate change within a student is widely argued in academic texts, and the accounts of the participants mirror that. Hayden acknowledges the encompassing role teachers have dependent on the age of the students. At a tertiary level, Hayden is adamant that educators are not there to “baby sit” their students, but rather the students embark on a journey of self-exploration and creative freedom in saxophone playing. He explains, “You’ve got to go and figure this out for yourself. We can look at transcriptions, or what is this guy doing over this chord, and this is why it sounds great. Now go and try it. You know, if he’s playing the blues, go and apply it to when you play over a blues. Try it in different styles and keys. Try and make it a part of you. It’s not like classical, where you just have the sheet music, and I can tell you how to play it.” He does, however, believe that the role of the educator is meant to enlighten and “guide”

the student on technical aspects of saxophone playing such as scales, classical etudes and breathing aid.

Otis views saxophone teaching as a practice of "enlightenment," whereby the student formulates the knowledge assimilated in "their own way." He further notes that not being comfortable with how a student sounds on saxophone will be detrimental to the technical aspects of saxophone playing. Otis describes the "whole body" process of playing saxophone as a repetitive practice of getting used to the vibration of the saxophone during the breathing process to allow the body to be accustomed and comfortable during this process. He states, "That kind of thing where you can get that to happen more consistently takes a lot of time, and unfortunately, I don't think it's something you are going to find in a book. You can be shown the mechanics of it, but there's so many things that affect your sound."

Theo adopts the notion of incentivising his students by means of "inspiration", and addressing each individual student for where they are musically. He notes the duality within the educational framework from his experience of teaching over the years, "There's two aspects to it, one as an educator is inspiration is so important. I think if you can do it and show your students what you are talking about at a good level, I think it's a really amazing advice as an educator. Secondly, I always try to get students interested." Theo highlights the importance of maintaining the student's interest in saxophone playing, and requires reciprocated interest from the educator to sustain the interest and inspiration in the student. He further explains the issue stemming from knowledge that is assimilated from a teacher that does not address the individuality of the student, and their own personal capabilities. "I also felt where things frustrated me in education as a student, those things I've gone and looked at what aspects about that frustrated me and tried to fill those gaps myself if I could in my teaching. All my teachers have had an effect on the style of my teaching." Theo notes how he has adapted his own teaching methodology to suit his students, and believes it to be successful based on the merits and achievements of his own students in the professional jazz setting. Many participants who teach share the same frustration of not wanting to teach the way they were taught.

Kai's experience further shaped his perceived notion of reality, which allowed him to be more empathetic towards his own students. "I took a lot from previous teachers, and I also made a conscious decision to not do things in a certain way that was done to me in the past for the very specific reason that it doesn't aid anyone – a teacher nor the student." He further explains the importance of adapting to each individual student at hand, and tailors his lesson plans to best aid

each student, as they each “connect” to music differently. Sandi, who shares a similar learning experience, noted, “In terms of the actual academic side of music, and the way in which things are explained, and the word choice, and the manner in which things are spoken, I’ve actually tried to achieve the opposite of my university experience.” Many educators, who did not learn to play saxophone in an environment in which they felt safe, or were not in a psychological fight-or-flight response, attempt to create an environment in which their students feel safe and comfortable to learn. Sandi’s experience alludes to an incredibly prevalent social theme that largely presented itself as a hindrance in women saxophonists’ learning experience throughout the interview process.

Eloise, who identified as a student, indicates that the environment created by her high school saxophone teacher was not a safe space in which to learn. She states, “It was a harsh space.” Eloise further elaborates that although the teacher was female, she worked extensively in male-dominated spaces. Eloise felt that the trauma the teacher experienced in her own working environments was then projected onto the student. Eloise goes on to describe that her experience with her university saxophone teacher was also difficult. “I used to cry before every lesson, and that would obviously affect my learning and the state of the work that I would be giving.” Eloise was unable to cope with her anxiety around performance and playing, which was compounded by the disappointment of the teacher, creating a stressful cycle.

Talia’s account shares a common theme with that of Eloise, with regards to the ramifications of educators who do not adopt a social responsibility of continuous learning within the “teacher” role. She explains how her experience in job-shadowing with primary school educators made her realise how severely the lack of “fundamental understandings” the students had of breathing and breathing techniques. Talia says, “They’re taught wrong from the beginning. And it affects everything and pulls them back.” She challenges these incorrect teachings by ensuring that the fundamentals of saxophone playing, which largely includes breathing and tonguing, is included in her lessons with beginner students. Talia places emphasis on the “musicality” and the “bigger scope” of the pieces that are taught in her lessons, and how she can relay information to her students that resonate with them; this is done by listening to other styles of music or engaging in conversations with her students. Talia’s teaching style is mirrored in many of the other educator’s accounts with their own teaching styles.

Andrea notes the challenge of being in the role of a “teacher” while trying to unlearn the assimilated knowledge, or lack thereof, from their own learning experience. “More than I thought, which

sometimes annoys me. [laughs] Because it's so engrained, sometimes I'm not sure where my own voice comes in relaying certain content. Like, the way I teach a major scale, is probably the way I was taught. I would say seventy percent of the way I teach is how I was taught. There's something to be said about the way you were taught, and how that is so engrained in your technique, and how you relay that to the next person versus your intuition and experience around a particular topic and saying, 'You know what, I chose to teach this differently and this is how I'm going to teach it.' But I do think there are positives as well in teaching how you were taught. Not everything is negative." Andrea illuminates the contemporary bricolage framework critically conscious educators can choose to teach in, which yields positive results in their teaching results in saxophone.

