UNIVERSITETET I OSLO

Master`s thesis

Awareness of voice problems among students of singing

Bjørk Brunvand Håve

Master`s thesis in Special Needs Education – specializing in Logopedi
40 stp.

Department of Special Needs Education
Faculty of Educational Sciences, UiO

Spring 2023

Abstract

The object of this master`s thesis is to investigate how university-level students of singing, more specifically those in the field of Contemporary Commercial Music (CCM), perceive voice problems in relation to pursuing a career as voice professionals. To address this research question, four students of singing were interviewed. Data was collected by conducting semi-structured interviews and analysed using a qualitative research methodology with a phenomenological approach. The main findings of this research indicate three clearly identified themes in the experiences of students of singing related to their student life and vocal health: internal conflict, need for more knowledge, and voice identity. The internal conflict involves the dilemma of prioritizing one`s vocal health or participating in social events that could potentially involve vocal abuse. The results also show that the participants want to enhance their knowledge on preventative measures and learn more about their voice in order to prepare themselves for a future career in a vocally highly demanding profession. Finally, a strong sense of voice identity was found to be an important part of the students of singings` education and a central component to their sense of self. The present findings have important implications for formal education of students of CCM singing, suggesting that a more balanced approach between emphasizing creativity and teaching students how to take care of own voice is needed. Sharing experiences and increasing knowledge about vocal health can foster relationships and build an identity as a professional singer within the music community.

Sammendrag

Formålet med denne masteroppgaven er å undersøke hvordan sangstudenter på universitetsnivå, spesifikt innen Contemporary Commersial Music (CCM), opplever stemmevansker med tanke på å satse på en karriere som profesjonelle sangere. For å besvare oppgavens problemstilling ble fire sangstudenter intervjuet. Data ble samlet inn gjennom semistrukturerte intervjuer og analysert ved hjelp av en kvalitativ forskningsmetode med en fenomenologisk tilnærming. Hovedfunnene i denne studien indikerer tre tydelige temaer når det gjelder erfaringene sangstudentene har i deres studentliv og til stemmehelse: intern konflikt, behov for mer kunnskap og stemmeidentitet. Den interne konflikten involverer dilemmaet mellom å prioritere engen stemmehelse, eller delta på sosiale sammenkomster og arrangementer som potensielt kan innebære misbruk av stemmen. Resultatene viser også at informantene ønsker å øke sin kunnskap om forebyggende tiltak og lære mer om sin egen stemme for å forberede seg på en fremtidig karriere i en yrkesgruppe med høye krav til stemmen. Til slutt ble det funnet at en sterk følelse av stemmeidentitet var en viktig del av sangstudentenes utdanning og en sentral komponent i deres selvoppfatning. Funnene i denne studien kan ha viktige implikasjoner for den formelle utdanningen av CCM-sangstudenter og antyder et behov for en mer balansert tilnærming som vektlegger både kreativ utvikling og undervisning i stemmehelse. Deling av erfaringer og økt kunnskap om stemmehelse kan styrke identiteten som profesjonell sanger og bygge en sterkere tilhørighet til musikkmiljøet.

Preface

Writing this master`s thesis has been an incredible learning experience, allowing me to dive deep into a topic that I find truly fascinating. It has been time-consuming and, at times, challenging to write such a substantial piece of work. Throughout this journey, I have experienced how curiosity about a specific subject can evolve into a project and gradually take shape into a finished product. It has been a rewarding experience that has heightened my curiosity within the field of speech-language pathology even more. I embraced the challenge of writing this thesis in English, and it has truly been a challenge. English is not my first language, which has resulted in a steep learning curve throughout this process.

As I approach the end of this project, there are several people who deserves a big thank you. A warm thank you to the participants who chose to participate in interviews on a topic so close to your hearts. I deeply appreciate your willingness to share your experiences and thoughts. This master`s thesis would not be what it is today without all of you.

I would also like to extend an enormous thank you to my supervisor, Vanja Kljajevic, for our fantastic collaboration. I have greatly valued your insights and comments throughout the work. Thank you for believing in me and all your encouraging words, they have been exactly what a stressed student needed.

Lastly, I want to express my gratitude to my family and friends. Johan, thank you for your unwavering patience, infectious humour, and supporting hugs. To all my study-mates, you have been a driving force of laughter and positivity throughout this entire period. Without each and every one of you, this time would not have been as memorable.

Thank you!

Table of Contents

Tables and figures

"I would not be myself if I could not sing"

1.0 Introduction

We communicate with the world around us from the second we are born and throughout life. We keep developing, adjusting, and tuning our communication skills, which is a fundamental part of building relationships with others in a social community. These are signals that we all receive and send. Kokkersvold and Mjelve compare our ability to communicate with breathing, they are both an automatic and crucial processes for all human life (Kokkersvold & Mjelve, 2003). Humans have a unique ability to communicate because of language, which we use in daily social interactions. Inseparable from language is the voice, the sound of our message (Frühholz & Schweinberger, 2020). Voice is one of the modalities of language and gives information about a person`s inner life through different voice qualities. Timbre, pitch, and volume of the voice, what we emphasis, talking tempo, intensity and pauses all add to our verbal messages (Egan, 2014). The situation, context, and environment determine how we use our voice, but our voices are also a part of our personality and identity (Colton et al., 2011).

The voice is a part of our nonverbal communication. We can send both conscious and unconscious signals to our communication partners through our voice to enhance or even disguise the meaning of the information in verbal messages (Frühholz & Schweinberger, 2020). Spontaneous signals in our voices are caused by either internal or external factors, for example how the pitch and talking tempo go up when something excites us. Inhibition and contextual adaptations are learned behaviour, and crucial to how we use our voice in different social and environmental settings (Frühholz & Schweinberger, 2020). In the field of preforming arts, actors and singers show how far humans can adapt and manipulate their voices.

The voice is not only a part of the everyday social communication. In the field of professional voice users, it is a source of livelihood. Chitguppi and colleagues (2018) split professional voice users in two main subgroups referred to as *primarily speaking voice professionals* (SVP) and *primarily nonspeaking voice professionals* (NSVP). The NSVP include only singers regardless of singing style and genera. SVP are every other voice professional (Chitguppi et al., 2018). The group of professional voice users recognized as being most demanding regarding voice is NSVP (Pestana et el., 2017). The extreme and complex vocal tract control, flexibility and endurance professional singing requires is why singers are seen as the elite vocal performers.

All professional voice users are at risk of developing a disruption in their voice quality, which can have a negative impact on their career. Even though singers are considered to be the vocal athletes among voice professionals, Chitguppi et al. (2018) found that SVP are more prone to detrimental effects on their voice due to daily overuse compared with NSVP (Chitguppi et al., 2018). The reason for this can be the focus on vocal training many singers go through that might not be as present in the education of other voice demanding occupations. In a singers career even the slightest problem with the voice can have an impact on their quality of life related to work (Pestana et al., 2017). Even though many singers have had vocal training, it does not include more than a cursory understanding of how the voice works in general and learned techniques that hold little objective evidence on its effectiveness (Colton et al., 2011).

Pestana and colleagues (2017) carried out a systematic review and meta-analysis on prevalence of self-perceived voice disorders in singers. The results of their study show that singers present a high prevalence on self-perceived dysphonia over the span of their career compared with the general population. Dysphonia is a diagnostic term used to describe voice disorders (see section 2.2 for details). The students of singing had a lower prevalence in comparison to professional singers and singing teachers. In the study they suggested that this is due to singers` increased awareness and concern about their voices, leading to either overestimation of the voice issues in singers or an underestimation in the general population of their voice issues (Pestana et al., 2017). A study by Sielska-Badurek and colleagues (2018) indicated that young singers in the beginning for their singing training had a divergence between the self-perceived and the observed voice quality and vocal tract function, which could be one explanation of the earlier findings. The study showed that more than 20% of students of singing who sang popular music started their singing training with a voice disorder (Sielska-Badurek et al., 2018). We do not know exactly why there is a low rate of self-perceived voice disorder among students of singing compared to professional singers, but it could be external factors such as a shorter career, and lower vocal demands in a supporting educational environment. It could also be an indication on low awareness or knowledge around voice disorders among students of singing, and a lack of preventative approaches to address voice disorders in this group of young singers. Gaining knowledge on the field of voice could help young singers be more prepared as they enter a highly voice demanding lifestyle as professional singers.

1.1 Research question

Singers with the goal to become professional voice users might long for their voice to be taken to new heights. The voice is the singers` instrument and having the right tools to be able to take care of it lay the foundation for a long and voice healthy career. A base of knowledge of how the voice works and how to take care of it should be a big part of singers` education. The singers` voices are such a big part of their life that even a slight change in their voices can have a big impact on the persons physical, emotional, economic, and social life (Sobol et al., 2020). Today voice disorders are a vast problem in the field of professional voice users, and singers are at especially high risk of developing voice problems during both their student life and later in their professional careers.

Contemporary Commercial Music (CCM) is a huge part of the music industry, however the focus for most studies conducted on singers has been analysing the voice of classical singers. The term "CCM" was first used by Jeannette LoVetri and is the updated term for "nonclassical music". She described this music as the music of the people because it originates from how people simply sang for personal reasons and created their own music (LoVetri, 2008). CCM is used as an umbrella term covering many genres and sub-styles of music and was created to cover all music types that are not considered classical. This includes music theatre, pop, rock, gospel, R&B, soul, hip hop, rap, country, folk, experimental music, and others. These styles of music are a big part of today's music industry with singers and listeners all over the world (LoVetri, 2008). Recent years show a growing interest of the CCM-singers` voices in the scientific and academic field (Sielska-Badurek et al., 2018), but in order to help this group of singers to progress, we are in need for more knowledge. In a reality where voice disorders among singers is a big issue, what measures do young singers take to have a long-term singing career? What do students of singing learn about their voice? And if they actually learn about how to take care of their own voice, do they follow the advice from their singing teacher? What relationship do they have to their own voice, and is voice disorders a topic for conversation among young singers today?

My research question is therefore:

How do university-level students of singing in the field of Contemporary Commercial Music perceive voice problems in relation to pursuing a career as voice professionals?

1.2 Scope

Whilst the vocal health challenges related to singers as voice professionals have been well documented especially related to classical singers, the impact voice problems have on the lives of students of singing (age 18-24 years) in the field of CCM is not yet fully explored. The aim of this study is to highlight the perspectives students of singing have on voice problems, thereby gaining insight to the resources and challenges they face. This will contribute to a better understanding of how to work preventively to reduce the risk of voice disorders among students of singing. By exploring their thoughts and experiences, we can also gain insight into the challenges they face in a voice demanding environment and their perception on different aspects of their student life. The goal of this research is to contribute to improved support for this group of singers, preparing them for a future in a voice demanding career.

The scope of this study is limited to recruiting four participants between the ages of 18 and 24 years. They are all students of singing who are under formal training of CCM-singing at a Norwegian university. Each participant in the study will be asked to participate in an interview to collect their perspective on awareness of voice problems among students of singing.

1.2.1 Conceptual clarification

Awareness

In this context the term "awareness" refers to being able to make informed choices based on experience and knowledge. Being in a state of attentiveness makes it possible to recognize and be mindful of relevant factors, risks, consequences, and alternatives before making decisions. This includes being reflective in a decision-making process to achieve a desired result or avoid undesirable consequences.

Voice problem and voice disorder

In this master's thesis I will use both the terms voice problem and voice disorder. The two terms are often used interchangeably, but there is a distinction between them. The term voice problem encompasses a broad range of challenges related to production of voice. These

challenges do not have to be connected to a pathological condition but can arise from various factors such as overuse or strain or be temporary hoarseness due to a respiratory infection. A voice disorder on the other hand is a diagnostic term used when there are pathological conditions that affect voice function, quality, or control. This will be further elaborated in section 2.2.

Student of singing

The term "student of singing" is used to describe individuals enrolled in a university-level music program with a specialization in vocal performance.

2.0 Theoretical background

In the first part of the theory chapter, I will give a brief introduction of the production of voice. The voice production system is the source of our ability to produce sound. It consists of anatomical structures and physiological manipulation of these structures. The larynx is often referred to as the acoustic voice source and include both extrinsic and intrinsic muscles, ligaments, nervous and cartilage which all play an important role in the production of voice (Kreiman & Sidtis, 2011). In this section the physiological function of anatomical structures will be prioritised rather than a full anatomical presentation of the structures needed for production of voice. I will not go in full depth in my description of how the voice is produced, but rather highlight some important elements and give an overall picture of this highly intricate process.

The second section of this chapter will focus on the definition, diagnostics, and management of voice disorders. Understanding and assessing voice disorders requires a fundamental understanding of anatomy and physiology, and examination of several individual components to give the proper treatment (Colton et al., 2011). The voice care team is multidisciplinary to facilitate the best possible outcome for people with voice disorders. This thesis is written from the perspective of the speech-language pathologist (SLP), one of many disciplines in the voice field. My description will be directed towards functional voice disorders because this is a common career threatening issue among singers today. I will also give a brief introduction of organic voice disorders considering functional voice disorders can turn into organic impairments over time (del Mar, et al., 2018). Furthermore, I will take a closer look at the singing voice. Singing is a part of human history and play a large role in our society today. Still, singing is a highly demanding vocal activity, putting professional voice users at risk without the right knowledge. Finally, I will review the previous research relevant to the scope of this thesis.

2.1 Production of voice

Our ability to speak and produce sounds is luckily for most of us perceived as uncomplicated. But it is an intricate process which requires close coordination. The larynx has two main areas of function. The first main area of function is biological, which is crucial to human survival, and consists of reflexive and involuntary control designed to protect the airway from foreign

bodies (Colton et al., 2011). The second main area of function of the larynx is the production of voice, or speech. The broad range of usage of voice has made it difficult to provide one singe definition of what *voice* is across disciplines and research applications (Kreiman & Sidtis, 2011). In this thesis the term voice is referring to the acoustic signal generated by the voice production system.

Production of voice is a process that requires a close synchrony between both the production of voice and articulatory function (Colton et al., 2011). Because the scope of this master thesis is related to the voice, the focus will be on the phonatory function of the larynx. Now, how do we produce sound? The three main components for production of voice are the lungs, the vocal folds and all the resonating cavities of the pharynx, oral cavity, nose, sinuses, and chest (Benninger, 2010).

Figure 1

Illustration of the Vocal Tract (Reproduced from Kreiman & Sidtis, 2011, p. 26.)
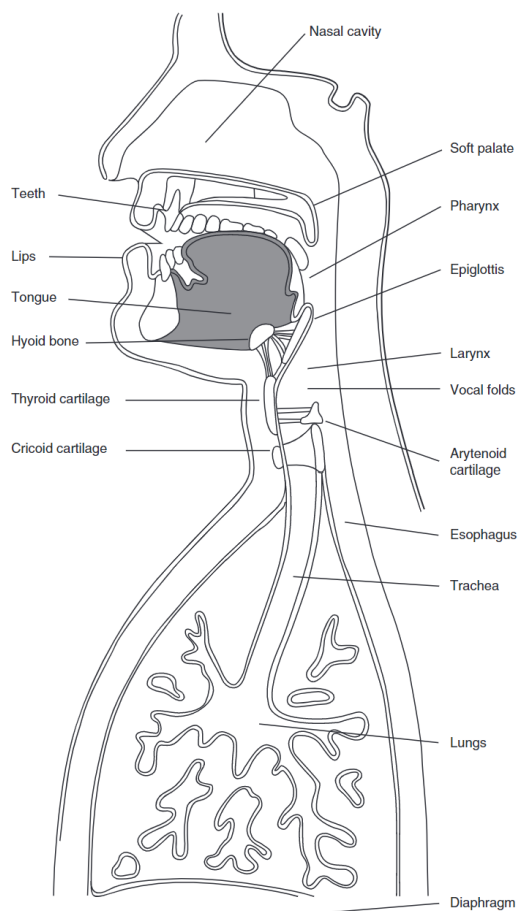
2.1.1 Respiration

The primary respiratory function is supplying our bodies with oxygen by inhaling through the lungs and getting rid of carbon dioxide by exhaling. The larynx works as the gate to the trachea and lungs. Breathing involves expansion and contraction of the lungs themselves (Chaitow et al., 2014). A typical phase of breath is first an active contraction of the diaphragm and external intercostals, the inspiratory pump muscles, which is followed by a passive expiratory phase (Del Negro et al., 2018). The diaphragm is one of the primary muscles of breathing and is lengthening and shortening the vertical diameter of the thoracic cavity, which we can see as we breath when the rib cage and abdomen moves. By contracting, the diaphragm pulls the lungs downwards, resulting in the expansion of the lungs and puling in air (Stemple et al., 2014). The primary functions responsible for exhalation is the elastic recoil of the diaphragm, pushing the air out of our lungs. There are both other intrinsic and extrinsic muscles important for breathing, but the diaphragm is providing 70-80% of the inhalation force (Chaitow et al., 2014). The support of other accessory muscles during respiration is important, but they can also replace the role of the primary respiration muscles during increased demands or dysfunctional breathing patterns compromising the efficiency of the breathing mechanisms (Chaitow et al., 2014).

