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Pansori today: aesthetic demands vs. vocal health

Pansori hoy: demandas estéticas vs. salud vocal

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Conflicts of Interest

The authors have declared that no competing interests exist.

Abstract

Introduction: *Pansori* is a traditional Korean dramatic art form, which likely appeared in the mid-eighteenth century in the southern region of Korea. In *pansori* there is a strong inclination toward preserving tradition, especially in regard to training, which is generally considered particularly demanding in terms of risks to vocal health. Nevertheless—as highlighted by recent studies—some innovations took place in *pansori* characteristics and performances in the last few decades.

Objective: We hypothesize that these innovations have impacted the attitudes of singers and teachers towards *pansori* training and vocal health issues, and that a new approach to voice training in *pansori* might be recommended.

Method: Starting with recent evolutions of *pansori* and considering previous studies, we discuss how these changes might produce innovations—or at least a demand for innovation—in *pansori*'s training. We also try to capture the viewpoint of *pansori* students and performers, through an anonymous survey.

Results: Although further investigation is required, the results suggest that a new approach in teaching *pansori* is emerging and it is increasingly requested by the trainee performers, despite some criticisms from traditionalists.

Conclusion: Unlike previously thought, perhaps a more scientific and health-conscious approach to *pansori* voice training will be something from which many *pansori* singers can benefit.

Keywords

Pansori, voice pedagogy, *changgeuk*, folksongs, voice training, vocal health, hoarseness, singers, voice disorders, survey.

Data Availability Statement

All relevant data is in the article and in the appendices. For more detailed information, write to the Corresponding Author.

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Author Contributions

Francesco Mecorio: conceptualization, funding acquisition, investigation, methodology, project administration, visualization, writing – original draft and writing – review and editing.

Francesco Santangelo: conceptualization, data curation, formal analysis, investigation, methodology, software, visualization and writing – original draft.

Sowon Jang: conceptualization, investigation, resources, and software.

Tae Hee Kweon: conceptualization, investigation, resources, and software.

Alfonso Gianluca Gucciardo: methodology, supervision, and validation.

Resumen

Introducción: *Pansori* es una forma de arte dramático tradicional coreano que probablemente apareció a mediados del siglo XVIII en la región sur de Corea. En *pansori* hay una fuerte inclinación a preservar la tradición, especialmente en lo que respecta al entrenamiento, que generalmente se considera particularmente exigente en términos de riesgos para la salud vocal. Sin embargo, como destacan estudios recientes, se produjeron algunas innovaciones en las características y actuaciones del *pansori* en las últimas décadas.

Objetivo: Hipotetizamos que estas innovaciones han impactado las actitudes de cantantes y profesores hacia la formación del *pansori* y los problemas de salud vocal, y que podría recomendarse un nuevo enfoque para el entrenamiento de la voz en *pansori*.

Método: Comenzando con las evoluciones recientes de *pansori* y considerando estudios previos, discutimos cómo estos cambios pueden producir innovaciones, o al menos una demanda de innovación, en la formación de *pansori*. También tratamos de captar el punto de vista de los estudiantes e intérpretes de *pansori*, a través de una encuesta anónima.

Resultados: Aunque se requiere más investigación, los resultados sugieren que está surgiendo un nuevo enfoque en la enseñanza del *pansori* y es cada vez más solicitado por los artistas en formación, a pesar de algunas críticas de los tradicionalistas.

Conclusión: A diferencia de lo que se pensaba anteriormente, quizás un enfoque más científico y consciente de la salud para el entrenamiento de la voz en *pansori* será algo de lo que muchos cantantes de *pansori* puedan beneficiarse.

Palabras clave

Pansori, pedagogía de la voz, *changgeuk*, canciones populares, entrenamiento de la voz, salud vocal, ronquera, cantantes, trastornos de la voz, encuesta.

Introduction

Pansori (sometimes spelled ‘*p’ansori*’, depending on the romanization system used)¹ is a type of traditional dramatic art, which is thought to have appeared in Korea in the mid-eighteenth century. In 1964, the Korean Ministry of Culture designated *pansori* as an Intangible Cultural Asset.

Explained by some as “one-man opera” [1 p227], or “solo-singer type of story-telling” [2 p122], it is performed in its traditional form by a solo vocalist with the accompaniment of a drum (puk), alternating spoken (aniri) to sung (chang) passages to tell folktales, playing the role of the narrator and of all the characters in the story. The original repertoire of *pansori* consisted of 12 pieces, but only 5 of them have been passed on to contemporary performers. A *pansori* performance can last up to 8 hours and was originally performed predominantly outdoors, in parks or courtyards. However, *pansori* is currently performed mostly indoors, in concert halls or theatres [3], and new forms of performances subsequently appeared, such as new *pansori* (*pan-*

¹ The system of romanization of Korean used in this article is the ‘RR’ (Revised Romanization), officially used in South Korea since 2000. The spelling ‘P’ansori’ refers to McCune-Reischauer romanization, still very common in many foreign articles about Korean music.

sori created since the beginning of the twentieth century and therefore not belonging to the traditional repertoire mentioned before), *changgeuk* (a fully staged form of *pansori*, performed in theatres with different actors playing different roles, costumes, an orchestra, etc.), and other forms that will be discussed in the second section of this article.

Today, *pansori* is performed and appreciated not only in Korea, but also in many other countries. Scientific investigations have been dedicated to *pansori*, analyzing its features from different perspectives —artistic, historical, anthropological, etc. In particular, many studies have dealt with artistic and vocal issues related to *pansori*, unsurprisingly, because of the peculiar vocal technique adopted.

In these studies, a number of widely accepted findings about vocal training, vocal health, and vocal technique in *pansori* arise. Mainly: *pansori* has a very specific sound; it can be achieved only after years of demanding training that may result in damage to the vocal cords of the students; training is based on non-codified mimetic techniques passed on through a strong master-disciple relationship.

Although its strong traditional component is still a crucial aspect, in recent years *pansori* has also integrated some modern innovations, which have —to some extent— addressed important issues, such as the working circumstances of the performers and the incorporation of alternative artistic forms of *pansori* performances.

Despite these changes, the pedagogy of *pansori* has not had many significant modifications since its origin.

Furthermore, although several studies have highlighted the expressive evolution of *pansori*, it is mostly taken for granted that the traditional vocal requirements of *pansori* are still valid, despite the vocal risks. There has been very little attention given to the importance of vocal quality and health for performance beyond those traditional requirements of the *pansori* singers' training.

It has been noted that the repeated production of the particular sounds of *pansori* is often associated with vocal damage [4–7]. However, in the commonly accepted view, this is simply necessary in order to become a *pansori* singer.

This view makes two assumptions: 1) these sounds are essential for the *pansori* performance and, therefore, the consequent vocal damage due to the training is an unavoidable requirement for a good performance; 2) *pansori* students and performers do not know the risks of the training or do not consider vocal health very important.

Both of these assumptions may need to be adjusted, given the recent and continuous evolutions occurring in the world of *pansori*.

To investigate, we decided to look at the points of view of *pansori* students and performers, highlighting and evaluating the opinions of those who are involved in the training, by designing and submitting to them an anonymous survey. We wanted to understand whether —and to what extent— changes in the performance and in the working circumstances of *pansori* have altered how performers and teachers perceive the importance of vocal health and the impact of vocal disorders in their overall life and work. We were interested in learning whether the responses in this survey would suggest a need for a change in the training of *pansori*.