Uniquely, Jara identifies how the role of a "teacher" may hinder the learning experience entirely. "I think it's a very silly thing to put that emphasis on a teacher in jazz, for being your hero or mentor or whatever. They will only teach what they know. And that's great, but there are limitations." She presents a cause of why there is a disagreement between the student and the teacher in the jazz pedagogy framework. This is due to the lack of reciprocated knowledge taught from the teacher. Jara's account presents emerging themes presented throughout the interviews, and shares further ramifications of the role of a "teacher", "It requires an understanding from a teacher who is interested. I mean, if you are just teaching to get your paycheck, then you shouldn't be doing it… The greatest players didn't have teachers; they just figured it out on the spot… Now with all this pedagogy and 'Do it like this' it gets confusing."

Despite the role of a "teacher" being vast and difficult to articulate, it is clear that the role encompasses a sort of "understanding" and environment that incentivises the individual student to want to further their own research in a particular field. The ramifications of a "teacher" that does not engage in the reflexivity of critical consciousness when teaching, results in severe educational consequences and levels of stress and anxiety for the student at hand.

4.2.4 Reforming the informing – saxophone framework considerations

A base level saxophone curriculum should exist and be available for all educators, as a platform for them to use when addressing the needs of individual students. A curriculum that is inclusive adopts the notion of "emancipatory education" and allows for the incentivised student to self-explore

further knowledge in the field. Thus, the symbiotic relationship between “student” and “teacher”, and the role reversal between them, results in a critical awareness and consciousness in further teaching methodologies.

Inga highlights the major contradiction in saxophone teaching methodology, “Jazz is so much. It’s so much to take from it and learn. I feel like the teachers often skip the technical stuff to get to the improv. They skip the basics.” Many participants revealed that they did not receive any in-depth explanation or knowledge regarding the breathing process or breath control throughout their learning experiences in saxophone. They cannot articulate consciously competent procedures or types of breathing that can aid students. However, as educators, the participants expect students to have covered this topic in their schooling experience, when they themselves as scholars were not provided with that insight. The participants who did provide substantial explanations surrounding breath control, provided insights from academic texts written by male physiologists, for male saxophone players. The acute breathing struggles many of the women saxophonists in South Africa face are not included in these texts. Furthermore, the socio-cultural environment stressors that physically impact the breathing processes are not discussed.

Uniquely, Jara’s interview shares a heightened critical awareness of the breathing process and teaching methodology in saxophone. Although she was able to learn saxophone in an environment that was safe, which did not hinder her breath control as much as the other female accounts, she did experience the cultural environment that shaped her perception of reality because of her experience as a “female saxophonist.” Jara explains her vision for a saxophone teaching methodology reform, which includes female representation in saxophone teaching and empathy towards the individual student. She noted the importance of “guidance” from an educator with regards to the breath control and techniques to aid that. Jara further elaborates, “Of course, if I was teaching somebody who didn’t have good breath support, I would say, ‘Go and check this out, research this, let’s do long tones, let’s go to yoga.’ That’s my thing. That is who I am as a teacher; it’s not to say anyone else would be. I don’t understand why this isn’t covered in the teaching.” Jara further highlights the education issue that is prevalent in South Africa saxophone methodology, where there is a lack of communication between teachers “teaching” and students – particularly female students – feeling safe in a learning environment to be incentivised and explore these topics further.

Eloise’s reform sentiment supports Jara’s teaching methodology approach that includes female representation and empathy towards the individual student. She believes that had she been exposed to female representation in saxophone teaching earlier in her learning experience, she would have

been more inspired to play saxophone. Eloise notes that breath control and breathing techniques ought to be included as a topic that is taught at a tertiary level, in order to "standardise" the educational framework for students that are at different levels of playing ability in saxophone. She adds, "By standardising these types of things first, you don't feel inadequate when you are learning. University is a place of learning."

Many of the female saxophonist participants highlight an "awareness from educators" with regards to the breathing process explanation and breathing techniques as an aspect that they were lacking in their learning experience in saxophone playing. Sandi explains that if a course on breath control and technique was implemented at university, it may help male lecturers address these physiological differences with their female students and aid those who are struggling with breathing. She also adds how implementing such courses may diminish the bias towards female students from educators who fail to acknowledge the effects of these physiological differences. "It's not of choice," Sandi adds, referring to the biological factors of breathing, "And I think a little bit more awareness around it would be fantastic."

It is undeniable that the physiological impact of breath control in play with the gendered socio-cultural environment both speak to the social stratification of women's learning experiences in saxophone teaching methodology in South Africa. The next thematic analysis speaks to the gendered dynamics that have become prevalent throughout the interviews, and to what extent these dynamics affect the ethos and cognitive consciousness for women saxophonists.

4.3 "Social Call"; the gendered impact in music education

4.3.1 The 'sex' in 'sexual dynamics'

Throughout the thematic analysis, the overarching gender dynamic in saxophone education in South Africa is incredibly prevalent. Many of the female participants make note of this dynamic and how it affected their learning experience, particularly throughout their tertiary institution. However, several educator participants teach from a holistic approach "regardless of gender." Hayden believes that with regards to access to music education, and his personal teaching style, men and women are "an equal playing ground", and issues such as breath control ought to be addressed as any hindrance in the individual one-on-one lessons. Andrea makes the conscious decision not to adapt her teaching style between genders. Her effort is to promote an inclusive space for everyone, and where women feel comfortable to explore their own sound within the education framework she teaches from, "I

try and teach in a way that is empowering to my students, whether they are male or female. Because of the context that I studied in, and the context of the world, the one thing that I can do is be as open and flexible and try and equip my students as best I can so that they can do the best that they can." Akin to Andrea, Jara adopts the "individual" approach in her teaching style, which allows her to tailor her approach to each individual student to address any pertinent saxophone-related issues.