The lungs are governed by sensory and motor nerves being a part of the automatic nervous system, which is an automatic and unvoluntary action of respiration (Chaitow et al., 2014). We do not have to actively remember to breath when being awake or sleeping, the same way our heart rate is a part of the automatic unconscious internal environment of the body. Even though respiration is influenced by autonomic breathing rhythms, it does differ from hart rate because we are able to consciously modify respiration. The automatic breathing can be overridden in response to voluntary activities such as eating and drinking, speaking, and singing (Chaitow et al., 2014).

The second function of the respiratory system is being the activator of phonation, respiration for phonation. The lungs work as an activator by pushing air up the trachea and trough the vocal folds (Benninger, 2010). To push air out, we fist need to inhale as described above. When we breath the space between our vocal folds, the glottis, is in a paramedian position to let the air freely pass through. When we want to use our voice, the vocal folds

move from a paramedian position to a medially position creating tension and the process of phonation can begin (de Jong & Schutte, 2020). This is where the beginning of sound is activated by the vibration of the vocal folds. The vocal folds are connected to the thyroarytenoid joint, which allows the modification to change pitch and frequency of the sound (Benninger, 2010). This brings us to the second component of production of voice, the vocal folds.

2.1.2 The vibration

What we perceive as sound is the production of fundamental frequencies made from vibration in the vocal folds. Fundamental frequency refers to the vibrating frequency of the vocal folds (Colton et al., 2011). These vibrations are dependent upon two components which are the myoelastic of the vocal folds and aerodynamics (Benninger, 2010). Myoelastic refers to the five layers of the vocal folds that consists of muscle, the vocal ligaments with a stiff inner layer and an elastic outer layer, the Reinke space, and the epithelium. Which all is important for the formation of the mucosal wave (de Jong & Schutte, 2020). The mucosal wave is motion in the form of waves in the epithelium, the outer surface of the vocal folds, which causes vibration during phonation. For these waves to occur and be in symmetry, we are dependent on there not to be impairment of the vocal ligaments and Reinke space (Eysholdt, 2020).

In early studies of phonation, the vibration of the vocal folds was compared to the string of an instrument (Colton et al., 2011). This analogy thought to be a good one, but it only involves how length and mass operate under tension. The vibratory frequency of the vocal folds is not only determent on its total mass, but rather the mass that is set into vibration. A more accurate analogy will then be to compare the vocal folds to a rubber band. When the rubber band is stretched, the thickness decreases (Colton et al., 2011).

Aerodynamics is the interaction between the expiratory airstream and the vocal fold mucosa. The movements created is impacted by the Bernoulli effect. This is the same effect the causes your shower curtain to stick to your body when you are trying to enjoy a refreshing shower. The Bernoulli effect occurs because the air that passes through the trachea is forced through a narrowing when it meets the glottis, resulting in a change in air pressure, referred to as subglottal pressure (de Jong & Schutte, 2020). This is the reason for the closing of the glottis by pulling the vocal folds together which causes an interruption of airflow (de Jong &

Schutte, 2020). Because of elasticity the mucosa recoils back and the glottis opens again reducing the subglottal pressure, and the cycle starts over. This periodic interruption of the airstream occurs many times per second resulting in the vibration we experience as sound (Benninger, 2010).

Phonation is not only dependent on myoelastic and aerodynamics, as described above. The biomechanics that control the degree of tension of the vocal fold, described by the terms adduction and abduction, play an important role in the complex interaction resulting in phonation (de Jong & Schutte, 2020). The glottal closure caused by biomechanical parameters is an important part of achieving the Bernoulli effect, because of the narrowing of passage of the glottis. This narrowing is called adduction and is caused by contraction of the cricoarytenoid muscle, an intrinsic muscle in the larynx connected to the thyroarytenoid joint. This results in an increase of tension and stretching of the vocal folds, making them more tense and thinner (de Jong & Schutte, 2020). The vocal folds are 1.5 to 2.3 mm in length, which is relatively small, but there are 22 muscles involved in the close coordination to produce the voice (Benninger, 2010).

Adduction is also connected to higher or lower pitch. The tension of the vocal folds' accounts for the lowering of the pitch by lowering muscle tension. The tighter the muscle contracts, the higher frequency is produces (Benninger, 2010). The frequency is not only related to muscle tension, but also to the size or mass of a person's vocal folds. Men's vocal folds tends to have more mass than women's, which results a slower vibration in the vocal folds for men and faster for women. This is one of the factors resulting in lower frequencies in the male voice compared to female voice (Benninger, 2010). The average fundamental frequency for males in speech is between 100 and 150 Hz, and females it is between 180 and 250 Hz (Colton et al., 2011). The vocal mechanisms of humans can produce a range of frequencies, and some even have excess of three octaves, this is often referred to as phonational range (Colton et al., 2011).

2.1.3 The resonator

Vibration in the vocal folds alone is not enough to make sound, for that we need resonance. Our cavities of the upper and lower respiratory tracts are what creates this resonance by modifying or amplifying the vibrations from the vocal folds giving us a rich sound (Benninger, 2010). These resonating cavities consist of the hyop-, oro- and nasopharynx, also

referred to as the supraglottal resonance cavity (de Jong & Schutte, 2020). What makes all our voices sound unique is the fact that we are just as different looking on the inside as the outside. Even the smallest changes can impact the way our voice sounds. The harmonics and partials are produced by the vibration of the tissues in the larynx and pharynx (Benninger, 2010).

It is believed that the resonating structures of our vocal apparatus have played a large part in the development of language (Benninger, 2010). The size and form of the resonating cavities amplify particular frequencies, which is characteristic for every different vowel (de Jong & Schutte, 2020). Humans have a relatively low positioning of the larynx in the neck which results in a wider pharynx and enables the production of the vowels [a], [i] and [u], complex sounds being unique for humans (Benninger, 2010). Infants have a high positioning of the larynx to be able to suck and breath at the same time, but after the first few years the larynx descent to a lower position. In an evolutionary perspective this developmental process probably was a critical factor in the development of the human civilization because it lay the basis of the complex communication that language is (Benninger, 2010).

The production of voice is not only affected by the tree components described above. What makes the production of voice such a complex process is due to how the whole body is involved. Voice production also involve the musculoskeletal system and the psychoneurological system, which must function in coordination with the vocal tract and the abdomen and diaphragm (Benninger, 2010). This is particularly important in singing, where the voice as an instrument is affected by the bodily functions of the performer. Our body posture can have a direct effect on respiration, phonation, and resonance. This involves an interaction between muscle groups throughout our bodies, and is affected by placement of the hips, spine, shoulders, neck, head, jaw, and tongue (Schneider & Sataloff, 2007).

2.2 Voice disorders

Knowledge about how the voice works is beneficial to all voice users, not only those who treat or train it (Colton et al., 2011). This way awareness on prevention of vocally traumatic behaviours and information on vocal hygiene become higher in the public. There has been a growth of interest in the voice among researchers, which have increased the understanding of voice physiology among many professionals representing disciplines concerned with the voice. This includes teachers of singing and singers. The growing interest have made it clear

that there is a need for multidisciplinary involvement in the voice field, and to disseminate knowledge and information (Colton et al., 2011).

The complex movement of breathing and laryngeal movements is dependent on close coordination, and is some of the more intricate processes which the human body can do (Richter, 2020). This complex coordination is something we often take for granted, but when production of voice is absent or malfunctioning it is obvious (Colton et al., 2011). The umbrella term used to describe this condition is *dysphonia*, referring to any dysfunction of the human voice (Richter, 2020). Behlau and colleagues defines dysphonia as "difficulty or deviation of voice production" (Behlau et al., 2017, p. 13). This can be dysfunction in the voice producing organs itself, or be a secondary dysfunction caused by another disease (Richter, 2020). Stemple and colleagues define voice disorders as "when an individual`s quality, pitch, or loudness differs from voice characteristics typical of speakers of similar age, gender, cultural background, and geographic location" (p.73). The definition on voice disorders is inconsistent in the literature, which is affecting studies on prevalence of voice disorders by showing some variation. This might be due to the variety of disciplines in the field of voice. The overall prevalence of voice disorders lies between 3% to 10%, in the general population depending on who is included and how it is defined (Stemple et al., 2014). The dysfunction itself is not the only issue when assessing voice, it is important to be aware and sensitive to the close relationship we all have to our voice, it is a part of our personality (Colton et al., 2011).

2.2.1 Ethology and classification

There have been different ways of classifying voice disorders throughout the years, and the literature is still not consistent when categorising voice disorders. This may be because there is no definition on what a "normal" voice is. What counts as normal appearance of the voice is connected to cultural, environmental, and individual factors (Colton et al., 2011). One way of classifying voice disorders is in four different categories, but it is important to stress that these categories are not independent from each other. The four categories are *functional* voice disorders, *organic* voice disorders, *neurogenic* voice disorders and *psychogenic* voice disorders (Colton et al., 2011). By classifying voice disorders in these categories, we can get a better picture of the factors that may disturb the voice and enhancing the assessment of the

patient by input from various disciplines. The focus for this thesis will be on functional voice disorders due to the high risk of developing this type of voice problems in singers.

Colton and colleagues (2011) present nine primary symptoms of voice problems that they have found to be common issues in patients with voice disorders. These nine symptoms usually occur in combination. The nine symptoms are: *hoarseness,* reflecting an aperiodic vocal fold vibration. *Vocal fatigue*, the feeling of getting tired after prolonged voice use, and continued phonation requires a great deal of effort. *Breathy voice*, being unable to complete sentences without running out of air, often caused by an insufficient glottal closure. *Reduced pitch range*, a symptom associated with singers who are having trouble producing notes that presented no problem previously, usually in their upper frequency range. *Aphonia*, refers to the absence of voice where the person speaks in whispers and there is no vibration of the vocal folds. *Pitch breaks or inappropriately high pitch*, when the voice seems out of control with periodic squeakiness and voice cracks, usually reported by male adolescents who use an inappropriately high pitch rather than the typical lower pitched male voice. *Strain/struggle voice*, when having difficulty to get voicing started or maintaining voice when talking resulting in high tension and fatigue. *Tremor*, being unable to produce a steady sustained sound resulting in a wobbly or shaky voice. *Pain and other physical sensations*, this includes various pain related to the neck, larynx, and upper chest. It can also be physical sensation including feeling of a lump in the throat, strain or tension, dryness, or frequent coughing (Colton et al., 2011).

The diagnostic to determine the nature of the problem have different approaches such as perceptual, acoustic, and physiological signs of voice problems (Colton et al., 2011). Perceptual signs of voice problems reflect subjective impressions of the characteristics in a person's voice. How voice is perceived is individual, making it hard to describe in a meaningful fashion which have led to there being used many different adjectives, some being more clinically useful to describe voice characteristics then others. In a clinical setting the clinician's perception of voice characteristics and patient history is used to differential diagnosis (Colton et al., 2011).

Acoustic signs of voice problems can give an idea of the underlying vocal fold physiology. It is not a perfect image, but there is some correspondence between physiology and acoustics. This is done by analysing acoustic parameters of voice recordings such as fundamental frequency and amplitude, and therefore a more objective measure than perceptual signs (Colton et al., 2011).

There are two approaches to assessing physiological signs of voice problems, which are measurable and observable signs. The measurable physiological signs that may be affected by pathology are aerodynamics, vibratory behaviours, and muscle activity. This can be recorded by electromyography (EMG) (Colton et al., 2011). The observable physiological signs of voice problems are assessed by looking at the vocal folds using mirrors, imagining, and video. There are many different visualization techniques and tools, which can provide information on the physical state of the vocal folds, glottal closure, and mucosal wave among other details (Colton et al., 2011).

Signs of voce problems should not be viewed in a vacuum and are not independent from each other. The different approaches to assessing these signs are providing different information on a person`s voice and can also be used as confirmation by giving the same information in a different way (Colton et al., 2011). When assessing voice problems, the person with the issue`s perception is relevant because how people experience their voice problem and how it effects their quality of life differ from person to person. Tools such as Voice Handicap Index (VHI) is used to assess these issues and to estimate change associated with therapy (Jacobson, et al., 1997). A version of this screening instrument is developed specifically for singers, Singing Voice Handicap Index (SVHI), to better address the voice problems in the singing population (Cohen, et al., 2007).

2.2.2 Functional voice disorders

Functional voice disorders affect the quality of voice due to overuse or misuse of the voice and can also give an indication on a person's health. A functional voice disorder does not show any structural changes in the organic tissue of the larynx but can turn organic over time (Colton et al., 2011). This is a large heterogeneous group of voice disorders that are nonorganic (Baker, 2016). In the literature the term *behavioural dysphonia* is also used to describe inappropriate voice usage resulting in a voice disorder (Behlau et al., 2017). These types of voice disorders are the result of a particular way the person is using their voice. The symptoms reflect the functional dysfunction that occurs during phonation for example muscle tension or vocal fatigue due to misuse or imbalance (del Mar, et al., 2018).

Vocal fatigue is a functional voice disorder that can encompass several symptoms of voice problems, such as decreased voice quality, loss of voice, reduced endurance, and control over intensity (Stemple et al., 2014). Individuals with vocal fatigue can experience voice

production as exhausting and insufficient. Obtaining a full understanding of these type of functional voice disorder has been challenging, and it is uncertain wither it is caused by muscular fatigue or non-muscular laryngeal fatigue as a result of overuse, or fatigue related to respiration affecting the subglottic pressure. This can create disruptions of the mucosal wave on the vocal folds during phonation (Stemple et al., 2014).

A common factor for most functional voice disorders is that they are the result of inappropriate use of the muscles within the larynx during phonation (del Mar et al., 2018). This can lead to insufficient glottal closure with a combination of both hyper- and hypofunctionality, meaning muscle tension that is either too strong or too weak (del Mar et al., 2018). Hyperfunctional dysphonia is often recognised by a hoars and strained voice quality due to the overly tensioned muscles (Baker, 2016). This is associated with strained phonation because of excessive activity, force, or tension of the larynx during production of voice. The hyperfunction during phonation is often a response to high vocal demands and is often referred to as a muscle tension voice disorder (MTVD). The opposite is seen in the hypofunctional dysphonia where a low muscle tension lead to a breathy and weak voice quality (Baker, 2016). What is common for both is an unbalance between breath, voice, and muscle tension not only in the larynx but the whole body.

Functional and organic voice disorders can in some cases overlap due to excessive vocal abuse extended over time. The organic voice disorders are seen, identified, and diagnosed by a specialist, and is observable structural changes in the organic tissue in the larynx. These problems are typically laryngitis, nodules or polyps on the vocal folds (Colton et al., 2011). The most common of the vocal fold pathologies is marginal swellings that can be unilateral or bilateral, nodules and polyps (del Mar et al., 2018).These structural changes usually happen over a period of time and are due to frequent overload or misuse of the voice, infections or environmental impacts. This overstress is resulting in the change of the vocal fold mucosa (del Mar et al., 2018). As well as the visually observable changes organic voice disorders usually also are associated with a change in the quality of voice and discomfort during phonation. This is often symptoms like hoarseness, breathiness, and unstable voice when speaking or singing because of the disruption of the mucosal wave (del Mar et al., 2018). Neurogenic voice disorders are a neurological approach to laryngeal motor function (Colton et al., 2011). The fourth category, psychogenic voice disorders, are expressions or symptoms of a deep-rooted emotional problem, and the person may be in need for psychological help (Colton et al., 2011).