The results of our investigation are presented and explained in the following sections of the article, supported by figures (graphs). The relevant parts of the survey and the answers collected are presented in detail in [Appendix A](#). We are keen to note that these results —with particular regard to the two assumptions previously mentioned— are quite surprising, especially if we compare them to the commonly accepted view of this subject.

The survey was supported by an interview with a young expert teacher of *pansori*, who pointed out how a new view of the pedagogy and the specific features of *pansori* has been emerging and that this view is not always in line with the prevalent, more traditional approach.

Although the interview is transcribed in [Appendix B](#), we decided to detail the most relevant passages in the body of the article when they are particularly useful in understanding the intrinsic evolution of *pansori* from the point of view of performers or in support of the results emerging from the survey.

In addition to this interview, a comparison of previous studies is also provided in order to highlight the main steps of the evolution of *pansori* and to hypothesize the object of our investigation. The main findings of these previous studies are tabulated in [Appendix C](#) and detailed information about changes that have been occurring in the evolution of *pansori* are given in the article.

Methods

The aim of this study is to investigate whether there is a need to update the training of *pansori* performers with special attention given to vocal health. The investigation included three different strategies.

Previous studies

Through a literature review, we analyzed the evolution of *pansori*, highlighting its most traditional aspects and the main changes that have occurred, pointing out how these changes might have produced a demand for innovations within the training. This preliminary analysis has also been useful in order to further specify our initial hypothesis and aim.

Many studies have analyzed *pansori* in its social, anthropological, historical, and musical aspects. Far fewer have analyzed the acoustics of *pansori* and the associated physiology involved. Only a few provided details of the pedagogy of *pansori* (see references). However, there is a general agreement regarding the crucial consequences of training and vocal health, i.e., that *pansori* would require a peculiar husky and hoarse voice quality that is obtained after years of severe training, which aims to damage the vocal cords of the students in order to obtain the required sound.

A comparative analysis of several studies enabled us to highlight some important conclusions and to form some preliminary hypotheses. [Appendix C](#) shows the main findings that we took into consideration for our work, divided into three different relevant aspects: history and evolution of *pansori*, training in *pansori*, voice quality and its acoustic and medical analysis.

Comparing these main findings, it is evident that while scholars point out a continuous evolution of *pansori* and its forms of performance, little evolution of its training has been noted or reported. Furthermore, many scholars agree about the frequent (and, for some, unavoidable) vocal damage among *pansori* singers. This led us to investigate whether the evolution of *pansori* has changed the perception of the importance of vocal health in the new generations of singers and teachers and, consequently, the requirements of its pedagogy.

Survey

We designed a survey in order to investigate the viewpoints of *pansori* singers about crucial aspects of its characteristics and training, with specific attention given to the comparison between innovations that have occurred in *pansori* and how it is traditionally viewed and perceived. We submitted an anonymous survey to *pansori* performers, using the CAWI (Computer Assisted Web Interview) technique, in order to investigate their perceptions of the importance of vocal health, of the efficiency of their previous training according to their working needs, and the impact of vocal damage and fatigue on their overall life and work (which may be intrinsic to *pansori* and unavoidable, especially in training).

Due to the relatively small number of respondents, descriptive statistics were used to analyze and present the data. Although further and more detailed analyses are required, the study gives surprising results about a new point of view that may be an important reference for further research—a point of view that focuses on the performers' opinions and perceptions, which is something still relatively unexplored, especially with regards to new generations.

The survey was developed by the authors of this paper in order to evaluate how performers and teachers perceive the importance of vocal health and the impact of vocal disorders in their overall life and work. Additionally, the survey investigates their beliefs about some widely accepted characteristics of *pansori*. It consists of 22 closed-ended questions asked in the Korean language. It was spread by word of mouth among *pansori* students, teachers, and performers. Data collection lasted approximately one month, and the total number of respondents was 41; all the responders answered all the questions in the survey, so there were no changes in the number of respondents during the data collection process. However, question 6 of the survey was addressed only to the responders who perform in *changgeuk*, either as an exclusive activity or in addition to traditional *pansori* (28 responders out of 41).

The survey was completed anonymously in order to preserve the privacy of the interviewees. An anonymous survey also allowed us to deal with two facts, which might have affected the quality of the responses: 1) the close master-disciple relationship and the conservative environment around *pansori* could represent an obstacle for the honesty of singers who would not have wanted to hurt or offend their mentors; 2) some participants might be skeptical toward foreign research, especially if dealing with potential voice damage caused by *pansori* traditional training and performance. The latter consideration also led us to paying particular attention to avoid an inquisitorial tone in phrasing the survey's questions.

Computer-assisted web interviewing (CAWI) was chosen as the surveying technique. It presented the best choice for addressing statistical quality issues and guaranteeing the survey's feasibility. The relatively small number of respondents allowed us to produce only descriptive statistics.

The main topics on which the survey has been designed are the following: 1) whether *pansori* singers perform and/or study other musical genres or new forms of performance (e.g., *changgeuk*); 2) beliefs about certain well-known characteristics of *pansori* performing and pedagogy; 3) the perception of the relationship between *pansori* and vocal health, and, accordingly, the importance that *pansori* singers assign to vocal health.

The results of the survey are presented, explained and discussed below. [Appendix A](#) shows all the questions and answers (translated for Korean to English), as well as graphs in order to facilitate reading the data.

A young teacher's point of view

Watching live performances or listening to recent recordings of *pansori*, especially in its fully staged form (called *changgeuk*), we noticed that not all the voices heard on stage sounded breathy or hoarse. Different performers used varying degrees of hoarseness, even though many scholars pointed out that hoarseness and breathiness have always been important requirements of the voice quality used in *pansori*.

To gain an expert point of view about teaching *pansori* and the related voice production issues, we interviewed Moon SooHyun, a professional *pansori* performer in her late thirties, which is considered young for a *pansori* performer. She has won two national competitions: the Korean Traditional Music Association and the Namdo Folksong Competition. At the moment of the interview (2018), she was a teacher at Chung-Ang University (regarded as one of the top Universities in Korea offering degrees in *pansori*), and she was a guest instructor at TBS efm (Sounds of Korea). In addition, she was a *pansori* instructor at National Theater of Korea's Traditional Performing Arts Academy for Foreigners, and occasionally leads introductory workshops for foreigners at Bukchon Traditional Culture Center (see [Appendix D](#)).

Moon SooHyun shared her perspectives from the inside of the world of *pansori*. Her contributions proved important for the purposes of our study [8], in part because she teaches Koreans as well as non-Koreans and she represents the younger generation of both teachers and singers. Many other studies only incorporate interviews with master singers and teachers from previous generations.

Results

Previous analyses of *pansori* seem to highlight the importance of hoarseness and voice disorders in order to achieve the unique tonal quality that is attained after years of demanding training. The balance between vocal health and artistry in *pansori* seems to be both challenging and controversial. Training in *pansori* is based on mimetic training and it has not changed significantly since its origins. However, through an anonymous survey submitted to 41 *pansori* singers, we have noticed that a new tendency is appearing. A cleaner sound is more accepted than it has been historically, and hoarseness does not seem to be an essential requirement neither for the essential expression of *han* (an emotion often defined as “sorrow”, that fulfills the majority of Korean artistic production) nor in considering whether a performer is good; there is much more attention paid to vocal health, as many of our interviewees are concerned about it and experience some discomfort in their life and work attributable to voice disorders.