However, the accounts of several female saxophonists who identify as recent "students" or "graduates" challenge the notion of an "equal" education. Inga, who is also an educator, shares her gratitude for not studying in a "jazz" environment first, "'It's different being a young girl, but I'm glad I didn't do jazz first. I feel that if I did jazz first, my playing ability would've been affected by the sociological aspect of it.'" She discloses experiences of harassment, feelings of a lack of safety, and discomfort within a supposed educational and professional setting. Inga also shares how her classical background instilled a sense of confidence in her playing, and knowledge of breath control, "It's not sexist. You know, we are built differently." In Inga's experience, male performers misconstrue women's physicality challenges with breathing and equate to a gendered dynamic. Inga shares an insight into the gender paradigm within saxophone performance locally: "Did I get this gig because I'm good or because he's flirting with me? It makes me constantly second-guess myself, and this is not good. It affects my confidence. Girls have that extra layer of second-guessing."

Inga also displays an incredible sense of resilience. Despite her own struggles with breath control, feelings of inadequacy, she is still an active performer and is a member of many bands and projects. "I don't want to use my sex for my shortcomings. I know I work hard, but I hate it when other girls are bad because of misogyny. It's like, 'No, you're bad because you don't practise. Men like to latch onto blaming women for their musical shortcomings." Inga highlights the systemic issue women face. It is the patriarchal system that pits women against women in order to be "accepted" by a male standard, and women are scrutinised to a much higher degree than men (George, 2020).

Sandi speaks of her physiological challenges with regards to breath control and how this impacted her learning experience in saxophone. In her experience, her education process was spent "trying to get through" her challenges with breathing on saxophone instead of developing her technique and what she wanted to play and sound like. She also recalls instances where there may have been deductions in her marks and exams because of her challenge with breath control. Sandi explains how a "stronger sound is deemed more impressive", whereas if a female student was taking a practical saxophone exam or assessment and didn't display the same strength in sound because of a reduced

airflow, the mark allocations would negatively affect the female student. Sandi also reveals instances that mirror those of Inga's. In Sandi's lessons, she has heard the phrases "You need to blow more air through your instrument: You need to blow like a man" throughout her tertiary learning experience. For Sandi, her education left her with incredible anxiety and trauma relating to her lived experiences in a classroom setting where she was meant to feel safe and included, and an environment where she could grow as a saxophonist. She concludes her learning process as such, "You know, no there was never an interest in what I perceived myself to be or what I perceived my sound to be. I feel that only after having all of those one-on-one lessons and actually only after leaving university, did I actually truly find myself. They [educator], if anything, instilled such an anxious state into my performance ability that I sometimes had disinterest in playing, because I was too scared of not being able to simply play what I wanted to play. And not being able to sound what I wanted to sound like." Talia shared a similar account to Sandi's with regards to her marks being impacted by her inability to sustain a breath long enough without breaking a phrase during her exam. This is despite her in-depth knowledge and practice of breath controls and techniques.

Eloise shares similar sentiments. Like Sandi, her education process has been significantly impacted by the gender dynamics at play within the institution that are meant to enlighten her consciousness. "I've heard it countless times" She says, referring to sentiments such as "You need to blow like a man" in her saxophone classes and band rehearsals. Eloise recalls various instances where her challenges with breath control resulted in explicit bias that affected her emotional and psychological state. "Because I play in bands that are ninety-five percent male and the other female in the band would be the vocalist. So I'd be the only female instrumentalist. So, nobody else would understand and they all take for granted that pushing in air through your horn is easy. But for me it's difficult. And definitely I've gotten a lot of snarky comments like, 'You're just doing that because you can't actually play' or they assume I don't know what's going on. But it's because I'm so worried about what's going on I'm forgetting to breathe properly." These instances have left feelings of inadequacy, doubts on Eloise's abilities as a performer and emotional scarring. For Eloise, a curriculum that considers these factors would help erase such instances for other women in the future. She explains, "I definitely think the breathing thing [should be included], because for me it was such a struggle. Even if I was taught on how to breathe from a male's perspective, I probably would've still struggled but I would've had a strong foot to go off on, and that would've helped. I think breath control and techniques should definitely be taught at a primary and high school level, and even in a first-year tertiary level, because you can't just assume that someone has gone through that." Eloise reveals that, despite these instances, she actively pursues spaces in order to practice and improve in her playing. She notes that she does not feel safe in "male-dominated"

environments, and “practice rooms” at her institution, as she feels the judgement is “ten times harsher” because she is a female saxophonist.

Despite learning classical saxophone in an environment where she felt safe and comfortable to play, Talia notes how playing in a “jazz” setting makes her feel uncomfortable and unsettled. She reveals an instance from high school, where she was selected for the final round of auditions for a school’s band at a national jazz festival. She recalls, “You feel out of your depth, and unsettled. You know, we were the only two girls in that room. And definitely, there was a huge male presence that was so immature oh my goodness. I would say I was acutely aware of the fact that I was only one of two females in that room.” For Talia, it was not just experiencing anxiety relating to performance, but she recalls how being “one of two females” in a classroom and audition setting meant that she was subjected to countless stares and feelings of hostility from her male counterparts that made her feel uncomfortable.

Uniquely, Andrea herself was not subject to experiences and instances where she was personally made to feel inadequate or unsafe due to her gender in a male-dominated space. However, she does acknowledge the experiences of other females and how the educational framework surrounding saxophone impacted that. She elaborates that having a “one size fits all” approach is problematic in saxophone teaching, where the male-dominant presence at institutions influence a male-dominated style of teaching that does not cater the challenges women face in jazz saxophone education. Andrea further notes, “Perhaps lecturers should’ve been a bit more aware, but I also think it was the way that things were done, which is a very poor excuse. I think that there is a lack of female presence, and female mentors, who can challenge the system.” She believes the female presence in saxophone teaching would help create a more inclusive environment in saxophone education. In her own teaching style, Andrea consciously challenges the “system” that precludes females, and displays incredible empathy and strength as a critically conscious educator. She states: “I find in my experience teaching males and females, there’s more willingness in certain aspects of performance – improvising is a big one – where I feel like males would, for some reason, have a bit more willingness. But I also have my students try and go for it. But I do feel that I have to prerequisite [females] with, ‘there’s nothing to lose, you’re great, you’re amazing, it’s okay no one is going to judge you’ But that is obviously stemming from horrible systemic issues.”