2.2.3 Treatment and management

Within the area of treating voice disorders, the role of the SLP is not focused on diagnosing and treating specific laryngeal diseases or physiological voice disorders. Instead, their primary concern lies in understanding, analysing, and modifying vocal function (Schneider & Sataloff, 2007). As clinicians who work with voice it is fundamental to be able to identify, diagnose, and explain the voce disorder (Baker, 2016). The differential diagnosis process determines the approach for intervention and provide the necessary information for the person who struggles with a voice disorder on their condition. The last part is important because the provision of knowledge to the patient/client is important for feelings of empowerment and lower anxiety related to recovery (Baker, 2016). The patient/client must feel motivated, knowledgeable about their voice disorder, and be involved in decision-making and planning (Schneider & Sataloff, 2007). Differential diagnosis includes using more than one measure to assess the voice problems, and a team approach. The assessment of voice problems is carried out by an otolaryngologist and a speech-language pathologist to do a voice analysis. This investigation includes perceptual, acoustic, and physiological measures (Baker, 2016).

When it comes to management of voice problems there are three general approaches. These are surgical, medicinal and behavioural, none of which exclude each other (Colton et al., 2011). A common factor for all management of voice disorders is a detailed assessment, case history, psychological interview, and explanation of the diagnosis (Baker, 2016). The surgical approach is considered to be the most radical due to the physical altering the vocal folds, but the goal is always to conserve, reconstruct and improve the persons phonation, swallowing and respiration (Colton et al., 2011). The medical approach is usually due to underlying diseases, such as neurological and muscle issues or infections that affect the voice. This type of intervention is usually followed by post-surgery therapy.

The voice treatment directly related to SLPs is the behavioural approach. The behavioural approach is most referred to as *voice therapy*, which goal is to restore the best voice possible. This means that the voice may not sound the way it did before the voice disorder. To come to this realization can be traumatic to professional voice users that rely on their voice for their livelihood (Colton et al., 2011). This type of therapy may also be an attempt to reduce beginning pathology in hopes of minimizing the need of surgical intervention (Colton et al., 2011). The behavioural approach involves attention to principles of vocal hygiene and direct techniques to optimize vocal function by modifying vocal

behaviours (Baker, 2016). Voice therapy techniques can assume in many forms, and can be one part of an intervention program, or the only intervention needed to solve an issue. By utilizing a variety of assessment tools and techniques, SLPs can analyse and evaluate an individual`s vocal function. This is factors such as voice quality, pitch, loudness, resonance, and over all vocal efficiency (Schneider & Sataloff, 2007). The voice therapy techniques are not necessarily specified for a single disorder, this is because there are many similarities in laryngeal physiology across voice disorders (Colton et al., 2011). Techniques associated with voice use and behaviour is usually adapted to fit the personal style of the SLP and satisfy the client, there is not such a thing as a recipe to follow. The challenge lies in selection and modification of techniques based on the vocal behaviours that are currently in use and desirable (Colton et al., 2011).

Vocal hygiene is one category of techniques which should be incorporated in most voice therapy programs (Colton et al., 2011). This is a preventative measure that is especially relevant for instances of vocal misuse or abuse. The component of vocal hygiene is to reduce the amount of talking and loudness of the voice, both of which is habituated behaviour that are difficult to change and often requires intensive effort. It is also important to identify and eliminate or reduce vocal behaviours that are potentially detrimental to laryngeal health. If it is appropriate, change or manipulate environmental factors such as humidification and amplifiers can help to reduce strain and loudness of the voice, or make the environment more hospitable. Energizing of the voice is also a part of vocal hygiene which allows for easier and more efficient transmission of sound. Awareness on vocal effort helps people with voice disorders to obtain a comparative scale on phonation. Knowing what minimum, comfortable and maximum level of effort can be helpful to better monitor mode of voice production. The last component of the vocal hygiene techniques is resonant voice therapy, which is based on exercises used to improve voice production in singers and actors. This include a more forward placement of sound resulting in less effort when producing voice because the vibratory sensation of voice production is felt in the palate, tongue, and lips, rather than larynx (Colton et al., 2011).

Bernhard Warner wrote an article in *The Guardian* (2017) addressing an ongoing debate in the voice field regarding how to manage voice problem in the preforming arts. Even if surgery to the vocal folds is a high-risk operation, it seems to become more accessible and more acceptable among professional singers. In the article Warner refers to the former opera singer, now vocal coach, Lisa Paglin who look at this approach to voice problem as a

temporary fix to a big challenge in singers' careers and that we should have a preventive approach (Warner, 2017). Research on the behavioural intervention on voice disorders is still lacking compared to the information regarding care of the professional voice and surgical interventions of voice disorders in singers (Dastolfo-Hromack et al., 2016). Keeping in mind how vocal misuse and abuse contribute to the development and persistence of functional and organic voice disorders, more information on a behavioural approach is needed.

2.3 The singing voice

The singing voice was most likely our first musical instrument and have played a large part in the development of culture and arts (Benninger, 2010). Everywhere we go in time and place singing and music is a part of people's lives. At sports events, formal or public events, at pubs and clubs people chime in sing-alongs. Songs are with us from birth when our parents sang us to sleep with lullabies. Music is more accessible now than ever trough streaming and new technology making it a part of every person's daily life. Earlier research investigating the benefits from singing in groups has shown it to be positive and beneficial, not only by being enjoyable but also have physical and psychological benefits by reducing stress, building self-esteem and confidence (Yoon Irons & Hancox, 2021).

We can understand the singing voice as an interaction between voice production with the different voice qualities used as filters, the power to declare an emotional message, and the singers` control of the sound of their voices (Kreiman & Sidtis, 2011). Singing requires more of our voice than speech. Breath support, articulation, and pitch alteration demand higher precision and control for a singer`s voice use for prolonged periods of time (Morawska et al., 2022). The high intensity use of voice that singing require impose a bigger impact on the voice organ than when we talk. This is why singers, out of all professional voice users, are considered to be the elite vocal performers (Pestana et al., 2017) and the most demanding vocal group (Morawska et al., 2022). The physiological difference between trained and untrained singers show difference in range, laryngeal positioning, vocal fold closure, and sound pressure level characteristics (Braun-Janzen & Zeine, 2009).

Singing is a rich and complex vocal signal, and the literature about the singing voice use a variation of terminology making it difficult to classify singing voices (Kreiman & Sidtis, 2011). Some styles of singing require a strong glottal adduction and high subglottal pressure, this way of using the voice is often considered to be potentially harmful to the phonatory

mechanisms and considered detrimental to vocal health (Morawska et al., 2022). This involves singing techniques that is mostly common in music that is not classical, such as breathy, distorted, and affected voices. This is all singing techniques that are common in CCM-singing (Morawska et al., 2022). The vocal demands of singers who sing CCM styles may be disposed to more vocal injury (Dastolfo-Hromack et al., 2016). Still it is reported ways to teach these singing styles in a healthy manner (Morawska et al., 2022).

2.3.1 Identity and Voice

How we define our self is closely connected to the context we surround ourselves in, both in a social and cultural aspect (Ruud, 2017). As a professional voice user, the formation of a professional identity as a singer can be closely linked to a sense of belonging within a social community with a musical foundation and artistic perspectives. The experience of personal achievements and building knowledge is crucial in strengthening this identity. The social interactions within the music community contributes to creating the professional identity as a singer (Schei, 2007).

CCM came from people singing for their own personal reasons and created their own music (LoVetri, 2008). One aspect important to consider when we talk about singers is the strong bond between their way of using their voice when singing and identity. A phenomenon in CCM singing is "the signature-sound" (Morawska et al., 2022). The singer`s signature-sound can be intentional use of style appropriate voice qualities such as a raspy voice or intermittent voice breaks. This vocal behaviour is often regarded as vocal misuse or abuse and implies that singers in CCM genres are at greater risk for developing voice disorders (Morawska et al., 2022).

Our voice is a fundamental expression of our personality, and any changes to it can result in loss of the ability to express our personal identity the way we intend, leading to a personal loss (Lindblad, 1992). This holds particularly true for singers, as their voice is an identifying characteristic of their personality, and they are deeply emotionally invested in their voice (Sataloff, 2000). As a result, singers may experience feelings of guilt and shame associated with voice disorders and feeling responsible for the damage. Some may also experience anger and frustration due to a lack of understanding from friends or family (Rosen et al., 2021).

It is not within the scope of practice for an SLP to provide specialized training aimed at developing range, power, control, stamina, or the aesthetic qualities required for artistic expression (Schneider & Sataloff, 2007). If a person`s voice is perceptually within normal limits and produced in an efficient and non-abusive manner, there may not be a need for intervention by an SLP. Still, when working with professional voice users, several factors need to be considered such as increased sensitivity, body and self-awareness, environmental contributions, and psychological and emotional factors. This is important considering the professional voice users typically have increased awareness of changes in their voice production and voice quality (Schneider & Sataloff, 2007). As mentioned in the previous section, the treatment of voice disorders is interdisciplinary, which is also the case regarding professional voice users. In this context it is worth noting that singing voice specialists, as well as teachers of singing, do not typically have formal licensing or certification boards, and they are not trained in working with injured voices and may not possess experience in this area. This implies that availability and quality of resources can vary from one community to another. Moreover, the backgrounds and knowledge of different voice professionals can differ considerably (Schneider & Sataloff, 2007).

2.3.2 Previous research on the CCM-singing voice

Over the years extensive research on classical tradition of singing has been a vital part of the understanding vocal health for this particular group. The same focus has not yet been a part of the field of CCM when it comes to both academics and research (LoVetri, 2008). Singers do expose their voices to elevated risk factors by being a part of the elite vocal performers. Some risks are common for all professional voice users, and other are observed in CCM singers in particular (Morawska et al., 2022).

Morawska and colleagues (2022) carried out a literature review of scientific literature regarding occupational health and safety aspects related to the voice care of contemporary commercial singers. They found that the risks related to developing voice problems in CCM singers was connected to insufficient professional vocal care such as low awareness of vocal hygiene, vocal training, and no referral to voice care specialists. Other risk factors found in the study was abusive vocal behaviour in singing, overuse of everyday speaking voice, informal performance setting, performance duration and frequency, and high demands placed upon the CCM singers by the entertainment industry (Morawska et al., 2022).

Studies reviewing prevalence of self-reported voice disorders show that singers have an overall higher prevalence then the rest of the public. Titze et al. found that 11.5% of all clinical voice disorders is found in singers (Titze et al., 1997). Pestana and colleagues (2017) carried out a systematic review and meta-analysis aimed at the prevalence of self-reported voice disorders in singers. Self-reported voice disorders use self-perceptual measures of the singers themselves, such as VHI. The finding of the studies reviewed show that students of singing have a prevalence of self-reported voice disorders of 21.76%, significantly lower than singers in CCM styles with a prevalence of 46.96% (Pestana et al., 2017).

Sielska-Badurek and colleagues (2018) conducted a retrospective cross-sectional study with the purpose of assessing the voice quality and vocal tract function in CCM singers in the beginning of their singing training. The results showed that 22% of CCM students of singing began their education with vocal nodules, organic vocal fold lesions. In addition to laryngeal videostroboscopy, a physiological observable measure, they used VHI and SVHI for self-assessment of voice quality. Despite the high precent of organic voice disorders the result showed that these perceptual measures remained within the normal range, indication that they believed their voices was healthy and strong (Sielska-Badurek et al., 2018).

In 2018 Adessa and colleagues conducted a case-control study comparing singers who completed voice therapy and singers who dropped out before ended treatment. Six factors were investigated related to voice therapy completion, among them being type of singer. Findings from this study show that 47% of singers referred to voice therapy completed their course of treatment. Of the singers who dropped out 60% was identified based on what music they sang, type of singer. This was found to be the driving force behind prediction completion of voice therapy in singers. Popular music singers completed voice therapy at less rates than expected, while the opposite was found for classical singers. This is an indication that singers with voice problems who sing CCM may be less likely to complete their treatment and seek out help (Adessa et al., 2018).

Because of lack of research on behavioural intervention for voice disorders in singers, Dastolfo-Hromack and colleagues conducted a retrospective study in 2016 with the objective to describe singing voice therapy (SVT), describe referred patient characheristics, and document the outcomes of SVT. The findings of this study suggest that the patients with a history of vocal training exhibit a greater ability to learn new vocal muscular patterns compared to patients without such training. This advantage could stem from independent problem solving or the initial severity of the voice disorder. The study also found that it was

mostly singers who sang CCM and was not professional singers who received SVT, but STV was beneficial regardless of musical style. They also highlight how recognizing demanding voice patterns, may lead to improved awareness, adjustment of vocal behaviour, and a greater feeling of responsibility of one`s own vocal health (Dastolfo-Hromack et al., 2016).

Changes of voice quality due to smoking were highlighted in a study by Sorensen and Horii (1982). They found that smoking affects the mucosa membrane and epithelial lining of the vocal folds (Sorensen & Horii, 1982). Alcohol consumption may also contribute to changes of the laryngeal mucosa (Hashibe, et al., 2007). In addition to cigarettes and alcohol, the use of snus is highly present in the Norwegian population. The Norwegian Institute of Public Health (FHI) release a report in 2019 viewing health risks of using snus. The report gives updated figures of the use of snus in Norway, and assess exposure and risk related to this use. One of the main findings presented in this report is that the use of snus does cause changes to the mucosal membrane of the oral cavity, but more research is still needed. There has also been an increase in use of snus in Norway over the last decade, particularly among young adults (Folkehelseinstituttet, 2019).

Taken together, these findings indicate that there are reasons for being concerned about the vocal health of CCM singers. This group of singers are living in a highly vocal demanding lifestyle, and often they are not equipped with the knowledge of how to use sensorimotor experience in order to produce singing voice in a healthy manner due to little or no vocal training (Morawska et al., 2022). CMM consists of highly popular genres of music today, but there may be a lack of awareness and knowledge about the importance of voice care among CCM-singers. This group of singers have a high prevalence of voice disorders compared to the general population. Singers with tight preforming schedules might find vocal therapy less of a priority due to logistical challenges (Adessa et al., 2018). The low self-perceived voice problems in students of singing can be an additional indication on lack of awareness in this group, which again can have consequences as vocal misuse or abuse and not seeking help. Overall, a preventative approach towards voice problems by increasing knowledge of anatomical structures related to production of voice, and vocal hygiene can help this group of singers as they become professional voice users.

Keeping this background in mind, the present study investigated awareness of voice disorders among students of singing as outlined in section 1.1 and 1.2.

3.0 Methods

The methodological approach that allows a deeper understanding of how young singers today address voice is to do qualitative research. The qualitative method gives a unique chance to get more knowledge of the context of which a group or an individual live in by looking through their perspective (Aurini et al. 2021). These methods are not simply a technical recipe and there are variations of qualitative approaches which involve how we view and interpret the world we live in. There are many different traditions regarding the style of understanding of research (Cohen et al., 2018). The theoretical viewpoint highly relevant for this project is the tradition of phenomenology. It allows a better understanding of experiences and awareness on voice disorders in young singers undergoing formal training at university level, and how such experiences and awareness may impact their career. While there are some differences among phenomenologists regarding specific issues, there are also shared points that form distinctive features of this philosophical perspective (Cohen et al., 2018). This includes recognizing the significance of subjective active consciousness and understanding how our perception of the world is shaped through social and cultural interactions (Cohen et al., 2018).

In this chapter I will first explain how I collected my data and describe the participants in this study. Further I will describe the process of how the data was coded and analysed using thematic content analysis. Finally, I will focus on the ethical guidelines related to this project, and the ethical responsibilities of the researcher.

3.1 Data collection

The objective of this master`s thesis seeks to gain a greater understanding of young singer`s perceptions and experiences related to their own voice. Because I am taking this angle, I have conducted interviews. Interviews give the opportunity to gain understanding of the individuals perspective in the context of their own experiences and story (Aurini et al., 2021). This approach is a step away from viewing the participants as data not connected to the individual, but rather as knowledge generated through conversation between people (Cohen et al., 2018). As the word *interview* indicates, it is an interpersonal encounter where people can exchange their thoughts and views on a topic that they are both interested in, making it intersubjective (Cohen et al., 2018). This does not mean that an interview is an everyday conversation since it

is question-based and a carefully planned event with a specific purpose to gain information on a specific topic (Cohen et al., 2018).