This might be due to the ongoing evolution of *pansori* that now includes more western influences and new forms of performance with new accompaniments that create potential challenges for singing according with the traditional *pansori* style. Most of our interviewees perform in western-derived musical styles, but they would be prevented from doing so by having an unhealthy voice. *Changgeuk* is a very popular fully staged form of *pansori* that not only involves the majority of *pansori* singers, but it is an important part of their job, and it also contributes to the definition of the voice quality due to its popularity, and it also has technical requirements that the traditional training in *pansori* does not address.

As the results of the survey show, this evolution has changed the attitudes of performers towards vocal health and this might suggest a change in the way *pansori* performers are trained.

Discussion

A specific voice quality with unique acoustic and physiological characteristics and some vocal health issues: *han* in *pansori*

An important concept needed to understand voice production in *pansori* is the notion of *han*, which fulfills the majority of Korean artistic production in many different fields, including *pansori*.

When asking Koreans “what is *han*?”, they would likely answer that it is impossible to explain to foreigners, since it is a typical Korean emotion that includes historical memories of invasions, wars, famines, and other problems that contributed to a collective trauma and a national feeling of grief. It has been reported that *han* is a relatively recent idea in Korean culture, first appearing during the Japanese colonial period following the treaty of 1876 [9].

Han seems to be one of the most important expressive elements when singing intense and dramatic moments of *pansori*. Although it is not consistently used in all of the repertoire, it is expected that *han* will be expressed at some point in a *pansori* performance. The movie *Seopyeonje* and its popular musical theatre adaptation beautifully illustrate the importance of this emotion in *pansori*. *Han* is often defined as ‘sorrow’, though Moon SooHyun points out that it is rather “repressed sorrow”² (see [Appendix B](#)).

Seongeum, the voice quality in *pansori* and relative importance of hoarseness: is this ‘*han*’ in voice?

Teaching such an undefined sentiment creates problems in pedagogy and voice technique. We asked Moon SooHyun: “how would you express *han* in your voice?”

This is actually the most difficult question. I’m sure that every singer has a different idea about *han*. I can share with you my personal thoughts, though. We use the word ‘*seongeum*’ to define the tone color of *pansori*. This is the most important thing that a *pansori* singer must achieve: the particular tone color. That *seongeum* will come to singers who have a drastic training for a long time or [have] special talent. And that color expresses *han*. This means that *han* is not a technique, but the color that the singers have, that is influenced by their life. So, if the singers have suffered or they have much repressed sorrow in their life, their voice color would be great. That’s why older generations are much more talented than younger generations, even though I think it’s not only a matter of quantity of *han*, but also of kind of *han*. New generations have a different *han*, they experience different kinds of sorrow. (Moon SooHyun’s personal interview, 2018; [Appendix B](#)).

Many other scholars, performers, and teachers point out that the ‘tone color’ or ‘voice quality’ is the most essential thing in *pansori* [10,11]. This quality is very particular and it is said that it is only attained after years of severe and demanding training. However, while most attempt to describe it from a perceptual and subjective point of view, there are very few studies on the objective acoustics and physiology of this voice quality.

Moon Seung-Jae of Ajou University conducted two valuable analyses on acoustic characteristics of *pansori* voice quality [4,12]. The following points summarize his conclusions:

² Sandra So Hee Chi Kim, in her article “Korean Han and the postcolonial afterlives of ‘The beauty of sorrow’” (2017, see references), defines *han* as “unresolved resentment”.

1. He noticed a relatively flat spectral slope³.
2. *Pansori* singing has a uniquely identifiable *vibrato*, so different from the ‘western’ standard that he questions whether we should actually call it *vibrato* (confirmed by Hong, Kim H, and Kim S, 2006) [6].
3. There is a prominent partial located lower than 1kHz.
4. Most *pansori* singers’ voices sound hoarse.
5. Some sounds, anticipated to be periodic, like vowels, are actually aperiodic.
6. Some of these characteristics were present also in the speaking voice, which suggested that the source (vocal folds) had been changed permanently by an intensive training.

For the purposes of this study, points four and five are the most interesting (although we will discuss point six in the following chapter). The “aperiodicity” observed by Moon is often described by scholars as “typical husky sound”, “hoarse voice”, “rough sound”, etc. [10,11]. Others have reported high levels of jitter and shimmer in *pansori* voices⁴ [5], parameters often connected with hoarseness in voice [13]. Many also think that this hoarseness is actually *han* in voice. Willoughby tried to describe the musical and vocal features of *han* in *pansori*, and she concluded that among other factors, harshness has an important role in the expression of *han* [10]. Other studies have tried to describe the acoustic characteristics of *han* [14]. But is “harshness” actually aperiodicity? Is it “hoarseness”? Is it really important to have a “hoarse” voice in contemporary *pansori*?

Not really. It is not compulsory. I would never say that a *pansori* singer is bad just because he or she has a clear tone. Hoarseness comes naturally with age; nowadays, if the voice doesn’t get hoarse with age, the singer is even considered a better singer. (Moon SooHyun’s personal interview, 2018; see [appendix B](#)).

This surprising assumption seemed to contradict the common view of voice quality in *pansori*, so we asked the same question to our interviewees. [Figure 1](#) and [Table 1](#) show their answers (see also [Appendix A](#)). As noted below, hoarseness is important for only 27% of the interviewees, and not all of them use a hoarse voice on purpose.

To quantify the level of hoarseness required in *pansori*, we asked participants to rate the ideal level of hoarseness in *pansori* voice on a scale of one to ten, where one is a clear tone (not hoarse at all) and ten is a tone so hoarse that it is impossible to perceive the pitch. As [Figure 2](#) shows, some interviewees answered 1 and some others answered 10, suggesting that there is a broad range of opinions about this aspect of the voice. However, when we asked them to give the minimum and the maximum levels of hoarseness, they gave us more even values (see [Appendix A](#)).

As the answers received from the interviewees and as Moon SooHyun suggested, the features of *han*, as well as of *pansori* itself, are not necessarily connected with hoarseness. Thus, they suggest that there is neither a direct correlation between hoarseness and *han*, nor between hoarseness and the appreciation of a singer’s skills.

³ The spectral slope is a way to observe a sound signal’s distribution of energy in different harmonics. The energy in a voice signal tends to decrease in high harmonics. Moon’s observations say that high harmonics in *pansori* are still pretty strong.

⁴ Jitter and shimmer are parameters connected with hoarseness in voice (e.g., Teixeira, Oliveira, Lopes, 2013).