All the accounts of female saxophonists allude to the larger “systemic issues” that impact their spaces in an education system that has emotionally and psychologically harmed them. The next

theme unpacks the effects that these issues have on women performers, and continues to silence their sound.

4.4 Subjective embodiment

4.4.1 The effects of stress and anxiety relating to saxophone

Otis, who has since moved to another country, shares his experiences of the socio-economic environment that further hinders an "emancipatory education" and freedom of practice in saxophone methodology. "Teaching in South Africa, you have other issues to deal with. You know, like is the student going to come to the lesson because of transportation? Is there electricity? Unfortunately, I must say this, the stress of living in South Africa I do not miss. You know, I can go outside my door, I can walk at two o' clock in the morning and there's never a problem. Nobody hassles me, there's nobody asking you for money… Look there are problems everywhere, but in South Africa, you just have so many things to worry about."

Jara illuminates these systemic issues further, and how these feelings of a lack of safety and stress are magnified for the female performer. She explains, "South Africa has the highest rate of abuse against women and children. I mean, come on. We live in fear, and that is a direct effect on your breathing. Trauma, anxiety, things like that, those are the social practices that are making it. Men don't have that. They don't have to worry about driving to the gig, and thinking 'What happens if my car breaks down?'… The stress of just having to be on stage is so immense…" Jara believes that if female saxophonists have visibility in their fields of occupation, they fulfill the role of "role model" for younger female students, who may be inspired to continue their learning journey on saxophone because of the "musical validity" from this visibility. She further notes how it may be a traumatic experience to play saxophone in an environment that is not welcoming to someone, musically or socially, "Women need a different type of nurturing. It doesn't mean that you have to teach them completely differently; but if you want to get the best out of that musician, you need to get a little bit out of your own ego [as an educator]."

Many of the female participants have shared ongoing experiences in their educational process that has exposed them to prolonged states of anxiety, trauma, and stress. In this "fight-or-flight" response, the brain's cognitive function of retaining information that is taught is impacted (APA, 2018). In saxophone methodology, this includes musical information such as scales, transcriptions, phrases, and pieces. Much of this information is required to be memorised. Sandi shares the effect her harrowing experience in saxophone education caused her, "It was incredibly severe. At one point

I even had to go on anti-anxiety tablets during my time at university, my medication was increased as the years went on. And I had an emergency sedative for if I was having an anxiety attack on campus. I used to fear walking past certain lecturers' rooms and felt an incredible sense of a full body tension take over; stiffness, breathlessness, feeling faint sensations and all of that sort of thing." As a result, Sandi is incredibly "hesitant" with whom she feels comfortable to play. She discloses feelings of "hypervigilance" and scrutiny towards her playing ability whilst performing with her lecturers in an academic setting. She experienced a big-band setting as detrimental to her playing, as many of the "older males" explicitly doubt her playing and improvising abilities: "There's most certainly a trauma socially and performance wise. Something which, as a creative, I don't think anyone should have to feel."

Eloise recounts a similar traumatic instance in a big-band setting, where she was the only female instrumentalist present. She was in Grade 11 at the time, and the big band was meant to be a form of jazz education for those in the big band. She recalls heightened feelings of anxiety and stress, and a fellow male saxophonist said to her, "Play loud and play like a man, don't be afraid of your instrument it won't bite you. You chose this, so do it properly." Eloise explains further, "The person who said it to me is also a saxophonist. It was my first time on the jazz scene, and that comment has stuck with me. It already set in my mind that they don't see me as an equal – not necessarily because I can't play but because of a simple thing of not being able to push enough air through my horn. I'm not taking into account the nerves and the fact that I was 16 and they were all university students already, and stuff like that. The comment really made me feel uncomfortable; I knew from then already that I was not seen as an equal in the band and that I was just there because they needed a girl. That was definitely what I took away, because that comment was said out loud for everyone to hear and no-one said anything to correct the person. Everyone just went along, and even the director said, 'Okay, let's just move on.' That was it. It made me feel very inadequate, and I still feel uncomfortable when playing with that particular person, just because I know that that's how they'll see me for a while, until I do something extraordinary to prove myself." Eloise's account outlines the ramifications of a gendering of jazz saxophone education. For Eloise, these physical symptoms of her trauma and stress relating to saxophone education have resulted in her consistently taking anxiety medication in order to perform saxophone in an educational setting. She describes her physical manifestations as such: "My breathing is very irregular, my thoughts will start racing and I will start thinking about all the things I shouldn't be thinking about, and then my breathing goes out; I have a lump in my throat, which stops my ability to breathe in and out properly."

Eloise further mentions experiences of gendered bias that is akin to the other female participants' accounts. She too challenges the idea of a male-dominated space, having experienced questions the presence of women in an education setting. Eloise explains, "I think that the representation of females in the saxophone scene in South Africa is very little, so firstly, seeing more females playing my instrument would encourage me a lot more than having to look up to all the male players – and this is not to take away from the way they paved and pioneered the saxophone – but it's just, I want to see more of my type of people." She believes that if there was female representation included academic texts that are taught at university, it may change her lecturers perspective of the validity of female saxophonists in the jazz industry in South Africa. Eloise discloses the impact of the gendered bias she has experienced, "We don't feel comfortable enough to play, and it's very discouraging to have to play on a bandstand with all males all the time. So they just assume because we don't play, our music isn't valid, and our talents aren't valid. That's the attitude of a lot of my lecturers, I can definitely tell. To make it a safe space, they need to first believe that females can and will do it, and they need to be as encouraging as they are with my male counterparts and peers. It's so different to the way that they interact with males to the way they interact with females. My education was 100% impacted because I was a female."