To ensure flexibility in the interview setting I conducted semi-structured interviews. This form of interview allows the participants to approach the questions and answer in any manner they choose (Aurini et al., 2021). When I chose my questions, the goal was to create three main parts of the interview, representing an introduction, body and closing remarks. Together the questions should cover themes that were relevant to the research question in this study. In the process of making questions for the interview guide it was important to have the participants` response mode in mind (Cohen et al., 2018). In the present study, this meant dealing with the participants` opinions and attitudes towards taking care of their voice as they enter a voice demanding career as singers.

In the introductory part of the interview, the focus was on going through the information letter. The information letter, which is attach as Appendix A, allowed them to become familiar with why they had been asked to participate, their right to withdraw their consent, and information about the project. The body of an interview usually consists of three main parts which are a warm-up, central and cool-down questions (Aurini et al., 2021). To warm-up I started with a background question to set the theme for the interview. The participants were asked if they could tell me about how they started with singing. As I moved towards the central part of the body of the interview, the questions tackled the main issues of the study. The questions in this part gave the participants the opportunity to share their experiences and perceptions of how voice disorders may affect singers, which could result in emotional responses on this topic. An example of this type of question is "*How do you experience the balance between living the student life and at the same time taking care of your voice?*". These types of questions should be situated in the middle of the interview to allow enough time to cool down (Aurini et al., 2021). During the last section of the interview, the questions revolved around how the participants were involved in finding solutions regarding keeping a healthy voice after ending their college education. Lastly, they were asked if there was something they wanted to add or highlight. The full list of questions is provided in Appendix B original interview questions and Appendix C English version.

In order to see how the questions I had selected for the interview would work and feel in an interview setting I conducted a test-interview. I asked a fellow SLP master student with interest in the voice field to be the interviewee. Afterwards she gave me some feedback on what worked well and what could be adjusted. This helped me to change some of the phrasing

and add two more questions. The colleague`s feedback led to improvements in the order of the questions and a more natural phrasing and flow. This helped me as a young researcher by gaining some confidence before conducting my interviews.

3.2 Participants

3.2.1 Access to the participants

For this project I chose to use my personal network to come in contact with potential participants. During this phase I had to make sure that I would only contact people I did not have a personal bond to or knew on a personal level. The reason for this was because having a personal or work-related relationship with a participant could affect the professionality of the research and compromise the research`s independence (NESH, 2022).

The process of reaching out to participants and getting their consent to be a part of a study can be time consuming. Because of lack of financial support and limited time for the present study, I decided that I would only contact singers that lived in the south-east district of Norway. This way I had the chance to conduct the interviews in person. Having this approach, I did get a restricted selection of participants, but it also gave me the opportunity to meet the interviewees. A potential benefit of sharing physical space with the participants was being able to build a stronger rapport and trust (Aurini et al., 2021). It also made it possible for the interviewer to witness conscious and unconscious forms of non-verbal communication, and physical and emotional responses during the interview. A potential challenge that came with this was interviewer bias, i.e. the influence interviewer has on the responses of the interviewees by either under-reporting or over-reporting behaviours that are considered to be socially desirable (Aurini et al., 2021).

3.2.2 Selection of participants

In the voice field there are several professions that cover all the different aspects of function, treatment, and development of the voice. Even though these disciplines are all highly important we also need the voice users' point of view. This can facilitate the process of obtaining a clearer image and important information, which helps us learn from each other. To highlight the voice users` experiences the participants for this project would be the singers

themselves. Every singer had their unique sense of required knowledge and skills that could become a piece in the puzzle leading to greater understanding in the field of voice.

One group of singers I find particularly interesting is young singers nearing end of formal training and transitioning to professional use of voice. This is a group of people with a strong drive and engagement toward a personal goal. The act of singing is something that they are deeply passionate about and have an urge to learn more (Latham et al., 2017). This is also a time in their life and career where habits are being formed which could influence their voice both in the present and longer down the line. There might be some conflicting interests for this group. On one hand, taking care of their voices is highly prioritised, and on the other hand the social life as a young adult and singer requires building a network and contacts for future relationship related to being a part of the music business. This involves social events that affect hours of sleep, caffeine, and alcohol intake, smoking or second-hand smoke exposure, and the use of snus. The entertainment industry is highly competitive and imposes major demands and challenges on professional voice users. The vocal health of this group may be affected by both environmental and individual factors (Morawska et al., 2022). With this in mind, good but also harmful life choices could be made, which could affect a young singer`s awareness on taking care of their voice.

For this project I interviewed four participants. The reason for including such a small number of participants in the present study was the limited resources, as explained above, and the awareness of what was feasible given these restrictions. Having a relatively small group of participants also gave the opportunity to assess experiences and perception concerning awareness of voice problems, including one`s own. This could for some be a sensitive topic, and it was therefore important to take time to make the participants feel comfortable in the interview setting. It is important to mention that with a relatively small number of participants it is not possible to generalize the findings. However, the goal with qualitative research is to get a deeper understanding of how people understand their reality, and not generalization (Dalen, 2011).

The inclusion criteria for participation in the present study were people that were studying singing at university level at the time of data collection. The students also needed to be in a music program that specialize in CCM, and they would at that point in time define themselves as CCM-singers with the goal of having a career as professional voice user. They also had to stay in the University music program at the time when the interviews were conducted. There were no criteria of whether the participants had to have personal experience

with voice disorders or not, but they had to be active voice users and be in a highly demanding vocal group. The exclusion criteria for participating in the study the singers could not have any form of misuse or abuse of drugs and/or alcohol. The participants had to be between the age of 18 to 24 years, anyone younger or older was excluded. Due to accessibility students of singing living outside of the selected area was excluded from the study.

3.2.3 The participants` description

The data collected for this project is pseudonymous, which do not allow the participants to be identified without the use of additional information stored separately and securely from the data (Finnish Social Science Data Archive, 2023). This additional information was kept in a personal codebook only accessible to me, the researcher. During this process I gave the participants the pseudonyms Singer 1 (S1), Singer 2 (S2), Singer 3 (S3) and Singer 4 (S4). The four participants that agreed to be a part of this project were in their 2nd year of the music program at a university on the south-east part of Norway at the time of data collection.

S1 was a 21-year-old female from Norway. She started singing when she was a young child in a choir in her kindergarten. Later, when she turned 11, she started taking singing lessons first with a classical singing teacher, and then later jazz. In high school she studied the music program, and after went to a "folkehøyskole" that specialize in music and preforming arts.

S2 was a 21-year-olf female from Norway. She started her singing career in a children`s choir. In 5th grade she joined a band and started writing her own music. Later she gained more experience with musicals, jazz quartets and a Big Band. In high school she studied in a music program where she had classical training. Before she enrolled in the academic program, she was in at the time of data collection, she had formal training at a conservatory of music.

S3 was a 22-year-old male from Norway. He started singing with his uncle when he was a child, and they travelled together to different nursing homes preforming for the elderly. Later he started auditioning for different roles in concert setups where he got to sing with professional musicians all over Norway. He also participated in different music and singing competitions and was singing in a band from an early age. He started going to a singing coach in the beginning of his teen years.

S4 was a 20-year-old female from Norway. She has always been singing and begun in a children's choir when she was little. She has taken some singing lessons before she started high school, but never regularly. She did not have any formal singing training before she started the music educations program, in which she was enrolled at the time of data collection. She was active in musicals in her hometown and been singing in a band.

3.3 Data analysis

After data collection, the initial step in analysing qualitative data was to make myself familiar with the material. This step was important to create meaning and structure and prioritize what material was important to answer the research question and what was excess (Bergsland & Jæger, 2014). Data reduction is not the same as disregarding data but rather an important key to distilling the material to find the essence to be able to identify patterns in the material. This was a process that allowed me to understand, explain and interpret the phenomena I was researching (Cohen et al., 2018).

After I had conducted the four interviews, I was left with voice recordings, personal notes, and a log for each of the conducted interviews as my raw material. In qualitative research the written notes, memos, thoughts, and reflections of the researcher are all considered data (Cohen et al., 2018). The first step in the process of getting to know the data was to transcribe the voice recordings into written text. During the transcription of the recorded interviews, I had a naturalistic approach. This approach focused on the content of what the participants said without having to capture all idiosyncratic elements of speech (Aurini et al., 2021).

When analysing the data collected for this project the themes was identified in an inductive process. This approach is also referred to as the bottom-up way because of the strong link between the themes identified and the data itself, rather than testing a pre-existing theory or hypothesis (Cohen et al., 2018). Even though I had the inductive approach when analysing the data, it was important not to neglect the fact that a researcher can never free themselves from their prior knowledge and theoretical standpoint during this process. This acknowledges that coding data does not happen in a vacuum (Braun & Clarke, 2006). To preclude this and minimize the risk of bias I was treating the analysis as an ongoing process by continuously and consciously asking myself questions if the choices I made reflected what could be found in the data.

3.3.1 Thematic content analysis

To analyse the data collected in the interviews I chose to have a thematic content approach. This method seeks to identify, analyse, and report patterns in the collected data (Braun & Clarke, 2006). Doing so allowed me to make comparisons within the collected material based on the identified patterns. To be able to make this comparison the data material needed to be coded and organized in theme sections.

To code the material, I used a method which involves six steps and is developed by Virginia Braun and Victoria Clarke. A key element of this approach to coding is the active role of the researcher, meaning taking conscious decisions and choices during the coding process. A key to finding themes was whether something captures what was important in relation to the research question rather than being dependent on quantifiable measures (Braun & Clarke, 2006). Like most qualitative research analysing processes, there were a constant moving back and forth in the entire data set. Even though the thematic content approach described by Braun and Clarke is based on a six-step process it is more a guide in the dynamic process of analysis than a recipe one needs to follow in a strict order.

When working with verbal data, the sound recordings from the interviews, transcribing is the first step. This includes listening through the recordings and familiarizing oneself with the data with an analytic view (Thagaard, 2018). When transcribing verbal data into written text I decided to not use any punctuating marks, but rather write it as a flow of speech. I did this to keep the transcription as free as possible from my personal interpretation early in the analysis.

The second phase was generating initial codes that identify features found in the data to organize segments into meaningful groups (Braun & Clarke, 2006). I did this manually by creating a new document in Word where I pulled out data items of the text from the transcribed interviews, put them in boxes, and wrote notes to the data items, as shown in Table 1. During this stage of the analysis, I tried to be open and not too critical because these might be themes that could be interesting later. I did this across the dataset to identify interesting aspects and to be able to see and identify patterns emerging from the data. Completing this phase, resulted in a long list of codes that could be organized later.

Table 1

Extracted Data Item and Applied Codes

Data extract	Coded for
S1: I don't know a lot about it (the voice) except my own in a way or I do try to look a little bit at how others are using it (their voice) sort of.	- Insecure about the topic "voice" - expressing lack of knowledge - Seeking collaboration with other singers

The third phase was where I started searching for themes. This phase re-focused the analysing process by having a broader view to identify and sort the codes into overreaching themes (Braun & Clarke, 2006). To get a visual representation of this process I used thematic maps. This allowed me to identify and differentiate between main overreaching themes and sub-themes, as shown in Figure 2. I ended up with some codes that did not seem to belong into any themes, for these cases I made a separate document with a theme called "diverse" temporarily. The next step was to review the themes that were selected, Braun and Clarke describe these themes as candidate themes. This phase was crucial as I needed to refine the candidate themes because there might not be enough data to support them, or they might collapse into each other (Braun & Clarke, 2006). Reviewing the data in the candidate themes was done on two levels. The first level involves looking at the coded data for each candidate theme to determine if they represented a coherent pattern and a «red thread» for that specific theme. The second level involved looking at the themes in relation to the entire dataset. This was where I asked myself "*Do these themes represent the meaning evident in the data set accurately?*". This process resulted in a contour of a thematic map.

Figure 2

Initial Thematic Map in the Fourth Phase of Coding
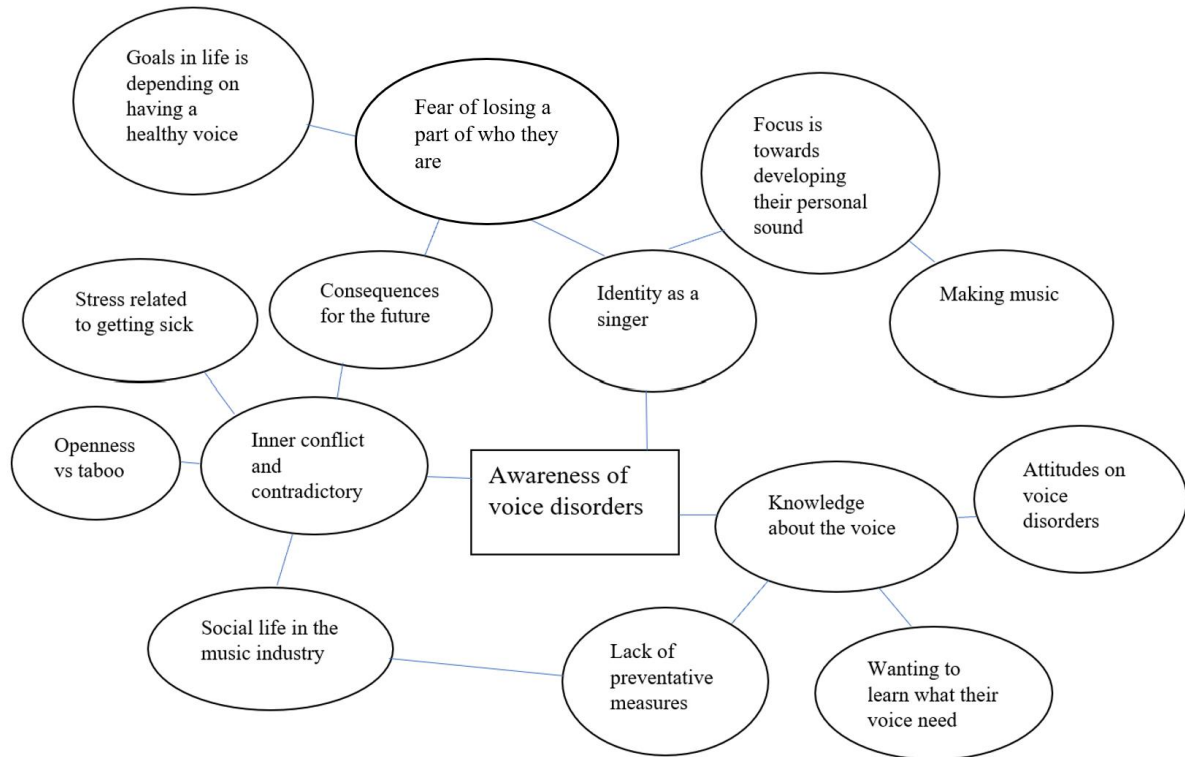
Defining and naming themes was the fifth phase and included the last refinements of the thematic map, illustrated in Figure 3. This meant finding the essence of the content in every theme and determining what part of the data set each theme captured (Braun & Clarke, 2006). This phase was also where I had to identify and tell each theme`s story in relation to the research question, both individually and in relation to one another. Furthermore, the working titles of each theme was given. These titles needed to be concise and give the reader an immediate understanding of what the theme captured (Braun & Clarke, 2006). At the end of phase five a total of three main themes emerged as central in all four interviews. The sixth and last phase in Braun and Clarke`s approach to thematic analysis is producing the report (see section 4.0 Results).