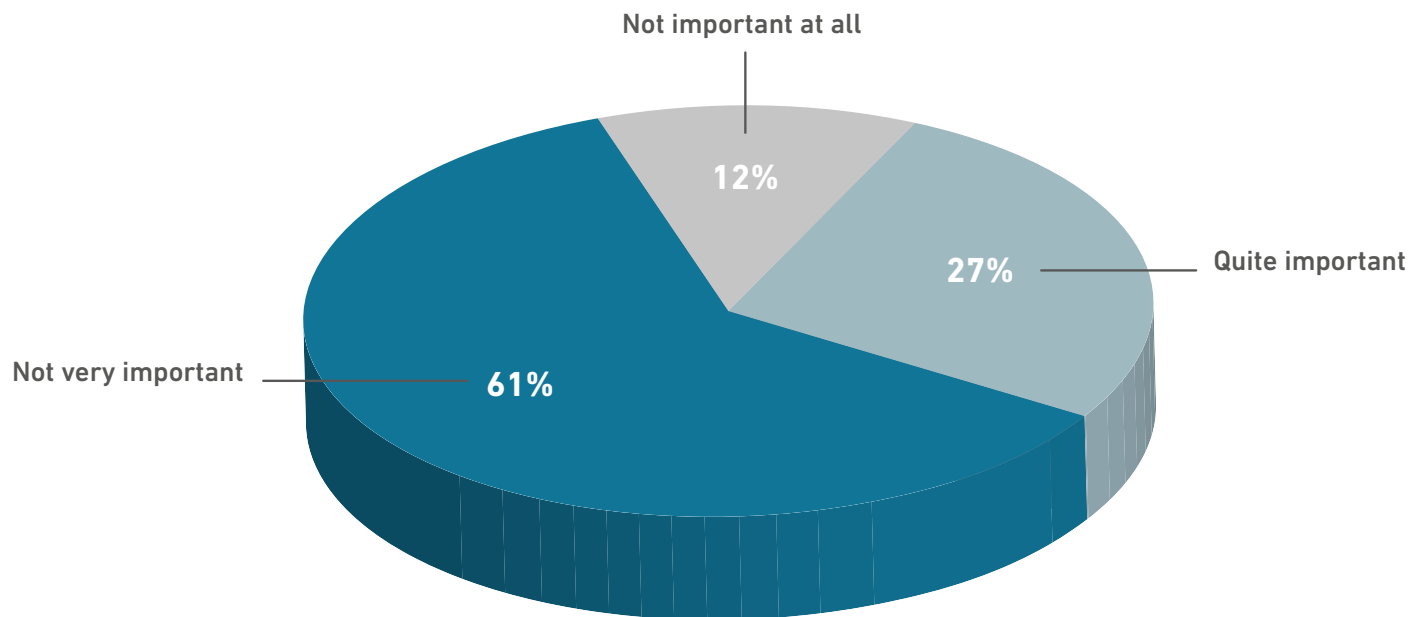


Figure 1. Importance of hoarseness in *pansori/changgeuk*.

Table 1. Use of hoarseness in performance

(For those who assign any importance in having a hoarse voice) Do you ever sing with hoarse voice ON PURPOSE?

Yes	63.9%
No	36.1%
TOTAL	100.0%

Vocal health and physiology of *pansori*

Why is it so important to discuss hoarseness? As previously discussed, many scholars consider it an essential part of the *pansori* sound. Its connection with potential vocal health issues cause concern and require consideration that cannot be ignored in a contemporary pedagogical setting.

Hoarseness has been associated with voice disorders and it is an important factor taken into consideration in the majority of systems for perceptual evaluation of dysphonia, such as GRBAS scale [15,16] and the VHI —Voice Handicap Index [17–20].

In fact, *pansori* singers have often been diagnosed with severe voice disorders: researchers observed nodules, asymmetrical vocal folds, and damage to the mucosa that often required treatment. In some cases, problems were so significant, even after treatment, that the voice was no longer audible. Some concluded that this was the result of a non-scientific training method, dating back to the 18th century, which has only been transmitted orally [5–7].

Moon made almost the same conclusion (see point six of the summary, above), noting that many characteristics of *pansori* singers' voices were also present in their speaking voices. He hypothesized that a permanent change occurred in their voice source (larynx and vocal folds) due to intensive training. This was the result of another important observation: *pansori* voice seemed to be “pressed” yet “breathy”, which suggests a physical change that prevents the

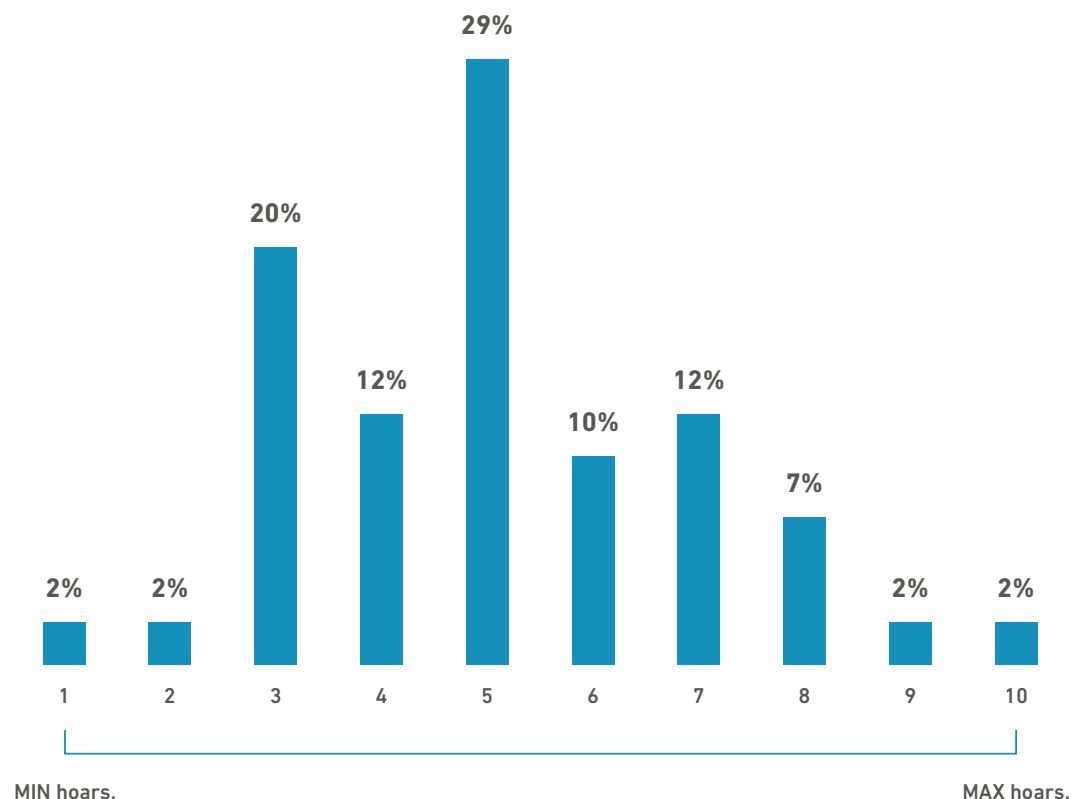


Figure 2. Ideal level of hoarseness in *pansori* voice.

vocal folds from closing, so that they can produce an “aperiodic noise under pressure” [12 p23]. However, it is important to note for our study that his research was based on recordings (rather than live performance) of five eminent and aged *pansori* singers, including two who were no longer alive at the time.

Pedagogy of *pansori* - The demanding training

In 1980, university courses in *pansori* were introduced in South Korea. However, it is commonly acknowledged that the university can only partially provide the students with the appropriate training that they need [21]. This is due to the universities providing limited contact time for pedagogical input and, therefore, the learning and performance outcomes of the trainees. *Pansori* singers start their training much earlier than when they enroll in college, usually when they are age 15 or 16 at the latest [21] (see also private interview to Moon SooHyun, Appendix C)

The way *pansori* is often taught is through mimetic techniques, even in universities, where students record the voice of their teachers and try to repeat what they do [22]. The techniques of *pansori* have traditionally been transmitted through this master-disciple relationship paradigm [23].

Appendix D offers an example of how *Pansori* is taught today, describing a one-day workshop that we observed in May 2018. Although this was a workshop for foreigners at the amateur level that was taught in English over the course of only one day, it still shows the general characteristics of the pedagogy of *pansori* and its training methodology (such as call-response and other mimetic techniques, attention given to different embellishments, etc.).

In the training of *pansori*, little attention is given to voice technique; most of the training is focused on artistic aspects, such as different “modes” (*jo*, scale or style) [24] or different embellishments. In fact, in *pansori* the word “voice technique” is often synonymous with “embellishment” rather than technical voice production [3]. Technical work is mostly focused on breathing, which is considered to be responsible for a powerful and loud sound [7], despite recent research indicating that breath is only partially responsible for the intensity of voice [25].