She further challenges the role of the "teacher", and the impact educators who are not critically enlightened themselves have on their students. Eloise states, "I think I walked into a room, and they had this pre-conceived idea of what I could play, and I was never going to amount to what they wanted me to. It was very little effort put into my lessons, whereas if I would listen into another one of my male peers' lessons, it would always be very enthusiastic, and they were asked what they wanted to learn and all of that stuff. In my lessons, it was more of, 'You need to do this this and this' and you don't have a choice whether you want to do it or not. It took the enjoyment out of music for me. I don't think they ever saw me as a professional musician, or wanting to become that standard. It had an effect on my education. I do think it's changing, because I'm becoming more assertive in what I want, so I'm asking more for these things, but in conversations with my male peers, they never even have to ask; they're just welcomed into that environment. So the fact that I have to ask to be taught is also a thing, you know?" This was mirrored in several other female saxophonists' accounts, where they felt their learning experiences were hindered by the lack of individual material taught in their lessons. Instead of incentivising a student to self-explore and develop their own sound, the learning experience for many female saxophonists in South Africa has been an agent of traumatic inflexibility, further diminishing their presence in the saxophone field.

In their reflexivity process, some of the female participants shared the notion that they would not pursue music as a career, if they hypothetically had the option to re-start their professional careers again. Those that would still choose to pursue music still hold the view that their educational journey was "stunted" from the emerging themes presented throughout this chapter. Eloise and Sandi both explicitly state how they would change careers. Eloise elaborates, "I would've rather taken a gap year to work on my matric subjects, and go into medicine than take on music. Music is my passion, but I think the industry and the university scene is so disheartening, and as a female it's not a safe space for me. I am going to finish, but if I had the choice to go back and chose something else I definitely would." Admittedly, Sandi reveals that despite positive reinforcements in her music journey where she did feel comfortable to express what she had to say musically, "from a point of anxiety, and from a point of marginalisation, I wouldn't do it. It weren't for the awareness of a certain few individuals and the mentorship of those few people; I don't think I would be where I am now. But having gone through all of that I have – due to the males in the industry – I would definitely not choose that again. No."

4.5 Conscientisation

4.5.1 The soul and saxophone – who am I?

The critical thinking throughout the interview process was that of the notion of "sound" and what constitutes as "conscientisation" in saxophone playing. Jara describes this consciousness as such, "And that is the point where you need to drop it all and go to the core; why am I playing this instrument? Why did I find this thing that makes sense to me?... Playing a horn is just a physical extension of me." Some of the participants revealed distressing accounts of harm towards them as "women" and "student." These experiences shaped their perceived sense of reality, and ultimately shaped – or constricted – their sound, and their connection with their instrument. Jara further highlights the ramifications of not having a conscientised education experience: "I feel that if somebody doesn't have good breath support, it should be a priority. Because breath is, as you say, life. And if you don't have resonance in your instrument, if you don't feel that connection between you and your instrument… Music is not about the notes you play. Music is about getting what's inside you out. And if that is not coming out, your sound will suck. You will have nothing."

All participants were able to critically assess their role as a "student" and "educator", and their social responsibility as such. The male participants displayed an attitude of "adaptation" and welcomed

the notion of enlightening their own perception of jazz saxophone education, and how it may be exclusionary for women with regards to their physical limitations. It became clear that the lack of fundamental knowledge with regards to the breathing process and these biological differences stem from a historic systemic educational praxis that is designed to exclude those who are not deemed significant. However, the female participants debunk and challenge the very notion of jazz saxophone education in South Africa, as they continue to perform and contribute towards the academic discourse despite the environment that is meant to discredit and devalue them.

Chapter Five: Final Discussion Chapter

Jazz saxophone education discourse has yet to include adjustments for breath control and breathing techniques that aid female saxophonists when playing. Furthermore, it does not consider the gender dynamics that intersect within the jazz education praxis. This dissertation has explored the overlapping themes of socio-cultural and gender dynamics that influence the critical consciousness of jazz musicians in South Africa. As a researcher, I was self-reflexively able to hypothesise the research of the physiological differences between men and women and how the gender dynamics of these differences may impact the learning experiences of women saxophonists in South African jazz.

I undertook research that medically proved the physiological differences between men and women have a qualitative impact on the breathing process for women (LoMauro, 2018; Becklake and Kauffmann, 1999; Cory et al., 2015) The lack of academic research on this topic with regards to its impact on women evidences how profound the gender paradigm is in academic literature (McKeage, 2004). The qualitative approach allowed me to investigate how this topic, which is rooted in an educational framework, impacted the social stratification of women in the jazz saxophone arena. Cited literature investigating intersectional critical research highlighted the ontological vocations within the jazz pedagogy discourse (Wright, 2010: Freire, 2000: Kincheloe et al., 1987). Reviewing this material allowed for a critical assessment of the medical evidence presented in this dissertation and employ a methodological bricolage framework to illuminate the social landscape that shaped the lived experiences of women in an educational jazz environment. The social landscape presented obstacles such as: the unconscious competence in teaching methodology in South Africa; the role of an educator; the gendered impact of music education and the severe effects the lack of conscientised education has on the individual student in saxophone teaching methodology in South Africa. This research has allowed me to provide an insight into a topic that does not factor in its social context, nor is it visible in academic texts that are meant to enlighten the critical consciousness of the student or teacher.

This investigation into exploring the physiological differences between men and women and its impact on woodwind playing led me to uncover a myriad of intersectional themes that highlight the gendered impact women saxophonists face on a socio-cultural scale. The 10 participants interviewed retold their lack of accessibility of breathing techniques that could aid students, as well as their own unconscious competence towards the process of breathing. The six female participants mirrored lived experiences of those investigated in South Africa, that are rooted in a systemic patriarchal

environment that influences the critical consciousness of these women performers (George, 2020: Moelwyn-Hughes, 2013). The participants speak of their own teaching methodologies that are largely assimilated from their own educators, and were subject to a saxophone educational framework that did not enlighten their own critical consciousness. The women participants recount their lived experiences as a result of the gender paradigm of power within the saxophone pedagogy, and how it further excludes the value of their creative contributions. In this chapter, I analyse the links between the data collected and the literature review arguments that substantiate the data analysis.