Figure 3

Thematic Map of the Three Main Themes
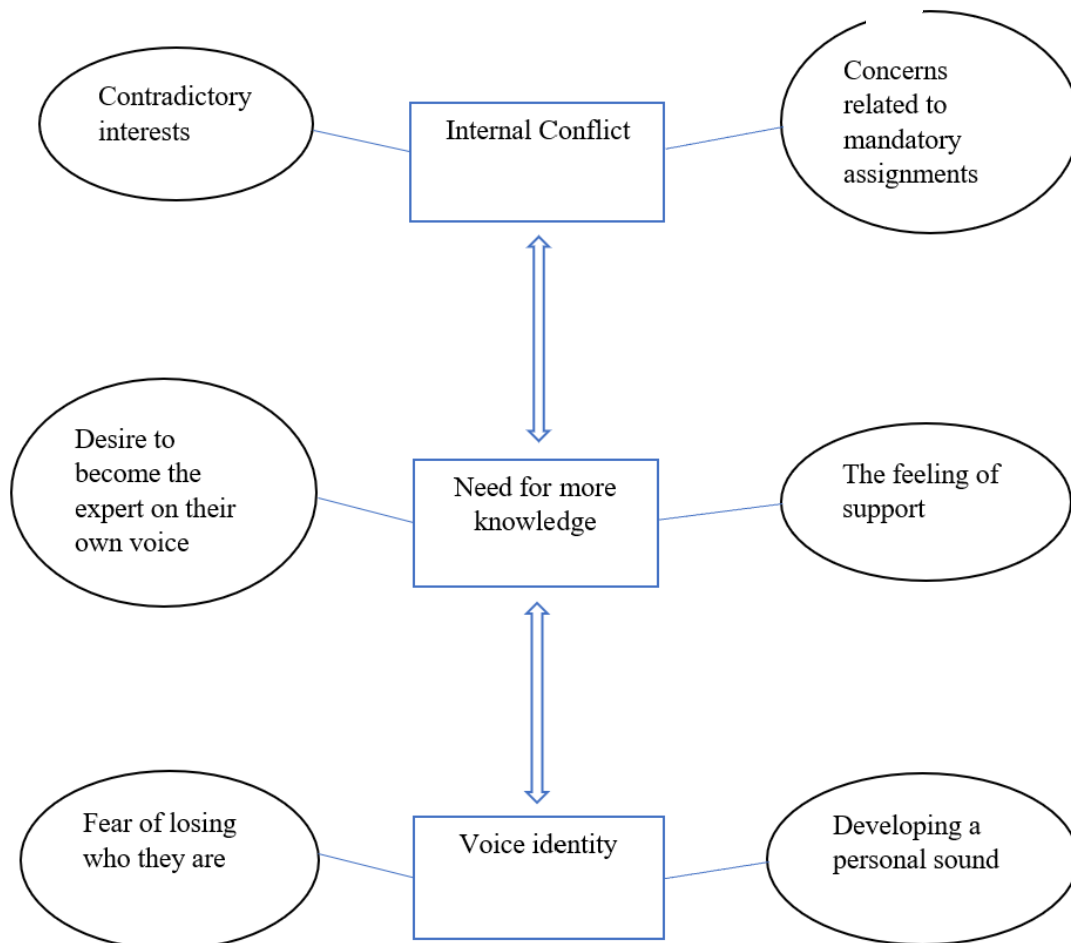
3.4 Validity and reliability of the present study

Defining relevant research questions, deciding what perspectives to take, and selecting methods and participants for research are affected by the researchers' views, academic interests, and personal experience. Furthermore, how data is analysed and interpreted to answer the questions is also influenced by these factors (Malterud, 1996). It is worth mentioning my personal engagement in music, and especially the singing voice. This personal engagement is both a challenge and advantage because it could influence which aspects were highlighted and which were overlooked. Because of this it was important for me to reflect upon my own knowledge, prejudice, and background before going into this project. When

preparing questions for the interviews and throughout data collection and analysis, I often had to consider the direction I wanted for this project. This included deciding whether to use mixed methods or if it would be more beneficial to collect data from teachers of singing or SLPs working with singers. With the resources available to complete this master`s thesis I chose to interview students, although studying the perspective of other professions working with this group of singers could be an interesting angle for future research.

Validity and reliability in qualitative research differ in many aspects from quantitative and mixed methods (Cohen et al., 2018). How we understand the two terms depends on the different approaches we have towards research. Even though threats towards validity and reliability never can be cancelled completely, attention on these issues throughout the process would strengthen the research. The differences in how validity and reliability is addressed and interpreted within different methodological approaches makes it important for the researcher to be clear and demonstrate what principles of these concept he or she is working by (Cohen et al., 2018).

Effectiveness of research depends on its validity, otherwise it is considered worthless. There are different types of validity, reflecting whether the measures used to collect data measures what it intends to (Cohen et al., 2018). This includes if the results of the research can be seen in relation to the collected data, and being able to check if these results correspond against the real world (Aurini et al., 2021). During a research process it is important for the researcher to be aware of the possible threats to validity. These threats include misinterpretation of the collected data and misleading presentation of the findings (Aurini et al., 2021). In qualitative research the process is important, and not only the outcomes.

There are several principles to validity that concerns the researcher's role as part of the research instrument, not solely depending on the tool, which in this case were the interview questions (Cohen et al., 2018). This includes how I conducted the interviews by bringing in previous knowledge and assumptions and being aware of how this could affect the interview. Even though the method of data collection for this project was semi-structured interview, which left space for the interviewee to speak relatively freely, there was still some guidance from the interviewer. What questions I had decided to ask and how they were phrased, how I reacted to their answers, and how I interpreted this during the analysis all played a part in this project. To limit threats to validity in the present study I documented the research process from beginning in a transparent way, detailing how I had collected and analysed the data. This

made it possible for other researchers to include an alternative explanation or interpretation that this thesis did not account for, which is closely linked to the reliability of the research.

Reliability tells us how trustworthy the result of the research is based on dependability, consistency and replicability over time, instruments, and groups of respondents (Cohen et al., 2018). It has been debated whether the term *reliability* is adaptable for qualitative research because the strive quantitative research has for replication is different in qualitative research. Studying a phenomenon in qualitative research aims to present a rich and deep understanding of the uniqueness of a situation rather than requiring the high degree of control and manipulation of phenomena in quantitative research. This can include understanding how people behave in certain contexts where the individuals and the surroundings are dynamic and in constant change. This makes it challenging to find a universal and accurate explanation of a phenomenon that would always be substantial for everyone. Regardless, elements of qualitative research can be replicated This includes stability of observations, parallel forms, and inter-rater reliability (Cohen et al., 2018). These are elements that require more time and resources not available for the current study. Therefore, it was important for me to be open and describe the research process in detail.

3.5 Ethics

When conducting research, the researcher needs to be aware of and follow a set of ethical guidelines. These guidelines are set because during research we look closely on peoples' actions and relationship between them. The ethical principles, rules, and guidelines concern what is right and what is wrong during research and behaviour of the researcher (Cohen et al., 2018). This was especially a concern when conducting the interviews due to the direct contact with the participants. Throughout the research proses participants' human dignity, personal integrity, safety, and wellbeing needed to be retained. In the process of treating personal data there are three main principles that play a crucial part in the ethical guidelines for collecting and processing data. These three principles are: informed consent, confidentiality, and consequences (Bergsland & Jæger, 2014). One aspect of this project that I had great respect for and that played part in ensuring these three principles was my role as a researcher. The participants in this project were recruited through personal network which made it highly important for me to not at any point confuse my role as a researcher with my personal life.

This came down to ensuring the dignity of the participants and the confidentiality of the data collected for this project.

The Declaration of Helsinki developed by The World Medical Association (WMA) has stated ethical principles for medical research involving human subjects. Even though this project did not involve medical research the principles are relevant for all research involving humans. One of the general principles is the duty to "promote and safeguard the health, well-being and rights of patients" (The World Medical Association, 2022, General Principles section 4), in this case the participants. For this project it was important to be flexible to when I would conduct the interviews due to health issues. We had an open dialogue about questions the participants may have had before, during and after the interview, and I made myself as the researcher available for the participants to contact. I made sure to hand over the information letter in advance and read through it with the participants before conducting the interviews to make sure they understood their rights when participating in the project. Only after I had made sure that the participants had understood what it would mean for them to participate in the project, the participants could give their informed consent. The letter of consent can be found in Appendix A.

To be able to use a sound recording device during the interviews, the project needed to be approved by the ethics comity. The application to collect data for this project was a registration form on SIKTs webpage (https://sikt.no/), SIKT is the Norwegian Agency for Shared Services in Education and Research. The application was approved on 14.01.2023, stating that the approval was based on the information that I had given in the registration form. The approval included use of a sound recording device and treating personal data with low risk. The approval form can be found in Appendix D. These recordings needed to be secured during and after the interviews, and deleted after the project ends, i.e., after 01.06.2023. During the interviews two recording devices were used. One was an independent recording device meaning it was not connected to internet and the recordings were only stored on the recorder itself. This recording device was only accessible to me. The other recording was a voice recording app developed by the University of Oslo (UiO) called "Nettskjema-diktafon" which was encrypting the recording and then sent to a secure web-based server called Nettskjema. Nettskjema is developed by UiO and offers security measures to ensure data accuracy and privacy among other features. The audio recordings from data collection were only available to me. The transcribed data were anonymized to protect the participants` identity and integrity (NESH, 2022).

"Ethical consent to participate should be voluntary, informed, and unambiguous, and it is preferably documentable." (NESH, 2022, part B, 15. Consent to participate in research). The obligation to ensure informed consent is important because it builds on the understanding of personal integrity and privacy. To ensure this it was important to collect the participants' consent to be a part of the research. The participants` consent had to be voluntary which indicates that they should feel no pressure to give their consent. This also include the information that they could withdraw their participation from the research project at any time without any negative consequences for them. The participants must also be informed about what the research was about, how the data would be stored, and how their anonymity would be protected. The communication had to be done in a language and manner that was understood by the participants (NESH, 2022). I chose to write the information letter and consent form in Norwegian as all participants had this as their first language. For the participants to be able to make a well thought through decision they needed all relevant information of what the purpose and aim of the research was about, and why they were contacted.

After I got the approval from SIKT to collect data I gave the information letter and consent form, Appendix A, to the participants that was interested in participating in the project. I made sure that they had the option to read through all the information and ask questions if something was unclear by handing them the information letter before we scheduled the interviews. I contacted four singers, and all four was interested in taking part in the project.

4.0 Results

In this chapter I will focus on the results from the data analysis of the present study. In the analysis three overreaching themes were found relevant to the scope of this thesis. These three themes were: *internal conflict*, *need for more knowledge*, and *voice identity* (Illustration of the themes can be found in Figure 3). The themes seek to give a true representation of the responses of the four participants while also be connected to vocal health of CCM singers enrolled in music programs at university level. Even if these themes are not independent from each other, I will introduce the findings of each theme separately in this chapter. Each main theme consists of sub-themes intended to describe the different dimensions of the main themes. How the themes are connected will be considered in the Discussion.

In qualitative research the contribution of the participants is an important part of the research. I did this by integrating quotes of the participants` responses from the interviews. Using quotes was a way of giving examples and nuances to the themes. In addition, I gave my analysis related to these themes to highlight the participants` reflections. As mentioned in the method chapter, I have translated the data collected in the interviews from Norwegian to English (see interview guid in Appendix C). I ensured to make the translations as true to the original responses as possible by keeping the original phrasing and preserve the essence to not change the purpose of the responses.

4.1 Internal conflict

The theme "Internal conflict" consists of the two sub-themes "Contradictory interests" and "Concerns related to mandatory assignments". As young adults starting their music education as students of singing, they are faced with challenges and choices as they enter a new stage in life. Becoming a part of a new community and beginning to make their mark in the world of music could be a demanding process with dilemmas pulling in different directions. Raising awareness and building a strong fundament grounded on knowledge and dialogue could be a contributing factor guiding this group of young singers.

4.1.1 Contradictory interests

When analysing data from the interviews, one common factor among the participants was a feeling of contradicting interests in their everyday lives as singers and students. This conflict of interests boils down to a strong desire to have a healthy voice both now and in the years to come, but at the same time wanting to take part in the social life that naturally becomes central to student life. As one participant (S4) noted:

> *After a party my voice always get hoarse, and if I use my voice too much. I have noticed that it makes me less social, and I can`t join parties because I have a practise or am recording in the studio the next day. That is very annoying because then I become the quiet one. (…) I do wish I could be more social, but I think there is a psychological factor because I get scared something is going to happen to my voice like it getting hoarse. It really does affect me, or else I would be more social.*

S4 reflected on how her choices could affect both her vocal health and her role in the social environment at the university. She expressed how she finds this challenging because her choices could affect how she is perceived by others, but at the same time she wants to take care of her vocal health.

As the participants were asked to think about how they balance student life with taking care of their voice, the participants started with statements indicating that they found this balance difficult. They began their answers with "*I have had to get good at setting my own boundaries …*" or "*It can be a challenge because…*". This indicates that this dilemma was something they have struggled with during their time as singers in a highly social lifestyle. They also brought up the inclusivity of the music community, and how this contributes to both positive experiences and having to make challenging decisions.

The participants shared their own personal experiences with vocal misuse or abuse, and the environmental factors in social settings, and how this could affect their voice. There were some differences in the responses to what the participants prioritised and their thoughts about this behaviour. S3 responded with:

> *When you are a student there is a lot of partying, alcohol and snus which does affect my voice, so that is a challenge, (…) when I`m partying I do shout and sing with everything I have, and that is probably not good.*

S3 pointed out aspects of possible harmful behaviour related to social situations, also expressed by S1, but the awareness was not always related to behaviour:

> *I know I should have taken care of my voice this weekend, you should not drink alcohol when you can feel your throat is starting to hurt, which I did… three days in a row.*

On the other hand, S2 emphasized how making a choice based on previous experiences could help to avoid situations with a high chance of vocal misuse.

> *You need to be true to what you know about yourself, if your throat hurts don't shout with a beer in your hand in room with loud music (…) but you are expected to join, I am in a situation now where I have to decline invitations to go out to stay home for the sake of my voice.*

Even though the participants had different approaches to how they handled this dilemma, they were aware of how their social life as students and vocal health as singers could affect each other. S4 believed this difference may have something to do with the singer`s personal experience with voice disorders:

> *My impression is that most people have not struggled with their voice, so it is like they don't really respect their voice.*

4.1.2 Concerns related to mandatory assignments

A part of student life is fulfilling the requirements set by the university, such as assignments and concerts organized by the university. When asked about how their voice affect their life as a singing student S1 expressed concern related to getting sick and little time for recovery. S1 said:

> *Voice problems is so not fun, for instance something happened to my throat, and of course it had to happen when I needed my voice the most. I had both studio and a concert that week, and when I woke up on Friday my voice was gone. (…) What am I supposed to do? It is like a mandatory assignment, so I have to do it.*

This quote points out how voice problems could affect personal goals related to achievements at the university, and how students of singing have a voice demanding life even before they

become professional voice users. S1 shared her thoughts from a period where she was struggling with her voice after a long period of being sick:

> *I can`t sing anymore, alright then I have to drop out of school (...) and I should just find something else to study, (...) but like if I can`t study music what am I supposed to do? If I can`t become an artist, then I have nothing to do here.*

As a student of singing, S1 expressed the difficult feelings of having voice problems and at the same time take part of a university program with the premiss of having a healthy singing voice. S4 also pointed out how being a student of singing could be challenging because they must balance the total vocal load in a voice demanding environment:

> *It really is about awareness of the total vocal load, so if you have two practises one day, and a recording session in the studio, and on top of that talk to people in the afternoon and sing along to the music you are listening to, it`s a bit too much.*

The participants described the internal conflict as finding the balance between the social life of a student of singing, taking the measures necessary to their vocal health as singers, and reaching their goals related to mandatory assignments from the university. This balance was found to be challenging, and even though all participants expressed awareness on this theme they had different approaches and priorities facing these challenges.

4.2 Need for more knowledge

The second main theme among the participants was "Need for more knowledge". The different aspects of this main theme are illustrated through the two sub-themes "Desire to become the expert on their own voice", and "The feeling of support". The participants expressed a relatively low base of knowledge of what voice disorders are, unless they themselves had direct experience working with an SLP. The development of knowledge of preventative measures and tools the singers could use themselves, was something some felt missing. Other expressed that they had a repertoire of tools but felt unsure when and how to use them. How knowledge and experiences affected the feeling of support from others was another factor. This involves both how voice problems and voice disorders are discussed and referred to among the singers themselves, but also other musicians.