Part of the traditional training of *pansori* used to occur in the mountains, or in a natural environment, over 100 days. The legend says that students used to train their voices surrounded by waterfalls in order to develop loud sounds that could be heard over the noise of the water. Pihl described it like “a period of deprivation, of exhausting efforts to acquire ‘a voice’”, reporting that during this training, singers often spat blood from their mouths [23 p51].

Contemporary students still follow this tradition, but with less intensive training over a shorter time period: one week at the shortest, one month at the longest [2] (see also private interview to Moon SooHyun, Appendix B).

In spite of these historical reports, the vast majority of our interviewees (almost 71%) say that their training was not focused on producing a hoarse voice (Appendix A).

Is vocal health a real issue?

Some say that these voice disorders should not only be accepted, but encouraged by *pansori* singers [2,22,23]. The Western training is now more focused on preserving the vocal health of the students, so we might find this encouragement of disordered usage absurd.

However, the balance between the artistry of a sound and the vocal health of the singer is something that in this case can be very delicate. Only some have reported these voice disorders as a negative consequence of excessive vocal effort; others seem to agree that *pansori* singers have certain voice disorders that contribute to the unique aesthetic of the voice quality required by the genre [2,4,10–12,23].

Korean newspapers have reported on doctors making claims about singers losing their careers after surgery for voice disorders, or about singers who decided not to receive treatments for dysphonia even though their voices were becoming increasingly pathological⁵.

However, this idea may be changing, given that Table 2 reveals how important our interviewees consider vocal health for *pansori* singers.

Table 2. Importance of monitoring vocal health in pansori/changgeuk

How much do you think it is important to monitor vocal health and to keep the voice healthy for those who had an excellent artistic training in *Pansori/Changgeuk*?

Very important	92.7%
Quite important	7.3%
Not very important	0.0%
Irrelevant	0.0%
TOTAL	100.0%

⁵ Kim, EunJeong, “Jeonbokilbo Sogye” Jeonbok Daily Newspaper, 2014. <https://n9.cl/jierk> (Accessed June 2018); <https://n9.cl/uayha> (Accessed June 2018); <https://n9.cl/123t2> (Accessed June 2018).

Is this the result of an increased level of attention to vocal health in general within the field of the performing arts? Is *pansori* evolving so much that hoarseness has become less important? Has the traditional role and the job of a *pansori* singer changed to include other styles of performances of musical genres? Singers today consider vocal health more important than singers from two or three hundred years ago, who used to sing outdoors in a traditional performance context accompanied by only a drum. Does this indicate that the pedagogy of *pansori* has changed according to these new views? We will answer these questions in the next sections of this article.

Evolution of *Pansori*

“Traditional *pansori*” was designated as an Intangible Cultural Asset by the Korean Ministry of Culture in 1964 and was also proclaimed one of the UNESCO Masterpieces of Oral and Intangible Heritage of Humanity in 2003” [26 p26]. Even though it might seem that these attempts to preserve *pansori* are the expression of a generally conservative attitude, the reason why they occurred is that the evolution of *pansori* risked going too far.

Many scholars observed numerous changes in *pansori* due to its “encounter with modernity”. Some reported an evolution of the genre that elicits contrasting reactions from traditionalists and innovators [26]. Despite the contrasting reactions, the dialectic between innovation and conservation in *pansori* is clearly present.

The purpose of this study is not to take a position in this dialectic, saying whether the evolution of *pansori* is something to encourage or counteract. Our purpose is to report these changes and to see if they suggest that some adjustments in *pansori* technique and its pedagogy may be allowed as part of modern performance practice.

New venues and new audiences

One of the biggest changes that has occurred in *pansori* since its origin is in the venues where it is performed.

Originally performed outdoors, it was supposed to be heard “amidst the loud hurried crowds of the market-place” [22 p298]. More recently, *pansori* is performed in theatres or concert halls, sometimes even amplified by a microphone. As Yeonok Jang analyzed [3], this change had a huge impact on the response of the audiences during the performances and consequently on the performers’ attitude and on the performances themselves.

Therefore, the intensity originally required in *pansori* may now be considered optional, belonging more to the realm of art and style rather than that of an essential technical requirement of *pansori*.

New styles, new forms of performances, new perspectives, internationality of *pansori*

Throughout the twentieth and twenty-first centuries, *pansori* has undergone an evolution that has produced new forms of performance that coexist with more traditional styles and performances.

New accompaniments

In 1987, the first *pansori* performance with the accompaniment of a western ensemble took place. After that, even some of the oldest and most popular performers participated in various kinds of *pansori* performances accompanied by a western ensemble (although these performances are still relatively rare among traditional singers).

The most important consequence of these new accompaniments (for our purposes) is the lack of freedom in choosing the key of the song, in addition to the impact on the perception of tempo and management of speed. When only a drum accompanies the singer (as in the traditional form of *pansori* performance), the drummer adjusts his speed to that of the singer, and no melodic or harmonic references limit the choice of key. The singers are able to choose the most comfortable key and are free to adjust it according to their vocal condition or tiredness relative to their sensations and feelings [3].

New pansori

The original repertoire of *pansori* consisted of 12 pieces, but only five of them have been passed on to contemporary performers. They coincide with the five cardinal principles of Confucian ethics.

As Hae Kyung Um reported [26], in 1904 the very first piece of “new *pansori*” appeared. The term “new *pansori*” refers to *pansori* created since the beginning of the twentieth century and therefore does not belong to the original repertory (the five pieces). These new pieces and songs are compositions that are arranged, improvised, and performed according to the conventional musical styles, techniques, rhythms, and modes of traditional *pansori*. There are, however, new influences in text, music, performance style, and also production and consumption of performances. For example, they emphasize humor in contrast to the *han* of previous pieces, and they introduce a new language much closer to contemporary colloquial Korean, using a wider variety of regional accents. Many elements of popular culture (including Western culture) are added to these new performances.

These changes (less *han* and more humor, contemporary language, different dialects, Western influence, etc.) affect and modify the voice quality used in new *pansori*, and gives rise to controversies.

Although *new pansori* is gaining popularity among young audiences, more conservative people have voiced strong criticism. In spite of this, *new pansori* performers proudly claim that they are regaining the original spirit of *pansori* “as living art”, rallying against the fossilization of the art form following the 1964 declaration of *pansori* as a “national intangible cultural asset”. This statement is present in a declaration made on February 13, 2004, by a group of new *pansori* performers that call themselves National League of *Ttorang Kwangdae*. It is essential to explain the meaning of the word *kwangdae*, the relevance of this declaration and even of the name of the League itself:

Kwangdae and *Ttorang Kwangdae*. The word *kwangdae* refers to the professional *pansori* performers that have received their training and the acquisition of the repertoire and style from one of the major *pansori* schools or “proper” lineage of style. *Ttorang kwangdae*, instead, are those singers that do not belong to any of these schools and the word *ttorang* is generally used in a pejorative way to label those who are not likely to be able to attain the status of a “proper” performer. *Ttorang kwangdae* have not attained the *seongeum*, the sound or unique voice quality of *pansori* that is usually acquired after years of demanding vocal training. It is important to note that the artists of the League proudly used the term *ttorang Kwangdae* to define themselves and declare their intent to make *pansori* “regain a new life”, implicitly undermining the importance of the *seongeum*, and even highlighting the lack of this sound as a positive feature. The debate around *new pansori* is not only artistic, but political, cultural, and social. As a team of researchers, we have neither the right nor the knowledge to take part in this debate or align

ourselves with one side or the other, but we are interested in reporting these changes that affect all forms of *pansori*. As Hae-Kyung Um observed in 2008:

It is perhaps too soon to predict where all these creative energies will lead. But one thing we could deduce from the dynamics of *pansori* development in modernity is that tradition and creativity are not only compatible with each other but inspire and give new life to artistic expression [26 p48].