5.1 The Jazz Saxophone Praxis and Agency

Within jazz saxophone praxis, there is a core facet of "musicking," that is meant to instil the meaning of social interaction and "explore, affirm, and celebrate" the relationships that allow for the humanness of "doing music" (Wright, 2010:248). The dualism that is uncovered is that within the jazz saxophone educational framework, what is meant to be a practice of "inclusion and peace," is equally a practice and celebration of a social paradigm that celebrates "hierarchy, power and alienation" (Wright, 2010:248). Small (1983:65) argues that the meaning of music praxis has no "elemental implication" of acting as the cultural producers of "the good." He observed that the perceived realities of musicians at a school level convinces impressionable young students of their own "unmusicality", thereby shaping their own critical consciousness for years to come (Small, 1983:65).

The role of the "teacher" is critically observed and analysed, and is subject to various definitions and ideologies of what the "role" of a teacher should encompass. However, as supported by all the participant's accounts, the role of a teacher is one of "enlightenment", and a guiding figure that promotes "adaptability and change" in the cognitive awareness of the student (Freire, 2000). I expected to investigate how the lack of supporting academic literature with regards to the physiological differences between men and women may be prevalent. I did not expect to uncover how deeply entrenched the gendered aspect of jazz saxophone pedagogy is within the social landscape in South Africa, and its design is of such to further exclude women from feeling safe and comfortable in a setting that is meant to promote inclusion and creativity. Participants such as Eloise, Sandi, and Kai admit how being subject to an educator that practices according to such

ideologies of power and alienation caused them immense psychological and emotional harm that has altered their perception of reality and agency in jazz education.

For many of the female participants, harrowing accounts of anxiety, stress and trauma relating to the jazz saxophone educational and social framework heightened their own internal feelings of inadequacy (Wehr, 2016) and resulted in the external use of medication to deal with these psychological factors. It is medically proven that the long-term effects of stress and anxiety impact all systems of the body, particularly the respiratory system, nervous system, and musculoskeletal system (APA, 2018). The symptoms of long-term stress and its detrimental effects on the body's health include: frequent headaches, tension in the muscles (particularly the back and neck muscles), shortness of breath and rapid breathing, and the autonomic "flight-or-fight" response, which triggers the hormones in the brain to increase the respiration rate and blood sugar levels to deal with an perceived "enemy" (APA, 2018). Many of the female participants noted the long-term exposure to such symptoms of stress and trauma, which undeniably has an impact on their cognitive function when learning jazz saxophone. Instead of being able to assure the body and mind that jazz education is "safe", these constant experiences of stress and anxiety may have altered the mind's perception in women saxophonists that jazz education is in fact an impediment.

Akin to George (2020), this research further uncovered and supported the notion of "ideas of self-doubt" in female performers, as the socio-cultural climate within the jazz community they experienced intensified their "epistemological doubt" and shaped their perceived reality of being a "women saxophonist." Furthermore, as reflected in the data analysis, female saxophonists do not have the same environment to freely explore or create their own sound, without fearing the judgment and perception of their ability (Lawson, 2011).

5.2 Educational Gatekeeping

The critical pedagogy approach that jazz saxophone methodology is founded in a dualism of "knowledge" and "knower", coded themes that further shape the educational praxis. The notion of "transcending polarisation" is encouraged in critical thinking, as it challenges the binary system through which humans innately tend to synthesise their perception of reality (Wood & Petriglieri, 2005). The role of the teacher is complex; they are required to enlighten their own critical conscious and adopt the notion of "moral liberation," that transcends the implicit social hierarchies that places

judgments on students (Allsup & Westerlund, 2012). This study reveals the severe implications a morally deliberated teacher may impose on their students.

Aróstegui et al. (2004) argues for the epistemological trajectory of music education worldwide, and how music curricula are traditionally formed from a propositional praxis that influences the ontological perspective according to which students construct their own perception of reality. The need for a music curriculum that fosters the holistic development of each individual student debunks the one-size fits all approach that is for the most part employed in current music education (Aróstegui et al., 2004). The findings of this interview support such an ideology, and are mirrored in Freire's (2000) critical pedagogy methodology framework.

Several female participants alluded to the implicit bias that occurred from lecturers and figures of authority that further hindered them from receiving an equitable education. Some male participants recounted instances where they were physically and emotionally subjected to harsh teaching styles from male educators. Both accounts from male and female participants support the ramifications of "the story of instruction" of implicit bias and paradigms of power uncritical educators operate from (Allsup & Westerlund, 2012).

5.3 Music and Marginalisation

The accounts of the female participants with regards to their learning experience in jazz saxophone illustrated significant "gendered delineations" and inherent perceptions of their identity as a "female saxophonist" (Wright, 2010). Wright (2010:152) concluded in her research that the music educational framework in schools "reproduces enduring historical patterns in musical practices according to gender."

This research supports the findings of George (2020) who notes that in male-dominated spaces, including educational and learning settings, male musicians and educators "covert methods to undermine their ability to participate as freely as men do" (McLaughlin, 2015:42). The resistance of women saxophonists challenges the inherent meaning of jazz saxophone methodology, as they still perform and take part in these environments that do not support their cognitive growth as creative beings.

Wright (2020) argues that “a number of avenues” are available for music educators who use their own reflexivity to challenge the gendered musical practice within the pedagogical framework of jazz saxophone. These avenues include: female representation that includes works from female composers and providing “role-models” of both male and female musicians (especially female instrumentalists who do not play conventional instruments “for their sex”), and acknowledging the individual educator’s own assumptions and pre-conceived notions of “unfairly labelling girls as lacking compositional spark” in the music education discourse (Wright, 2010: 153). Many of the female participants, namely Eloise and Jara, highlighted the reforms they wished to see change in the jazz saxophone curriculum in South Africa and worldwide.