4.2.1 Desire to become the expert on their own voice

The sub-theme "Desire to become the expert on their own voice" shows how the participants expressed a desire to learn more about their voice. The participants described their voice as their instrument and stressed the importance of having an open dialogue of how to take care of it just as any other instrument. The participants came from various singing backgrounds, which gave them different starting points as they began their formal training of singing at the university. S1 had singing lesson from a relatively young age, during that time her teachers of singing had a classical or jazz-oriented approach. In recent years CCM-singing became her focus, she noted that:

> *When I have singing lessons or recording sessions we usually skip warming up and that sort of things. I feel like the voice is not taken serious maybe, so I have not really been through a process where I got to properly know my voice and what it needs, maybe that is something I must do on my own. I don't know, it is difficult.*

From what S1 described, she found it challenging to prioritise measures to protect her vocal health because that was not a priority in her singing lessons. Since this had not been prioritized, she expressed a feeling of not knowing who to turn to if she wanted to learn more about her voice. Knowing your own voice to the extent where you can feel what it needs is also an aspect S2 talked about:

> *I feel like I have several tools to help me, but there is also a big question mark in my head when it comes to voice disorders… Where is the line for when I should push through and sing, or take a break, do some exercises or just be quiet?*

Even though both these singers had formal singing training starting at a relatively young age and experience through years of singing despite still being young, they expressed feelings of being unsure of how to interpret the signals from their voice. They wanted to know their voices on a deeper level.

S3 talked about how sharing knowledge and experiences of voice disorders could help him gain a stronger awareness of his own behaviour. He also pointed out how this could be helpful not only now but for the future as a preventive method for voice disorders.

> *Talking about voice disorders might make me more aware of the choices that I take, or how I use my voice. It might also help me pay more attention to the fact that something can happen to my voice, and that it is not a certainty that it will stay this way forever.*

S4 shared this desire to not only preserve a healthy voice in her future career, but also evolve and work on her voice to become a better singer.

> *I want to have my voice as long as I…I was about to say… I am here, and I want to become the best possible singer I can, both technical and in every other way.*

4.2.2 The feeling of support

The feeling of support is connected to the general knowledge of voice disorders in the music community, and how singers are met by other singers, other musicians, and family and friends when they express concerns related to voice. All participants expressed that they felt acceptance and tolerance when it came to sharing experiences of having voice disorders, or even mild periodic challenges effecting their voice quality. Some said that they almost felt assured when another singer mentioned their own struggles because it made them feel less alone. When analysing the data, it was clear that the participants appreciated the support from family and friends but fund the support from other singers more comforting. With comments such as "*it feels very safe when you have someone in the same field to talk to, who understands*" and "*it is easier to talk to other singers who have been in the same situation*".

Although the participants expressed that they were met with understanding and openness when it came to voice problems, also negative experiences and thoughts came up. This included a feeling of misunderstandings of what voice disorders are and what it says about them as a singer. S4 shared her experience by saying:

> *I don't think voice disorders was talked about* (in her class) (…)*, maybe people think that… or I can catch myself in thinking that it means that you are a bad singer or you`re doing something wrong. (…) but obviously it has nothing to do with that. Voice disorders can be sort of a taboo thing to talk about.*

S2 shared some of the same experience of being misunderstood as S4, by expressing frustration of being met with little understanding from other musicians who are not singers, and a feeling stigma around this topic:

> *(…) I had a concert in the spring, and I was struggling with my voice because I was sick, and I felt like that was downplayed by the others… that there is stigma around struggling with the voice, and that it was not a good enough reason to not go through with the concert. (…) it was awful.*

S4 also described her relationship with the subject of voice as ambiguous because her experience with struggling with her voice where not only negative, but it had also become a personal strength. She highlighted how this helped her gain knowledge of how her voice reacted in different situations, and how she could handle challenges in a constructive manner.

> *I think that there are very few singers who don't get a voice disorder in their career, and because I have gotten it so early before I really have to preform, or if I go on a tour, I can take the precautions needed instead of losing my voice. (...) I go to a SLP were we made a voice therapy program, I have gotten many tools that I can use.*

She continued by talking about her perception of how singers in popular music do not recognise voice disorders unless they reach a certain level of success.

> *In pop music it is more… like voice disorders, I feel like that is not as big of a theme, and very few gets to a level of, how do I say this, an elite level where they are living as an artist and goes on tour, and before that it* (voice disorders) *is not really a consideration, I think.*

The need for more knowledge was described from the singers` point of view as a desire to learn more about their own voice and to know what it needs. In that way be able to make conscious decisions for themselves that they could stand confidently in and become the expert on their own voice. S1 noted that "(…) *I feel like I could take singing lessons for the rest of my life"*. Even though the students of singing came from very different singing backgrounds, from almost no singing lessons at all to being a part of a music school from a young age, they all felt they still had a lot to learn.

4.3 Voice identity

During the analysis, I found a third common theme among the students of singing. The main theme "Voice identity" reflects how attached the students were to their voice, and the strong bond between their voice and who they are. During singing lessons at the university, the focus was directed towards expressing the singers` identity through their music. The two sub-themes "Fear of losing the sense of who they are" and "Developing a personal sound" aim to capture the facets that this main theme contains.

4.3.1 Fear of losing the sense of who they are

When the participants were asked questions related to their own voice it became clear that they all had a close connection between their voice and identity. This relationship was characterized by both appreciation of what they can do with their voices, and the realization of what it could mean to lose their voice. The students described a feeling of losing themselves if they lost their voice, and a fear that voice related problems could present major challenges for their future careers. S2 described her relationship with her voice as:

> *I use my voice for everything, I am so grateful for having it, and appreciate everything I can do with it, very grateful. (...) I have the opportunity to experiment when I write my own music and I mean it is so much identity connected to voice, and I can bring that into my work.*

This grateful approach to the voice was a common factor in all the participants` responses because it gave the participants the opportunity to do what they love the most, which was singing. Being dependent on a voice that can handle the demands of singing could also bring significant consequences for the future. S4 noted that:

> *To me, it feels like losing a foot when I can`t sing. (…) I would not be myself if I could not sing, it is what I`m known for where I`m from, people know who I am because of singing.*

This tells us how connected she is to her voice, and how restrained she would feel if she lost her voice. She also described her singing as an important part of how she is perceived by others. S3 described the impact of losing his ability to sing as:

> *If I had lost my voice again, I would feel like my world was crumbling, right now I feel like it is all I have, especially when it comes to career and dreams and ambitions. (…) I feel like if I had lost my voice, I would also lose a part of me.*

S3 expressed an emotionally realisation of how he would feel if he no longer could sing. He did experience a difficult period in his life related to his voice when he went through puberty, during this time he almost gave up singing. From the response in this quote, we get an understanding of how emotionally connected he was to his voice and what it could mean for his future.

The relationship the students had with their own voice, and having a healthy voice also impacted their creative expression related to writing their own music and creative process.

The analysis of the data showed that there were similar experiences of participants who had personal experienced voice disorders and those who did not themselves have any major challenges. Loss of motivation and inspiration to write music was emphasised, and three of the participants also mentioned how it could affect the sound of the music, making it more melancholic and muted. S1 said:

> *I write music and when I`m in a period where I feel like I can`t sing in a certain way or I don't get my voice to sound the way I want it to, then I just don't bother writing anything (...) There is no point in doing something when you just feel like it`s not going to be any good anyway, it`s not motivating.*

S1`s experience show how voice problems could have an impact on song writing. The sound of the voice was not corresponding with what she associated with her identity, which led to a lack of motivation. S4 brought in another perspective; she talked about how a lack of social interactions had affected her creativity by getting fewer inputs from her surroundings. S4 said:

> *In my case, when there is something going on with my voice and I can`t interact or talk to other people, I become less creative, also because I get so many inputs from conversation, listening to music, singing… so it`s difficult to write music because… what should I write when I don't have anything to say?*

4.3.2 Developing a personal sound

The sub-theme "Developing a personal sound" represent the participants` work with their voice at the university. When the participants were asked which focus was emphasized in the singing lessons at the university, they talked about how the singing lessons aimed towards expressing themselves and writing their own music. The mentioned that the focus more on self-expression rather than singing technique and other preventive measures such as vocal hygiene. Some describe singing technique as something that did not quite belong in their world, and as a focus from past singing training when they had teachers of singing educated in classical style. S1 noted that what she had learned at the university was that "*As long as you use your voice in a way that doesn't hurt*" you were doing it correct. The participants came from different singing backgrounds before starting formal singing training at the university. Despite this, some of the participants got the impression that there were expectations related

to previous knowledge before starting the formal training at the university. S2 described this as:

> *In the beginning in basic singing training the focus is to maintain a healthy voice, and it is important later as well, but it`s just that the singing teacher expects you to already know these things. (…) Here* (at the university) *we must decide ourselves what we want to work on. (…) At the moment we are working on finding our identity in our songs, a completely different focus.*

S4 did not receive any formal singing training before starting her university education of singing. Her experience of the singing lessons showed a focus of finding who she is as an artist rather than how she uses her voice when singing:

> *We don`t really focus on technique or those sorts of things, at least not with the singing teachers I have had (…), it`s more about how you communicate the message, so the technique is there if you sing from your heart, if that makes sense?*

S1 shared this experience and added on how the opportunity of writing and recording her own music at the university was something she had been longing for. At the same time, she wished that some of the focus would be directed at vocal health:

> *My singing teacher wanted me to start recording and write my own songs, and I needed that push, but at the same time I wished someone had… I have considered going to a voice specialist.*

Two of the participants mentioned one lecture at the university where an SLP specialized on the singing voice talked about the anatomy of the voice production system and gave some feedback on the singers` voice. S3 described this as:

> *The SLP talked a lot about how she could hear when I was talking that my voice was strained. At first, I got a bit scared because that is something I want to avoid, (…) at the same time I think that when you are up on stage and overthink everything you do, I think that is too exhausting. It needs to be a balance.*

This quote shows how S3 preferred a balance between feeling free on stage and being able to use his voice in a way that represents him as an artist, but at the same time not strain his voice. He described the experience of getting feedback on his voice quality as something that scared him, but at the same time feeling tired of constantly thinking of his voice while singing.

Consistent for all the participants was a desire to explore who they are as an artist, which applies regardless of previous formal singing training. The students of singing described their relationship to their voice as close, and an inseparable part of who they are. Part of the difference between the participants involves how the previous training had been internalized as a base of knowledge to be able to explore their voice in a healthy manner.

4.4 Summary of the results of the present study

Through the exploration of the three main themes, this study aims to provide insight into how students of singing experience their lives in relation to the challenges of being part of a voice demanding group. The result of the analysis emphasizes the knowledge young singers have acquired to maintain a healthy voice in the long term, as well as their reflections on the current state of openness around voice disorders among their peers.

The analysis of the data revealed that all participants found it challenging to navigate being in a highly social music community and make choices that benefitted their vocal health. Though all participants were aware of this dilemma, there was variation in their priorities. Additionally, regardless of their previous singing backgrounds, all the participants emphasized the importance of acquiring more knowledge about their own field and how to become experts on their own voice.

While voice problems were experienced as highly disruptive in the singers` lives, the participants reported experiencing openness and support from other singers. However, voice disorders were also seen as a taboo and stigmatized subject. The identities as a sense of self and as artists were closely tied to the participants` voices, which they got to explore in their university singing classes.

The results of the analysis highlight various aspects of how awareness of voice behaviour could impact the lives of students of singing. This accentuates the complexity and multifaceted nature of voice disorders, as well as the many elements the contribute to singers` awareness of voice disorders.

Given these findings, the three main themes should be viewed in conjunction to better comprehend the experiences of the students of singing. Further I will discuss the results considering previous research and theory presented in Chapter 2, as well as my own reflections on the themes.

5.0 Discussion

The scope of this study is to gain insight to the resources and challenges students of singing within the field of CCM as they are about to enter a career as voice professionals. The goal is to be a contribution to better understand the perspective of the students themselves to help facilitate good vocal heath in a long-term perspective for this group at risk of voice disorders. The research question is:

How do university-level students of singing in the field of Contemporary Commercial Music perceive voice problems in relation to pursuing a career as voice professionals?

In this chapter, I will discuss the research question based on the finding presented in Chapter 4 considering the theoretical background presented in Chapter 2. This will be discussed along with my interpretations and reflections on the topics addressed. The data collected for this study allows for diverse interpretations, as it primarily consists of the participants' personal experiences as university-level students of singing. Not all the theory presented in Chapter 2 is equally relevant to the discussion. However, I have chosen to include it in this thesis because it provides an important background of knowledge central to understanding the complexity of the voice field.

As shown in Figure 3, the main themes found in the analysis are connected to each other and will therefore be discussed in conjunction. This chapter is structured into four sections, each focusing on findings within the three main themes. The aim is to shed light on these different findings and discuss their interconnections across the themes. Lastly, I will propose potential directions for further exploration in future research based on the findings of this study.

5.1 Building knowledge

Within the main theme of "Internal conflict", it became evident that the participants faced a challenging dilemma when it came to balancing their social lives and making choices that prioritized their vocal health. Additionally, there were variations in how the participants navigate this dilemma. As singers they had a goal of being able to sing on a professional level in the future, where a healthy voice is a fundamental factor to achieve this goal. At the same time, as young adults living a student life, they were met with challenges regarding

environmental factors affecting their vocal health. This led to an inner conflict related to having a healthy voice and participate in social activities. One reason why this internal conflict becomes apparent could be because building an identity as a professional singer often involves a sense of belonging within the social community that the music society provides (Schei, 2007).

S4`s responses indicate that she has undergone personal growth in recent years related to learning about vocal health. As Morawska and colleagues (2022) found in their literature review, low awareness of vocal hygiene and lack of voice training is identified as a risk factor for voice disorders among singers, which seemed to be the case of S4. In the interview, S4 emphasised the importance of the knowledge she had acquired to better understand her vocal health through guidance provided by an SLP. This acquired knowledge had been a great insurance in vocally demanding periods during her studies. Moreover, S4 anticipates that this acquired understanding would have long-term implications for her career trajectory as a singer. She emphasizes the contrast between singers who have experienced voice disorders themselves and those who have not, particularly in terms of how they approach and care for their voices. This observation underscores the potential lack of understanding regarding the gravity of voice disorders among singers who have not personally experienced the strain it can impose.

Both S1 and S3 highlighted how student life involves socializing and emphasized the importance of social gatherings. They mentioned that such situations often involve alcohol consumption, using snus and extreme vocal usage as shouting and loud singing. Even though the usage of alcohol and snus still might be moderate, the effect alcohol has on vocal behaviour in terms of how it facilitates for vocal misuse in terms of shouting and loud singing seems evident. We still don't know how the use of snus can affect the vocal cords. The fact that they brought this up indicates their awareness of behaviours that can be harmful to their voices. However, their responses also suggest that participating in the social community as students of singing is highly important to them. According to Dastolfo-Hromack and colleagues (2016), becoming aware of such behaviours can lead to a recognition of voice-damaging behaviour. This can subsequently result in changes towards a sense of greater responsibility for their vocal health.

Change in behaviour requires an initial process of raising awareness, which in itself can be time-consuming. During the interview, S2 raised awareness of environmental factors that could influence a singer`s vocal health. However, she adopted a proactive attitude in

handling social situations where her participation was expected. S2 explained that she had developed the ability to identify challenging situations for her voice and, consequently, established personal boundaries. This can be interpreted as her developing a sense of responsibility towards her own vocal health by becoming aware of environmental factors that contribute to harmful vocal behaviour. Even though S4 also had developed an awareness of behaviours that could potentially be harmful to her voice and had acquired knowledge that could be beneficial, she also highlighted the dilemma. She emphasized the challenge of making choices that prioritized her vocal health. This sometimes resulted in social consequences and limited participation. All the participants described their community as highly social, and S4 expressed a reluctance to adopt the role of becoming "the quiet one" as it did not align with her self-identity.

The study conducted by Sielska-Badurek and colleagues (2018) found that a high percentage of students of singing began their education with a voice disorder, despite showing a self-perception of voice disorders within a normal range. S4 highlighted the importance of finding a balance in the overall vocal load for singers, which is crucial in managing various external demands, including social interactions and university-related obligations. This balance is closely related to S4`s awareness of vocal hygiene, using strategies such as reducing vocal load.

There were differences in the replies form the participants regarding awareness. S1 found this balance particularly challenging, especially during periods when she experienced voice problems. This challenge led to negative emotions and thoughts regarding her future as a student of singing, and that she may be unable to continue her studies if she ever experiences voice disorders. This may suggest a lack of resources to navigate through such periods of struggle to assist her in overcoming these challenges. Altering behavioural patterns proves to be highly demanding, as it involves disrupting established habits and automatic behaviours (Colton et al., 2011). In addition, the expectations and demands placed on students of singing regarding their voice usage, further complicates the task of achieving this balance. The difficulty in finding this balance could attribute to a combination of habits, as well as external pressures and expectations.