In other words, it is likely that the importance of new *pansori* might have affected the form of performances of traditional *pansori* itself, especially in terms of voice quality, contributing to stimulate a continuous change of the preferences of the audience that is unavoidable and contribute to a certain evolution of every musical style.

Changgeuk

Korea didn't have theatres until the beginning of the 20th century, more than a hundred years after the appearance of the first forms of *pansori*. For this reason, the role that was played by indigenous narrative theatrical forms in other Asian countries, such as *Peking Opera* in China or *No*, *Joruri* or *Kabuki Theatre* in Japan, was played by *pansori* in Korea.

However, when in the early 1900s the first theatre opened in Korea, a stage form of *pansori*, where different actors performed different roles, appeared. Gradually, costumes and sets were added, and this fully staged form of *pansori* became an independent genre where the singing style used by the performers is still *pansori*, even though the form of performance is considerably different from the traditional. The name of this new style is *Changgeuk*, and its popularity has been steadily increasing. Some consider it a “popular” form of *pansori*, as it attracts a big (and often younger) audience; most of the *changgeuk* are performed with English subtitles, indicating that the interest of non-Koreans in this form of performing art is increasingly important.

In *changgeuk*, unlike traditional *pansori* performances, a singer plays only one role. There are ensembles and choirs and the show is accompanied not only by a drum but by a whole orchestra. Even though it is usually comprised of traditional Korean instruments, it occasionally includes those from west.

Due to its popularity, *changgeuk* attracts many *pansori* performers, and it is an important (and lucrative) part of their job. As [Appendix A](#) and [Figure 3](#) show, only one third of our interviewees perform exclusively *pansori*, while the majority of them perform in both genres. Only a small group of them perform exclusively in *changgeuk*.

As Moon SooHyun highlighted during her interview, “Western culture affected *changgeuk* very much”, due to the fact that theatres in Korea are a consequence of the Western influence of the twentieth century [27], “especially in the acoustic system” ([Appendix B](#)); this is a crucial observation for our purposes of the analysis of the management of voice, because the traditional training of *pansori* is the only training that *Changgeuk* performers receive and it does not take into consideration a (relatively) new and western influenced type of performance. We will analyze this aspect in detail below.

Andrew P. Killick, senior lecturer in Ethnomusicology at University of Sheffield (UK), is one of the most published western scholars of *changgeuk*, and in his publications he highlights many interesting points about this form of art, that are relevant to our study: Killick explained that *changgeuk* is “*traditionesque*”, rather than ‘traditional’ and defines the distinction as follows:

What do you sing?

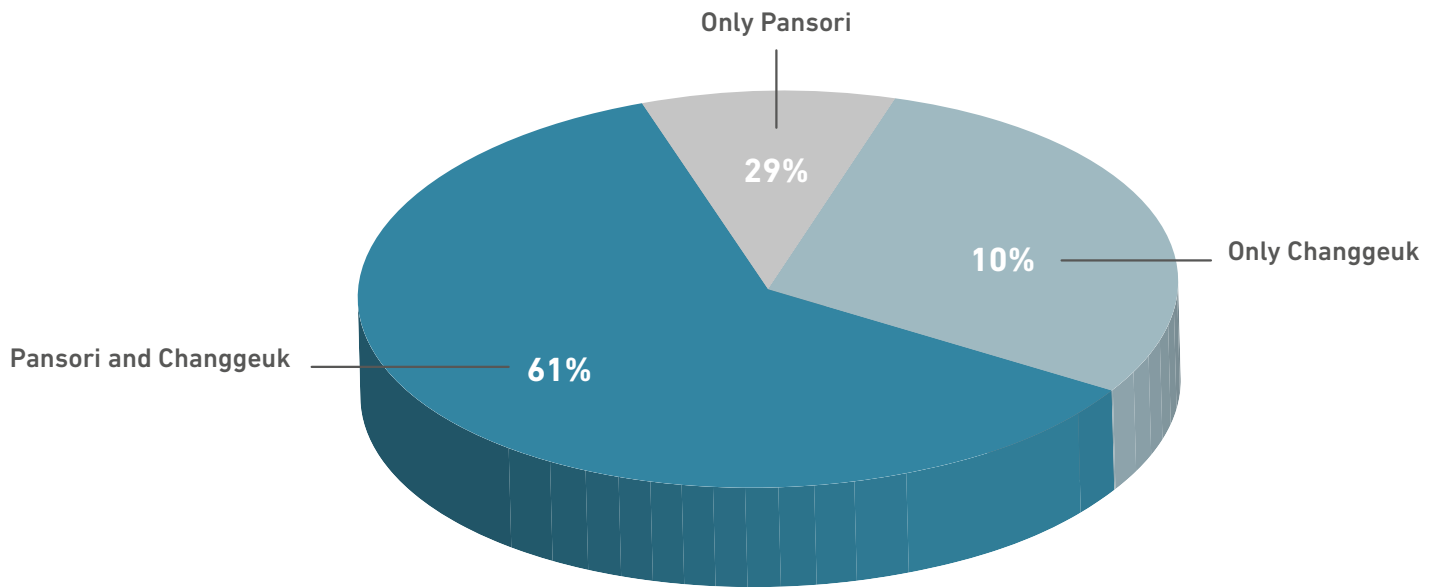


Figure 3. Commitment in Changgeuk.

These ‘*traditionesque*’ practices base their appeal in large part on association with tradition, but (perhaps because of their dubious credentials for traditional status according to local criteria) are not protected from change [11 p56].

Changgeuk and challenges for performers. We asked Moon SooHyun to explain the differences between the voice quality required in traditional *pansori* and those used in *changgeuk*:

There are many styles of *changgeuk*, because *changgeuk* had a big development since its origins. (...) Generally, I would say that *changgeuk* should be more simple, clearer, so that people can understand it more easily (Moon SooHyun’s personal interview, 2018).

Although *changgeuk* has its own individuality, it is a very popular form of art that is continuously changing, and it represents a major aspect of the job for many performers, who do not have a specific training in singing *changgeuk*, since the singing style used in *changgeuk* is still *pansori*.

But in his book, *In search of Korean Traditional Opera* [28], Killick highlights the technical problems that *pansori* singers encounter when they move to *changgeuk*:

1. The typical husky voice quality used in *pansori* “does not project well through a texture of other pitched sounds, particularly in large venues” [28 p197]. Microphones are largely used in *changgeuk*, but the orchestra is amplified as well, and the use of microphones present aesthetic problems that, according to some, affect the artistry of *changgeuk*.
2. To combine different pitched voices is hard using a *pansori* voice quality, and there might be challenges in intonation and coordination. Voices in *changgeuk* are not divided in sopranos, altos, tenors, etc., like in western music, and choirs sing in unison. This problem is yet more prominent when male and female voices are combined.⁶

⁶ For some singers this might be too effortful.

3. Pitched Korean traditional instruments can play comfortably only in a few keys, reducing the possibilities of adjustment necessary to facilitate vocal comfort, which is guaranteed in *pansori* performances where the singers are accompanied only by a drum and can choose their most comfortable pitch, even adjusting it during a song.