Many of the female participants alluded to their struggle with breathing and breath control relating to saxophone, and highlighted the lack of support and consideration from an uncentivised saxophone curriculum and educators that are meant to “guide” and support their critical enlightenment as saxophonist students. The lack of literature in woodwind breathing journals themselves highlights historic patterns of a socio-cultural patriarchal paradigm that hinders their value and presence in the jazz community (Moelwyn-Hughes, 2013). Admittedly, most of the male educators welcomed the notion of empathy and consideration given towards their female students, and acknowledged how their critical perception of reality did not previously include these physiological factors as obstacles in female saxophonist’s playing. Through this research, these participants expanded their own embodied subjectivity and were able to critically relate to how their agency plays a role in the music journey of others.

5.4 Critical Consciousness

The embodied subjectivity of each participant is informed by the subjective and objective reflexivity of socio-cultural norms (Williams, 2014). Medical and cultural factors shape the perceived realities of each individual. For women saxophonists, their “being-in-the-world” is correlated with their struggles, as their mental cognisance is “realised” through their physicality (Williams, 2014). The socio-political landscape South African women instrumentalists face is uniquely layered with complex social themes that result in physical manifestations that hinder their growth as saxophonists. Findings presented in Moelwyn-Hughes (2013) and George (2020) support the challenge women musicians face in dismantling social stratifications that diminish their gender and opportunity to receive an equitable education. The female participants display incredible resilience

in the field of jazz saxophone pedagogy, as they continue to contribute musically and academically in an environment that is to their psychological and physical detriment. Despite the exclusion of "social integration" (Wright, 2010:3) women instrumentalists face, they continue to challenge the traditional education system by simply resisting leaving the discourse that does not allow them the freedom of "acquiring critical consciousness" (DNS, 2022).

Chapter Six: Conclusion

Aróstegui et al. (2004) maintain the need for a critical music education framework which "fosters experiences" that develop interpretive perceived realities of both the student and the teacher. Wright (2010:276) argues that any pedagogical discourse that does not "explicitly take account of issues of oppression", which includes all social factors such as sexism, racism, and classism, "supports the status quo by default." The consequence of upholding such exclusionary historical educational patterns delineates the agency of "transforming social consciousness" and expanding social change (Wright, 2010:276).

I believe the findings of this research support the researched literature and key arguments presented throughout the critical pedagogical framework methodology. Wright (2010:276) argues that music systems worldwide are "exclusive, elitist and hegemonic" to those who are deemed "unmusical" and thus marked as "unexceptional" in terms of their learning experiences. However, there remains an academic literature gap that investigates acute medical findings of women's difficulty in breathing with regards to saxophone playing as a result of the gender dynamics that influence their nervous system and cognitive function. There are crucial disparities in research that are specific to women's physiological struggles with breath control in saxophone playing, that are worsened by social stratifications, which cause immense stress and prolonged anxiety. My research hopes to highlight a critical consciousness required in jazz saxophone education. Furthermore, this research aims to illuminate how the lack of substantial educational frameworks impact the hegemonic social landscape that elicits explicit bias towards women performers, and diminishes their presence within the jazz community in South Africa. Saxophone educators serve as the agents of a "democratic praxis" within the jazz pedagogical framework (Wright, 2010), but failure to acknowledge their own positionality and embodied subjectivity within the role of a "teacher" has dire consequences in the promotion of an "emancipatory education" for music students to come.

In my own acknowledged positionality and reflexivity, I expected to hear experiences of women struggling with breath control, and displaying feelings of frustration towards a jazz praxis that does not make adjustments for such topics. This expectation was mirrored from my own experience and shaped reality as a female saxophonist and student who was taught in the jazz pedagogy framework. However, I did not expect to discover the extent the physical and psychological manifestations women saxophonists endure, from gender dynamics within the education curriculum that continues to erase the credits of women performers. Once I started my interview process, it became

undeniably clear that the highlighted literature gap stems from a historic hegemonic pattern that is detrimental to both the educator and student at hand. Admittedly, male educators presented welcoming attitudes towards their own critical consciousness towards their own teaching styles throughout the interview process. However, their lack of fundamental knowledge of the breathing process and the awareness of these physiological differences bears the consequence for their female students at hand, and speak to the historic patterns for which the traditional music education system was established. From these ten interviews, it is clear that male participants are interested in becoming agents of change within their own perception of reality, but lack the substantial resources to conscientise themselves, let alone their students. For female participants being a "female saxophonist" comes at the expense of a safe and inclusive learning environment. Jazz female instrumentalists are further marginalised by the products of the social stratification in jazz education; the feelings of doubt, the discrediting and devaluing of womens' contributions in an educational setting, and breathing techniques and aid that is included in the saxophone pedagogical discourse. These female participants are further challenged by a myriad of layered social codes that further delineate the construction of a "democratic right" of "inclusion, enhancement and participation" within the educational framework of jazz saxophone (Bernstein, 2000). Similarly to George (2020), the data presented in this research illuminates the repeated infringements female saxophonists have with regards to their holistic educational experience in saxophone.

The scope of this research is not without its limitations. This research investigates medical findings based on a heteronormative and binary code of gender and sex. The terms "men" and "women" have been used extensively to identify the social dynamics that hinder "social consciousness" (Wright, 2010). However, these binary definitions exclude those who do not identify within the sex and gender of these binary positionalities. It is not my intention to exclude those who do not fit into the binary concept, however it is crucial that I acknowledge and address the further marginalisation of those said identities.