5.2 From knowledge to awareness

S1`s experiences and reflections regarding knowledge about the voice can be interpreted as her not having the opportunity to be engaged in a process of learning to understand her own voice. Instead, she expressed a desire to adopt a more conscious approach to identifying her voice`s needs. This can be understood in connection to her challenges in balancing her life within a social music community, the demands of the university, and her personal aspiration to maintain a healthy voice. By increasing her competence, it may become easier for her to modify her vocal load to a level that is not harmful. S1`s observation on the lack of emphasis on vocal health in her singing lessons at the university, led to a potential neglect of some aspects of the vocal training, such as knowledge about breathing techniques, warm-up, and cool-down exercises. The disregard for previously learned voice exercises suggest that this had not been sufficiently integrated into S1`s regular practise routines. Consequently, the importance of comprehending the purpose and benefits of these voice exercises becomes evident. This shows the importance of a singer feeling empowered through increased knowledge and how it affects motivation. This perspective is highlighted by Baker (2016) in the context of treating voice disorders, but it can be applicable to working with students of singing. By understanding why specific exercises and techniques such as breath control, resonance, and vocal hygiene are preformed, the singers could cultivate a deeper appreciation for its relevance and incorporate this into their vocal care practices.

As Pestana and colleagues (2017) found in their meta-analysis, the prevalence of self-reported voice disorders among young singers is relatively low compared to the observed prevalence of voice disorders in this group of singers, which corresponds with the results of the research conducted by Sielska-Badurek and colleagues (2018). As S2 described in the interview, she felt that she had acquired several tools in her efforts to maintain a healthy and resilient voice. However, her challenge lies in understanding what her voice needs. The concept of understanding one`s own voice can be linked to the singer`s perception of their own voice quality. While professional voice users, such as professional singers, have an increased awareness of their voice quality (Schneider & Sataloff, 2007), it can seem that this heightened awareness may not be as present among student of singing. In contrast to experienced voice professionals, students of singing may still be in the process of developing a deeper understanding of their own voices.

S3 and S4, expressed in their interviews a desire to both preserve and further develop a healthy and resilient voice in a long-term perspective. S3 specifically mentioned how he

believed that the vocal demands might change over time and because of this expressed a wish to learn more about how to best prepare for these changes. As Morawska and colleagues (2022) discovered in their literature review, there are high demands placed upon professional CCM singers in the entertainment industry, which increases the risk of vocal overuse and strain. This could potentially turn into a functional voice disorder, and over time develop to become organic voice disorders. This indicates that even though students of singing are facing high demands related to their voice, the requirements of their voices most likely will increase as they become professional voice users.

The role of an SLP typically does not encompass optimizing an already healthy voice, as this responsibility falls under the domain of voice specialists or teachers of singing. Schneider and Sataloff (2007) emphasize that the level of education and expertise can vary among teachers of singing and voice specialist, particularly in relation to working with injured voices. However, within the field of SPLs` treatment programs, there is an emphasis on educating and sharing knowledge about vocal hygiene, breathing exercises, voice exercises, and behavioural modifications. The whole body is affecting our voice, particularly for singers, making singing a highly complicated process. This knowledge could be highly valuable for students of singing, as singers are considered one of the most demanding vocal groups. This can be seen in relation to the findings in the research conducted by Dastolfo-Hromack and colleagues (2016), where they found that CCM-singers tend to be the ones referred to SVT. This indicates that the specialized knowledge of SLPs could be valuable. The education of CCM-singers would involve not only specialized singing techniques, but a variety of measures to retain a healthy voice.

According to Colton and colleagues (2011), there is a lack of consensus on what defines a "normal" voice, and disagreements exist regarding the definition of voice disorders. Assessing voice issues, especially when working with singers who require exceptional vocal performance, can be particularly challenging because even minor changes can have a significant impact. Students of singing may not yet have the awareness to detect subtle voice changes that more experienced singers can recognise. Despite having voices considered "normal", the specialized knowledge of a SLP can still be valuable. This expertise could be applied through direct engagement with students of singing or by sharing knowledge through professional development initiatives. This promotes a close collaboration between teachers of singing, voice specialists, and SLPs, recognizing the unique expertise each professional brings to the care and development of singers` voices. Ultimately, it would be beneficial for this

knowledge to reach and be internalized by students of singing, building a sense of confidence in their choices and develop a strong feeling of responsibility for taking care of their voices.

5.3 Acceptance

According to Rosen and colleagues (2021), singers may experience negative emotions related to a lack of understanding of voice problems from friends and family. In the analysis of the data in the present study, it was found that the participants appreciated being able to share their challenges with the people close to them and felt met with empathy. However, the support and understanding they received from other singers appeared to have greater impact when it came to voice-related challenges. This suggests that the participants experienced a unique form of support when they were met with understanding from individuals who had gone through similar experiences. This kind of support was perceived as more relevant in relation to their experiences, possibly because it led to a sense of belonging within the community of singers. Sharing experiences with one another could be seen as a way of building collective knowledge and strengthen their connections within the community.

Despite the participants` positive experiences of being met with empathy and understanding from friends, family, and other singers, S2 and S3 expressed that discussing voice problems and voice disorders was not always easy. S4 disclosed that voice disorders were not a topic of conversation in her class until she personally experienced it. Additionally, she admitted that at times, she would find herself thinking that having voice disorders meant she was a poor singer and had been doing something wrong. Sataloff (2000) describes how singers have a strong emotional attachment to their voices, which could lead to feelings of guilt and shame when faced with a voice disorder. S4 shared that she perceived voice disorders as a taboo subject among singers. This could be attributed to the negative feelings associated with experiencing voice disorders as a singer.

Singers are the most voice demanding group of professional voice users and have a high expectancy of experiencing voice disorders during their career. Despite this, S4 perceives the subject of voice disorders as something that is not considered in the CCM community. S2 emphasized how being met with lack of serious consideration from other musicians, particularly those who are not singers, could lead to feelings of frustration. One reason why this may be distressing could be related to the sense of belonging within the music community. Not being met with understanding from those we surround ourselves with, who

are a part of the social and cultural community we belong to, can potentially lead to feelings of not being accepted.

As Adessa and colleagues (2018) found, singers in the CCM genre had a lower rate of completing voice therapy than expected. This means that more singers dropped out during the treatment process, also they were less likely to seek help if they experienced vocal problems. One possible reason could be because of the difficult emotions that arise when facing voice disorders, as highlighted by the participants of the present study. If singers perceive voice disorders as taboo or stigmatized and also experience feelings of guilt, it is likely challenging to seek the necessary help required.

5.4 "If I had lost my voice, I would also lose a part of me"

In the data analysis of the present study, the participants expressed that the primary focus during singing lessons was directed at declaring an emotional message and discovering their artistic identity. This emphasis can be linked to the concept of "the signature-sound" commonly found in CCM. Given the significant presence of CCM in our culture and the demanding nature of the entertainment industry on singers` voices, it can be argued that cultivating one`s unique identity as a singer becomes an essential aspect of formal training within CCM genres. Historically, CCM has revolved around singing and creating personal music, which may explain why formal singing training in CCM places such emphasis on developing "the signature-sound". S4`s statement "… the technique is there if you sing from your heart" suggests that singing with genuine emotion naturally encompasses the technical aspects of singing. While emotional expression plays a crucial role in singers` formal training, it is also important to acknowledge the knowledge of voice production, vocal hygiene, and behavioural components as a part of their education.

Singing requires high precision of pitch and articulation in coordination with breath control over extended periods of time. As students of singing, this type of intense use of the voice will occur frequently. When this frequent and intense vocal use also involves strong glottal adduction and high subglottal pressure associated with CCM singing styles, it places great demands on the singer to avoid the development of voice disorders. All participants in the present study shared an emotional connection to their voices. They viewed their voices as intertwined with their personal identities, future career aspirations, and how other perceived them. Consequently, they reflected on how potentially devastating it could be to lose their

ability to sing. S1 shared how she appreciated the push towards recording her own music at the university, but at the same time had considered going to a voice specialist. This could indicate that even though the students of singing view the opportunity to explore their sound and artistic identity, there is a need among the students regarding voice care that has not yet been met.

In the interviews the participants were asked to reflect upon how voice problems could affect their creative process. The participants highlighted how voice problems both affected the way they physically used their voice when singing and during the song writing process. In an environment were creating a personal sound and artistic identity by making and recording one`s own music is the focus it is likely that this is experienced as a difficult situation. S4 described how in certain periods where she did not have that many external impulses through social encounters or is physically unable to sing, it became difficult to write music because she felt as if she had nothing to express. This could also potentially affect the sense of belonging within both the social and professional music community.

6.0 Conclusion

6.1 Closing remarks

The findings of this study indicate that the perception of voice problems and the pursuit of vocal health among students of singing in the field of CCM, in relation to a career in a vocally demanding profession, is complex. The need for more knowledge seems to arise from a strong sense of being caught in the dilemma between prioritizing vocal health and participating in the social community with other students of music. Given that these are two crucial elements in the life of a student of singing, it can be argued that gaining more knowledge about vocal hygiene, modifying behaviours, and voice production could help navigate this landscape. The desire to learn is also part of the students` need to gain deeper understanding of what their voice requires, enabling them to make informed decisions with confidence. This can be seen in connection to previous research on voice disorders among students of singing, which has shown that this group of singers is highly prone to developing voice disorders, possibly due to a lack of awareness regarding vocal health. Based on the findings of the present study, it appears that students of singing aspire to enhance their knowledge and awareness, empowering them to maintain good vocal health in the long term.

The participants of this study viewed their voices as highly important, forming a large part of their personal identity. The thought of losing the ability to sing evoked strong emotions and deeply affects their sense of self. This further amplifies the internal conflict experienced by the students of singing when faced with situations that could potentially harm their voices. While the desire to participate in the social community is strong, the consequences it may cause for their future and career aspirations are perceived as detrimental as it can directly impact their voices. The sense of emotional support among fellow singers, as found in this study, provided a source of support from those who have similar experiences with voice problems. However, discussing voice disorders remains a sensitive topic for some. These findings can be tied to the importance of sharing experiences and knowledge to foster a stronger sense of community within the group of singers, which in return reinforces the identity of becoming a professional singer.

"The signature-sound" is a phenomenon within the realm of CCM, and developing a unique expression is therefore emphasized in the formal training of students of singing in these genres. Previous research has highlighted challenges associated with this, as different

voice qualities linked to CCM singing techniques are also considered potentially harmful to the voice. The need for more knowledge expressed by the participants in the present study can be understood in relation to this issue, as students of singing feel the desire for methods to effectively achieve their artistic goals without causing harm. The scope of practise of a SLP is not to provide specialized training or the aesthetic qualities required for singing, but rather to be a source of knowledge regarding principles of vocal hygiene and techniques to optimize voice function through modification of vocal behaviour.

6.2 Perspectives for future research

The effect of snus on the voice is still not fully understood, apart from its known impact on the mucosal membrane in the oral cavity. Considering that even minor changes in voice quality can affect how professional singers perceive their voice, it could be interesting to investigate how snus usage affects the vocal folds and whether there is a connection between snus use and an increased risk of voice disorders. Since snus is commonly used by many young adults in Norway, it could be relevant to also examine snus use among young singers. Further knowledge about this usage and its impact could have implications for habitual behaviour related to snus.

In terms of future research, it could be beneficial to investigate the partnership between SLPs, voice specialists, and teachers of singing. This could involve exploring the perspectives of these different professionals within the voice team regarding their collaboration and its impact on further developing expertise in the field of voice. Such an initiative could give insight into how each profession believes they can contribute to the growth and development of students of singing as they move towards the goal of becoming professional voice users.

A finding in the present study that could be interesting to further investigate is to what extent and in what way voice disorders affect the creative process of singers. Is there a difference in the material they produce that could be linked back to the way they use their voices? Or in the music material they produced before and after a voice disorder?

References

Adessa, M., Stadelman-Cohen, T., Zipse, L., Guarino, A., & Heaton, J. T. (2018). Factors
affecting voice therapy completion in singers. *Journal of Voice, 32*(5), 564-571.
https://doi.org/10.1016/j.jvoice.2017.06.021

Aurini, J. D., Health, M., & Howels, S. (2021). The How To of Qualitative Research (2nd ed.).
SAGE.

Baker, J. (2016). Functional voice disorders: Clinical presentations and differential
diagnosis. *Handbook of Clinical Neurology, 139*(3), 389-405.
http://dx.doi.org/10.1016/B978-0-12-801772-2.00034-5

Behlau, M., Zambon, F., Moreti, F., Oliveira, G., & de Barros Couto Jr, E. (2017). Voice self-
assessment protocols: Different trends among organic and behavioural dysphonias.
Journal of Voice, 31(1), 13-27. https://doi.org/10.1016/j.jvoice.2016.03.014

Benninger, M. S. (2010). The professional voice. *The journal of Laryngology & Otology*,
125(2), 11-116. https://doi.org/10.1017/S0022215110001970

Bergsland, D. M., & Jæger, H. (2014). Bacheloroppgaven. In D.M. Bergsland, & H. Jæger.
(Editors)., *Bacheloroppgaven i barnehagelærerutdanningen*. (pp. 51-87). Cappelen
Damm Akademisk.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative
research in Psychology, 3*(2), 77-101.

Braun-Janzen, C., & Zeine, L. (2009). Singers` interest and knowledge levels of vocal
function and dysfunction: Survey findings. *Journal of Voice, 23*(4), 470-483.
https://doi.org/10.1016/j.jvoice.2008.01.001

Chaitow, L., Bradley, D., & Gilbert, C. (2014). *Recognizing and Treating Breathing Disorders: The Structure and Function of Breathing* (2nd ed., pp. 23-43). Elsevier.

Chitguppi, C., Raj, A., Meher, R., & Rathore, P. (2018). Speaking and nonspeaking voice professionals: Who has the better voice? *Journal of Voice, 32*(1), 45-50. https://doi.org/10.1016/j.jvoice.2017.03.003

Cohen, L., Manion, L., & Morrison, K. (2018). *Research Methods in Education* (8th ed.). Routhledge.

Cohen, S. M., Jacobsen, B. H., Garrett, G., Noordzij, P., Stewart, M. G., Attia, A., Ossoff, R. H., & Cleveland, T. F. (2017). Creation and validation of the singing voice handicap index. *Annals of Otology, Rhinology & Laryngology, 116*(6), 402-406. https://doi.org/10.1177/000348940711600602

Colton, R. H., Casper, J. K., & Leonard, R. (2011). *Understanding Voice Problems – A Physiological Perspective for Diagnosis and Treatment* (4th ed.). Lippincott Williams & Wilkins.

Dalen, M. (2011). *Intervju som forskningsmetode*. Universitetsforlaget.

Dastolfo-Hromack, C., Thomas, T., Rosen, C. A., & Gartner-Schmidt, J. (2016). Singing voice outcomes following singing voice therapy. *The Laryngoscope, 126*(11), 2546 -2551. https://doi.org/10.1002/lary.25962

de Jong, F., & Schutte, H. K. (2020). Principles of Physiology and Biomechanics of the Voice: Aerodynamics of Voice. In A. am Zehnhoff-Dinnesen, B. Wiskirska.Woznica, K. Neumann, & T. Nawka. (Editors). *Phonatrics I. Fundamentals -Voice Disorders- Disorders of Language and Hearing Development* (pp. 61-64). Springer.

del Mar, M., Rendón, R., Ermakova, T., Freymann, M. L., Ruschin, A., Nawka, T., & Caffier, P. P. (2018). Efficacy of phonosurgery, logopedic voice tratment and vocal pedagogy in common voice problems of singers. *Advances in Therapy*, *35*(7), 1069-1086. https://doi.org/10.1007/s12325-018-0725-x

Del Negro, C. A., Funk, G. D., & Feldman, J. L. (2018). Breathing matters. *Nature Reviews. Neuroscience, 19*(6), 351-367. https://doi.org/10.1038/s41583-018-0003-6

Egan, G. (2014) *The Skilled Helper. A Problem-Management and Opportunity Development Approach to Helping* (10th ed.). BROOKS/COLE.

Eysholdt, U. (2020). Laryngogcopy, Stroboscopy, High-Speed Video and Phonovibrogram. In A. am Zehnhoff-Dinnesen, B. Wiskirska.Woznica, K. Neumann, & T. Nawka. (Editors). *Phonatrics I. Fundamentals -Voice Disorders- Disorders of Language and Hearing Development* (pp. 364-271). Springer.