We asked the interviewees who sing in *changgeuk* (28 responders out of 41) whether they find the control of their voice easier or harder than in *pansori*. In Table 3 you can see their answers.

Table 3. Difficulties in voice control for changgeuk singers

(Only for those who sing *Changgeuk*) Considering than *Changgeuk*, unlike *Pansori*, is performed with an orchestra and choirs and then the performer needs to sing on tune without choosing his most comfortable pitch, when you sing *Changgeuk*, how do you judge your ability to manage and master your voice (your technique)?

Very good	20,70%
Pretty good	51,70%
Pretty bad	27,60%
TOTAL	100,00%

Importance of changgeuk in pedagogy of pansori

In conclusion, due to its popularity and ability to develop and renew itself, *changgeuk* makes significant contributions to the definition of the *pansori* sound among the new generations of audiences. It also represents an important aspect of the job of several *pansori* performers. The traditional *pansori* training may not sufficiently address the performance demands expected of singers in *changgeuk* and those it may make in the future as the art form continues to change and evolve, moving it further away from the traditional requirements of *pansori*.

Pansori internationally

Changgeuk and *new pansori* are not the only two examples of western influences in *pansori*.

Hae-Kyung Um reports that transnational forms of *pansori* or *pansori*-derived genres have been appearing [26]. He mentions the forms developed in China and the former USSR due to the Korean diaspora, but also a form of *pansori* created in English for non-Korean speaking American audiences by Park Chan E., and a *pansori* version in Japanese.

As Moon SooHyun's workshops and courses for non-Koreans prove, there is an increasing interest from Westerners in *pansori*.

While there are many westerners that are interested in *pansori*, we must report that *pansori* or *changgeuk* performers do not perform exclusively in these two genres. Figure 4 shows that the majority of our interviewees perform in other musical styles, and in almost two thirds of cases they specifically indicated that they perform genres that are derived from the West, such as opera, Contemporary Commercial Music (CCM) and Western Musical Theatre.

As many *pansori* performers are no longer exclusively performing in traditional Korean music, the demanding training in *pansori*, that aims to allow the singer to attain the unique hoarse voice required in *pansori*, might actually represent a problem when they perform other styles that require a cleaner tone and a different management of voice.

In addition to *Pansori*/Changgeuk, do you perform or train other musical genres?

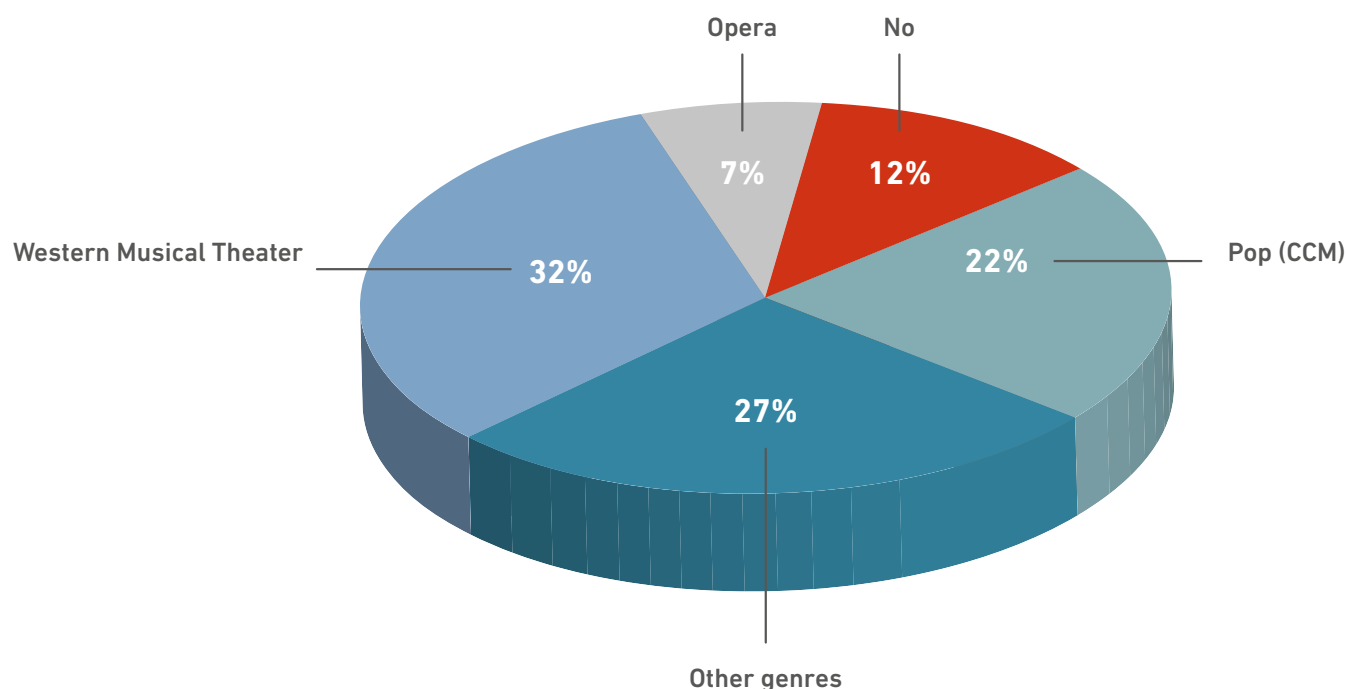


Figure 4. Commitment in other musical genres.

Perception of vocal health of contemporary *pansori* singers and impact of voice disorders in their life

This unavoidable evolution of *pansori* (either in its aesthetics or in its working circumstances) is likely to be one of the reasons why vocal health is considered increasingly important among contemporary *pansori* singers (see Table 2).

In fact, almost all of our interviewees have experienced some kind of concern for their vocal health in their life, as Figure 5 shows.

Therefore, unlike Korean newspapers and different commenters traditionally report, vocal health does not seem to be an irrelevant issue among *pansori* singers.

In order to understand whether these concerns were motivated by some actual vocal discomfort, we used part of VHI (Voice Handicap Index⁷ in our survey [17,20]. Our purpose was not a medical diagnosis, but a way to monitor the perception that the singers have of their own vocal health. We also asked our interviewees whether their symptoms tended to worsen after performing and if they experienced fatigue at the end of performances or in intense periods of work. In order to avoid any kind of bias and derogatory meaning of the word “symptoms”, we decided to use the word “phenomenon”. Tables 4, 5 and 6 show the answers of our interviewees:

⁷ VHI is a questionnaire used to evaluate the vocal health of patients and the overall impact on their life (Jacobson, 1997). The version that we used was our own revised version, in which the questions were compared with the Italian version made by Luppi and the Korean version: [https://www.e-csd.org/upload/13\(2\)_4.pdf](https://www.e-csd.org/upload/13(2)_4.pdf)