This dissertation contributes towards the critical pedagogy framework that promotes critical consciousness, but in the process excludes the marginalised identities that exist within the jazz education system internationally. There is room for research that investigates the medical occurrences in trans people, and how they adjust these teaching styles to navigate an exclusionary educational curriculum and environment. This presents scope for future research, expanding on medical studies that have not previously been researched and acknowledged the biological challenges trans people face, and the impact the hegemonic and unliberated curriculum jazz

saxophone currently adopts has on them. This research contributes towards the critical pedagogy and sociology approach by expanding the consciousness of these participants through the interview process and highlighting a gender paradigm within the educational framework that impacts women saxophonists. I analyse various saxophone teaching styles within South Africa, and uncover how the correlation between a non-critically conscious educator results in a student that cannot influence their fixed perception of reality. It is in this polarised binary thinking concept that inclusive educational topics are further barriered and "educational emancipation" is further convoluted. Akin to Wright (2010) and George (2020), I hope my contribution towards the academic literature of jazz saxophone pedagogy in South Africa leads to critical transformation, and highlights the importance of inclusionary social structures for all social groups. It is hoped that this research incentivises jazz educators and students positively in the South African educational praxis, and creates the conversation of critical pedagogy.

Throughout the research process, I was constantly addressing my own perception of reality and bias that may be embedded in my own embodied subjectivity. I was initially uncertain of adopting the role of a "researcher" in this investigation, as I feared my subjective positionality may hinder my research. However, the accounts from all the participants made it undeniably the case that such research is needed in the academic discourse, so that future educators and students are equipped with the incentivised tools to develop their own critical thinking in jazz saxophone pedagogy. Participants retold their experiences with much emotional and social knowledge, and the female participants recounted such harrowing educational experiences stemming from their breathing challenges, they not only affirmed the questions presented in the research, but expanded my own perception of reality.

The learning experiences of all 10 participants allude to the need for conscientisation in the saxophone pedagogy framework in South Africa. The lived experiences of those participants who did not learn in an environment that was safe or conducive to their critical growth as a musician affected their psychological and physicality when playing saxophone, thereby hindering their educational journey. The lived experiences of women saxophonists account for the resilience and resistance against the hegemonic epistemological beliefs in jazz education that impact the female creative. Froehlich (2007) describes music education as a "music force" that upholds the values of the critically conscious student that is able to become the "co-constructors of knowledge" (Wright, 2010:260) rather than the recipient of a "delivered system." To varying degrees, each participant

exhibits their own ability to construct their own perception of reality, and highlights women who continue to act within their agency in bringing about social change.

Ahmed (2017) defines this agency as the independency of will, as women saxophonists continue to flourish in a music environment that is hostile and diminishes their ethos. Only when the perceived neutrality of jazz saxophone pedagogy is critically challenged, and the participants of its moral deliberation “explore, affirm and celebrate” (Wright, 2010) the humanness of music, and its promotion of inclusivity and peace, will the conscientization of jazz education in South Africa encompass the freedom of “emancipatory education” (Freire, 2000) for those who have historically been subjected to the invalidation of their sound.

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Appendix A: Ethics Clearance

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SACM
THE SOUTH AFRICAN COLLEGE OF MUSIC
Founded 1910

25 August 2021

HDC REF: 12/2021

Dear Ashley

Project title for MMus: Gender dynamics in saxophone teaching methodology in South Africa

Thank you for your ethics application dated 24 May 2021. It is my pleasure to inform you that the above-mentioned study has been formally approved.

The completed forms should be submitted to Sheila Taylor for record keeping.

Approval is granted for 2 years.

Please submit a brief progress report if the study continues beyond the approval time frame.

The on-going ethical conduct remains the responsibility of the principal investigator (the supervisor).

Please quote the reference number in all your ethics related correspondences.

Yours sincerely,

Associate Professor Anri Herbst

Ethics representative
Higher Degrees Committee
Faculty Ethics Research Committee

Appendix B: Interview Questions

Note: Full transcriptions of interviews available on request.

Male Interviewee questions

1. How would you describe your learning experience in saxophone?
2. Were you ever taught any breathing techniques or physiological differences between men and women in your educational experience?
3. What is your knowledge prior to this interview of the breathing process?
4. Do you incorporate any breathing techniques in your lessons? If so, what are they?
5. Have you ever struggled with breath control with regards to your saxophone playing? If so, what adjustments or alternative methods did you use?
6. How would you describe your teaching style/philosophy?
7. From your teaching style, how much would you say is assimilated from your educators?
8. Do you agree with the critical pedagogy framework?
9. How do you prepare for a general one-on-one lesson with our saxophone students?
10. Do you find that your lesson concepts and approach differ between your male and female students? I.e. Do you find that you are needing to spend more time on exercises and content relating to breath control with your female students compared to your male students?
11. Do you adjust your teaching style between your female and male students? If so, what amendments or adjustments do you use?
12. Going forward, now that you are aware of these physiological differences, do you feel that you would adjust your teaching style or be more aware of how you can assist your female students? What reform would you use in your teaching style to aid your female students?

Female Interviewee questions

1. How would you describe your learning experience in saxophone?
2. Have you ever struggled with breath control on saxophone? If so, what playing adjustments or breathing techniques did you use to help you?
3. Were you ever taught any form of breath control or techniques in your education experience?
4. Have you felt that your breath control impacted your ability to play saxophone? How so?
5. Do you feel that your difficulty with breath control impacted your education on saxophone with regards to marks and results? If so, how did it make you feel playing saxophone?
6. Have you ever heard the following phrases in your one-on-one practical lessons? (“You need to put more air through your instrument” “You need to take a bigger breath” “You need to blow like a man”)
7. What reform would you like to see implemented in jazz saxophone pedagogy or curriculum?
8. Do you agree with the critical pedagogy framework?
9. How would you describe your teaching style/philosophy?
10. From your teaching style, how much is assimilated from your own educators?
11. Do you adjust your teaching style between your male and female students?

12. Did you experience your physiological differences were wrongly blamed for any shortcomings in your saxophone education experience? I.e. Did you feel that male educators mistook your difficulty in breathing as an excuse for the fact that you were female (gender vs. sexual dynamics)?