Finnish Social Science Data Archive. (2023, April 12). *Anonymisation and Personal Data*. Finnish Social Science Data Archive. https://www.fsd.tuni.fi/en/services/data-management-guidelines/anonymisation-and-identifiers/

Folkehelseinstituttet. (2019). *Helserisiko ved snusbruk*. Folkehelseinstituttet. https://www.fhi.no/publ/2019/helserisiko-ved-snusbruk2/

Frühholz, S., & Schweinberger, S. R. (2020). Nonverbal auditory communication – evidence for integrated neural system for voice signal production and perception. *Progress in Neuralbiology, Vol. 199*, 1-19. https://doi.org/10.1016/j.pneurobio.2020.101948

Hashibe, M., Boffetta, P., Zaridze, D., Shangina, O., Szeszenia-Dabrowska, N., Mates, D., Fabiánová, E., Rundai, P., Brennan, P. (2007). Contribution of tobacco and alcohol

to the high rates of squamous cell carcinoma of the supraglottis and glottis in central Europe. *American Journal of Epistemiology*, *165*(7), 814-820. https://doi.org/10.1093/aje/kwk066

Jacobson, B. H., Johnson, A., Grywalski, C., Silbergleit, A., Jacobson, G., Benninger, M. S., & Newnam, C. W. (1997). The Voice Handicap Index (VHI) development and validation. *American Journal of Speech-Language Pathology, 6*(3), 66-70. https://doi.org/10.1044/1058-0360.0603.66

Kokkersvold, E., & Mjelve, H. (2003). *Mellom Oss – Trening i kommunikasjon i gestaltperspektiv*. Gyldendal.

Kreiman, J., & Sidtis, D. (2011). *Foundations of Voice Studies. An Interdisciplinary Approach of Voice Production and Perception.* Blackwell Publishing.

Latham, K., Messing, B., Bidlack, M., Merritt, S., Zhou, X., & Akst, L. M. (2017). Vocal health education and medical resources for graduate-level vocal performance students. *Journal of Voice, 31*(2), 251.e1-251.e7. https://doi.org/10.1016/j.jvoice.2016.07.011

Lindblad, P. (1992). *Rösten.* Studentlitteratur.

LoVetri, J. (2008). Contemporary commercial music. *Journal of Voice, 22*(3), 260-262. https://doi.org/10.1016/j.jvoice.2006.11.002

Malterud, K. (1996). *Kvalitative metoder i medisinsk forskning: En innføring*. Tano Aschehoug.

Morawska, J., Niebudek-Bogusz, E., & Pietruszewska, W. (2022). Considerations and demands in the voice care of contemporary commercial singers in occupational

health and safety aspect. *Medycyna Pracy, 73*(1), 33-41.

http://dx.doi.org/10.13075/mp.5893.01201

NESH. (2022, May 26). *Guidelines for Research Ethics in the Social Sciences and the Humanities*. National Research Ethics Committees. https://www.forskningsetikk.no/en/guidelines/social-sciences-humanities-law-and-theology/guidelines-for-research-ethics-in-the-social-sciences-humanities-law-and-theology/

Pestana, P. M., Vaz-Freitas, S., & Manso, C. M. (2017). Prevalence of voice disorders in singers: Systematic review and meta-analysis. *Journal of Voice*, *31*(6), 722-727. https://doi.org/10.1016/j.jvoice.2017.02.010

Richter, B. (2020). Singing Voice Disorders. In A. am Zehnhoff-Dinnesen, B. Wiskirska.Woznica,   K. Neumann, & T. Nawka. (Editors). *Phonatrics I. Fundamentals -Voice Disorders- Disorders of Language and Hearing Development* (pp. 252-255). Springer.

Rosen, D. C., Sataliff, J. B., & Sataloff, R. T. (2021). *Psychology of Voice Disorders: Psychotherapeutic Management of Patients with Voice Disorders* (2nd ed., pp. 321-361). Plural Publishing.

Ruud, E. (2017). *Musikk og identitet* (2nd ed.). Universitetsforlaget.

Sataloff, R. T. (2000). Evaluation of professional singers. *Otolaryngologic clinics of North America*, *33*(5), 923-956. https://doi.org/10.1016/S0030-6665(05)70256-5

Schei, T. B. (2007). *Vokal identitet – en diskursteoretisk analyse av profesjonelle sangeres identitetsdannelse [Doctoral dissertation].* University of Bergen.

Schneider, S. L., & Sataloff, R. T. (2007). Voice therapy for the professional voice.

Otolaryngologic clinics of North America, *40*(5), 1133-1149.

https://doi.org/10.1016/j.otc.2007.05.013

Sielska-Badurek, E. M., Sobol, M., Olszowska, K., & Niemczyk, K. (2018). Contemporary

commercial music singing students – voice quality and vocal function at the

beginning of singing training. *Journal of Voice*, *32*(6), 668-672.

https://doi.org/10.1016/j.jvoice.2017.08.027

Sorensen, D., & Horii, Y. (1982). Cigarette smoking and voice fundamental frequency.

Journal of Communication Disorders, 15(2), 135-144.

https://doi.org/10.1016/0021-9924(82)90027-2

Stemple, J. C., Roy, N., & Klaben, B. K. (2014). *Clinical Voice Pathology. Theory and*

Management. Plural Publishing.

Thagaard, T. (2018). *Systematikk og innlevelse. En innføring i kvalitative metoder* (5th ed.).

Fagbokforlaget.

The World Medical Association. (2022, September 6). *WMA Declaration of Helsinki –*

Ethical Principles for Medical Research Involving Human Subjects. The World

Medical Association. https://www.wma.net/policies-post/wma-declaration-of-helsinki-

ethical-principles-for-medical-research-involving-human-subjects/

Titze, I., Lemke, J., & Montequin, D. (1997). Population in the U.S. workforce who rely on

voice as a primary tool of trade: A preliminary report. *Journal of Voice*, *11*(3), 254-

259. https://doi.org/10.1016/S0892-1997(97)80002-1

Warner, B. (2017, August 10). *Why do stars like Adele keep losing their voice?* The Guardian.

https://www.theguardian.com/news/2017/aug/10/adele-vocal-cord-surgery-why-stars-

keep-losing-their-voices

Yoon Irons, J., & Handcox, G. (2021). *Singing*. Emrald Publishing.

Appendix A

Vil du delta i forskningsprosjektet
”Awareness of voice disorders among students of singing”?

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å få en dypere forståelse for hvilken tilnærming unge sangere i dag har til stemmevansker. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

Formål

Stemmefeltet består av flere profesjoner som tar for seg stemmens funksjon, utvikling og behandling av stemmevansker. Formålet med dette prosjektet er å skape et helhetlig bilde og hente inn viktig informasjon fra sangstudenter. Dette er perspektiver fra personer som skal inn i et krevende stemmeyrke, og som kan skape en bevisstgjøring rundt forebyggende tiltak til stemmevansker for unge sangere. Selv om populærmusikken har hatt stor betydning for musikkindustrien i mange år har det i hovedsak vært forsket på sangere innenfor klassisk musikk, men den siste tiden har sangere i flere sjangere fått større plass innenfor både forskning og det akademiske feltet. For å hjelpe denne gruppen sangere trengs det fremdeles mer forskning. Hvilke tiltak tar unge sangere i dag for å kunne ha en lang karriere som sanger? Hvilket forhold har de til sin egen stemme, og er stemmevansker noe unge sangere i dag snakker om? Problemstillingen for prosjektet er:

“*How do university-level students of singing in the field of Contemporary Commercial Music perceive voice problems in relation to pursuing a career as voice professionals?*”

Dette prosjektet er en masteroppgave.

Hvem er ansvarlig for forskningsprosjektet?

Universitet i Oslo er ansvarlig for prosjektet.

Hvorfor får du spørsmål om å delta?

Du har blitt spurt om å delta i dette prosjektet fordi du er student, og studerer musikk med hovedfokus på sang innenfor sjangeren *populærmusikk*. Rekruteringen for utvalget er trukket gjennom eget nettverk, og det vil være 4-6 deltakere med på prosjektet til sammen.

Hva innebærer det for deg å delta?

Hvis du velger å delta i dette prosjektet, innebærer det at du stiller opp på et intervju.

- Intervjuet er regnet til å vare mellom 45 og 60 minutter.
- Intervjuet vil inneholde spørsmål om dine tanker rundt stemme og stemmevansker som sangstudent.
- Jeg tar lydopptak og notater fra intervjuet.

Det er frivillig å delta

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle dine personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket.

- De som vil ha tilgang til dine opplysninger er student og veileder.
- Navnet og kontaktopplysningene dine vil jeg erstatte med en kode som lagres på egen navneliste adskilt fra øvrige data.
- Lagring av data vil være på en forskningsserver.

- I transkriberingen av datamaterialet vil deltakere anonymiseres ved bruk av pseudonymer, og det vil ikke være mulig å kunne gjenkjenne deg som deltaker i masteroppgaven.

Hva skjer med personopplysningene dine når forskningsprosjektet avsluttes?

Prosjektet vil etter planen avsluttes når oppgave blir godkjent 01.06.2023. Etter prosjektslutt vil datamaterialet med dine personopplysninger slettes.

Hva gir oss rett til å behandle personopplysninger om deg?

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Universitetet i Oslo har Sikt – Kunnskapssektorens tjenesteleverandør vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke opplysninger vi behandler om deg, og å få utlevert en kopi av opplysningene
- å få rettet opplysninger om deg som er feil eller misvisende
- å få slettet personopplysninger om deg
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger

Hvis du har spørsmål til studien, eller ønsker å vite mer om eller benytte deg av dine rettigheter, ta kontakt med:

- Universitetet i Oslo ved Bjørk Brunvand Håve via e-post: bjorkhave@outlook.com, eller tlf.: 91801807, eller Vanja Kljajevic via e-post: vanja.kljajevic@isp.uio.no.
- Vårt personvernombud: Roger Markgraf-Bye kan nås via e-posten personvernombud@uio.no

Hvis du har spørsmål knyttet til vurderingen som er gjort av personverntjenestene fra Sikt, kan du ta kontakt via:

- Epost: personverntjenester@sikt.no eller telefon: 73 98 40 40.

Med vennlig hilsen

Vanja Kljajevic   Bjørk Brunvand Håve
(Forsker/veileder)

Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet *Awareness of voice problems among students of singing*, og har fått anledning til å stille spørsmål. Jeg samtykker til:

☐   å delta i intervju

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet

----
(Signert av prosjektdeltaker, dato)

Appendix B

Original Interview questions – Norwegian version

En kort intro før intervjuet starter:

Takk for at personen har valgt å stille opp

Si litt om formålet med intervjuet

Anonymitet, hvordan dataene skal behandles

Si litt om innholdet i intervjuet

1. Jeg tenkte vi kunne starte med at du forteller litt om din sangbakgrunn. Hvor startet sang interessen?
2. Hvilket forhold har du til temaet «stemme»?
3. Hvilke tanker dukker opp hos deg når du hører ordet «stemmevansker»?
4. Oppstår det samtaler blant deg og dine medstudenter om stemmeproblemer?
5. Har du noen rom hvor det føles trygt å være åpen om eventuelle tanker rundt dette temaet? Enten på eller utenfor skolen.
6. Hvordan opplever du det å finne en balanse mellom det å leve livet som student og samtidig skulle ta vare på stemmen?
7. Opplever du at måten stemme blir snakket om på er med på å gjøre deg som sanger tryggere? I så fall på hvilken måte?
8. På hvilken måte påvirker det deg som sanger å snakke om stemme og stemmevansker?
9. Hvilket forhold har du til din egne stemme?
10. Hvordan tenker du at det å oppleve utfordringer knyttet til stemme kan påvirke sangeres kreativitet?
11. Kan du huske når det å ta vare på stemmen ble et tema for deg?
12. Hvordan opplever du at du får være med løsninger for hvordan du skal klare å bevare en frisk stemme som du kan ta med deg videre etter endt studie?
13. Er det noe du har lyst til å legge til, eventuelt trekke frem fra det vi har snakket om?

Avslutte med å takke for at de ville stille opp til intervju.

Appendix C

Translated interview questions – English version

Short introduction before the interview:

Thank you for participating

Go through the purpose of the interview

Anonymity and how the data will be treated

Go through the object of the interview

1. We can start with you telling me about you singing background, and how you started this interest?
2. What relationship do you have to the subject of voice?
3. What do you think about when you hear the term «voice disorder»?
4. Are there discussions among you and your fellow students about voice problems?
5. Do you have any spaces where it feels safe to be open about any thoughts regarding this topic, either within or without the university?
6. How do you experience balancing student life while taking care of your voice?
7. Do you feel that the way voice is discussed contributes to making you, as a singer, feel more confident? If so, in what way?
8. In what way does discussing voice and voice problems impact you as a singer?
9. What is your relationship with your own voice?
10. How do you think experiencing challenges related to voice can impact a singer`s creativity?
11. Can you recall when taking care of your voice became a topic of concern for you?
12. How do you experiencing being involved in finding solutions to maintaining a heathy voice that you can take with you after completing your studies?
13. Is there anything you would like to add or highlight from our conversation?

Conclude by expressing gratitude for their willingness to participate in the interview. Both time and valuable insights.

Appendix D

Vurdering av behandling av personopplysninger

Referansenummer	Vurderingstype	Dato
665156	Automatisk ⓘ	14.01.2023

Prosjekttittel
Awareness of voice disorders among singing students

Behandlingsansvarlig institusjon
Universitetet i Oslo / Det utdanningsvitenskapelige fakultet / Institutt for spesialpedagogikk

Prosjektansvarlig
Vanja Kljajevic

Student
Bjørk Brunvand Håve

Prosjektperiode
13.02.2023 - 01.06.2023

Kategorier personopplysninger
Alminnelige

Lovlig grunnlag
Samtykke (Personvernforordningen art. 6 nr. 1 bokstav a)

Behandlingen av personopplysningene er lovlig så fremt den gjennomføres som oppgitt i meldeskjemaet. Det lovlige grunnlaget gjelder til 01.06.2023.

Grunnlag for automatisk vurdering
Meldeskjemaet har fått en automatisk vurdering. Det vil si at vurderingen er foretatt maskinelt, basert på informasjonen som er fylt inn i meldeskjemaet. Kun behandling av personopplysninger med lav personvernulempe og risiko får automatisk vurdering. Sentrale kriterier er:

- De registrerte er over 15 år
- Behandlingen omfatter ikke særlige kategorier personopplysninger:
    - Rasemessig eller etnisk opprinnelse
    - Politisk, religiøs eller filosofisk overbevisning
    - Fagforeningsmedlemskap
    - Genetiske data
    - Biometriske data for å entydig identifisere et individ
    - Helseopplysninger
    - Seksuelle forhold eller seksuell orientering
- Behandlingen omfatter ikke opplysninger om straffedommer og lovovertredelser
- Personopplysningene skal ikke behandles utenfor EU/EØS-området, og ingen som befinner seg utenfor EU/EØS skal ha tilgang til personopplysningene
- De registrerte mottar informasjon på forhånd om behandlingen av personopplysningene.

Informasjon til de registrerte (utvalgene) om behandlingen må inneholde

- Den behandlingsansvarliges identitet og kontaktopplysninger
- Kontaktopplysninger til personvernombudet (hvis relevant)
- Formålet med behandlingen av personopplysningene
- Det vitenskapelige formålet (formålet med studien)
- Det lovlige grunnlaget for behandlingen av personopplysningene
- Hvilke personopplysninger som vil bli behandlet, og hvordan de samles inn, eller hvor de hentes fra
- Hvem som vil få tilgang til personopplysningene (kategorier mottakere)
- Hvor lenge personopplysningene vil bli behandlet

Vi anbefaler å bruke vår [mal til informasjonsskriv](#).

Informasjonssikkerhet

Du må behandle personopplysningene i tråd med retningslinjene for informasjonssikkerhet og lagringsguider ved behandlingsansvarlig institusjon. Institusjonen er ansvarlig for at vilkårene for personvernforordningen artikkel 5.1. d) riktighet, 5. 1. f) integritet og konfidensialitet, og 32 sikkerhet er oppfylt.