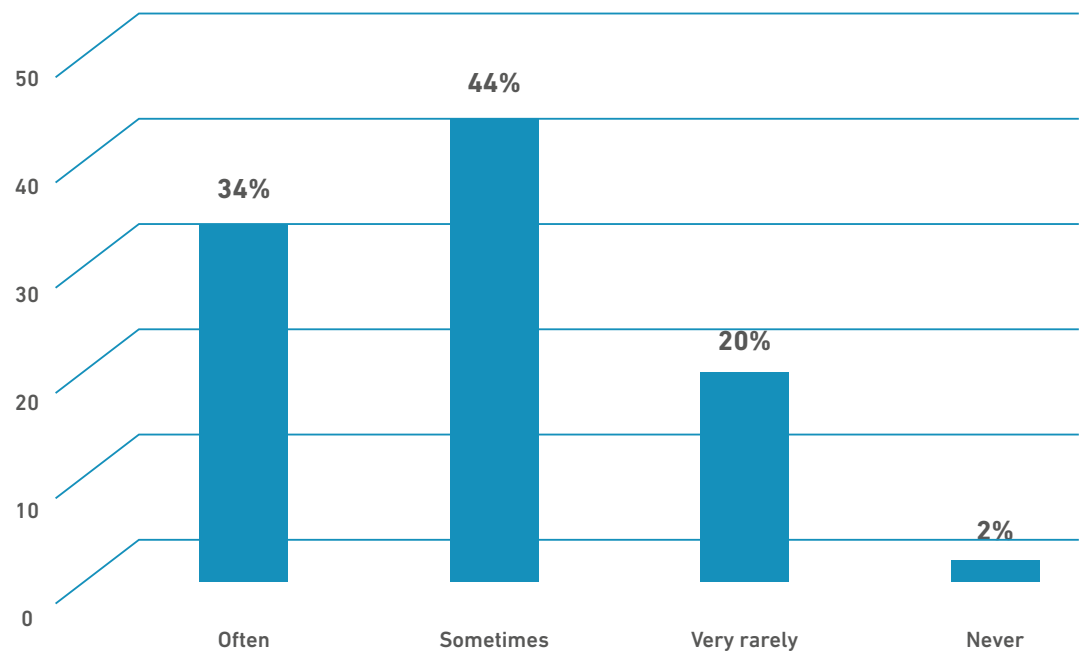


Figure 5. Concerns about vocal health.

Table 4. Perception of vocal health by pansori singers according with VHI

Do you ever experience this phenomenon in your life?	Always	Almost always	Almost never	Never
I feel breathless when talking	0.0%	2.4%	61.0%	36.6%
My voice seems hissy or dry	0.0%	9.8%	61.0%	29.3%
My voice sounds hoarse	9.8%	22.0%	58.5%	9.8%
I make a lot of effort to speak	2.4%	14.6%	58.5%	24.4%
The clarity of my voice is unpredictable	0.0%	19.5%	53.7%	26.8%
I try to change my voice in order to sound different	7.3%	34.1%	51.2%	7.3%
I struggle to produce voice	0.0%	17.1%	48.8%	34.1%
My voice is worse at the end of the day	2.4%	12.2%	43.9%	41.5%
My voice fails in the middle of a conversation	0.0%	17.1%	24.4%	58.5%
MEAN	2.4%	16.5%	51.2%	29.8%

Table 5. Impact of intense work on vocal discomfort

In periods of more intense performances and work, AFTER SOME PERFORMANCES, do you notice that these phenomena increase?

Not at all	19.5%
Yes, a bit	70.7%
Yes, very much	9.8%
TOTAL	100%

Table 6. Impact of the performance on vocal tiredness

When you perform, AT THE END OF THE PERFORMANCE, your voice is:	
Like at the beginning of the performance	31.7%
A bit tired	48.8%
Very tired	19.5%
TOTAL	100%

But what is the actual impact of these phenomena on their work? Some of our interviewees experienced troubles in their work due to vocal issues. Table 7 show the overall impact of voice disorders on work of the singers.

Table 7. Impact of voice disorders on work

Has it ever happened that you had to interrupt a tour or a season or reject jobs because of lack of voice (except the normal cases of a flu or a cold)?	
Never	85.4%
Sometimes	14.6%
Often	0.0%
TOTAL	100%

More precise statistical measurements are required, but it would be interesting to compare these data with performers in other musical genres. Having no comparative data, we want to suspend judgment and instead report our observations.

Conclusions

Further studies and more detailed research on larger groups are required, but a new approach to singing *pansori* is arising, as many *pansori* singers nowadays do not perform solely *pansori*. This is contributing to spread a bigger attention to vocal health among *pansori* singers, and despite the attempts to protect *pansori* from its evolution and changes, preferences of *pansori* listeners and audiences have been changing. These facts cannot be ignored and offer new thoughts on *pansori* pedagogy. Unlike previously thought, perhaps a more scientific and health-conscious approach to *pansori* voice training will be something from which many *pansori* singers can benefit, as many of them perform in western-derived musical styles, but would be prevented from doing so by having an unhealthy voice. *Changgeuk* is also an important part of their job, and it also contributes to the definition of the voice quality due to its popularity, although it has technical requirements that the traditional training in *pansori* does not address. All these facts are contributing to an increase in the awareness of *pansori* singers regarding vocal health.

By analyzing the unavoidable and intrinsic evolution of a traditional dramatic art that tends to be protected from change by many conservative traditionalists and describing the impact that this evolution has had on the requirements for a more effective training, appropriate for contemporary performers, our work can be situated in a more general context that reflects the need for continuous changes in voice pedagogy in response to the evolution of musical genres.

References

1. Pihl MR. What is Pansori? *Chicago Review*. 1993;39.
2. Park CE. Pansori, the Ancient Korean Art of Storytelling. In: McDonlad M, editor. *Traditional Storytelling Today*. Chicago: Fitzroy Dearborn Publishers; 2000. p. 122-128. Available from: https://ceas.yale.edu/sites/default/files/files/events/past/20070416korealecture_pansori.pdf
3. Jang Y. Pansori Performance Style: Audience Responses and Singers' Perspectives. *British Journal of Ethnomusicology*. 2001;10(2):99–121. Available from: <https://www.jstor.org/stable/3060664>
4. Moon S-J. Acoustic Characteristics of Korean Traditional Singing Voice: a Preliminary Report. *The Korean Society Of Phonetic Sciences And Speech Technology*. 1996;24:367-371. Available from: <https://www.koreascience.or.kr/article/CFKO199613842053847.pdf>
5. Hong KH, Yang YS, Kim HK. Acoustic and Laryngeal characteristics of Korean Traditional Singers. *Korean J Otolaryngol*. 1996;39(10):1622-1632. Available from: <http://jkorl.jatsxml.org/upload/pdf/0011996214.pdf>
6. Hongm Ki Hwan, Kim HG, Kim Sun Sook. The Professional Singers' Voice Evaluation between Western Singing and Pansori Based on Vocal Fold Profiles and Acoustic Representations. *Commun Sci Disord*. 2006;11(3):153–64. Available from: [https://www.e-csd.org/upload/11\(3\)_10.pdf](https://www.e-csd.org/upload/11(3)_10.pdf)
7. Hong KH. The Vocalization for Korean Traditional Song 'Pansori.' *Journal of The Korean Society of Laryngology, Phoniatics and Logopedic*. 2011;22(2):111–4. Available from: <https://jkslp.org/upload/pdf/jkslp-22-2-111.pdf>
8. Marshall M. The key informant technique. *Family Practice* 1996. 1996;13(1):92–97. Doi: <https://doi.org/10.1093/fampra/13.1.92>
9. Kim SSHC. Korean Han and the Postcolonial Afterlives of 'The Beauty of Sorrow. *Korean Studies*. 2017;41:253-279. Available from: <https://www.jstor.org/stable/44508447>
10. Willoughby H. The Sound of Han: Pansori, Tinbre and a Korean Ethos of Pain and Suffering. *Yearbook for Traditional Music*. 2000;32:17–30. Doi: <https://doi.org/10.2307/3185241>
11. Killick A. *Changgeuk Opera and the Category of the 'traditionesque.'* Honolulu: University of Hawaii Press; 2010. Available from: <https://www.jstor.org/stable/23719471>
12. Moon S-J. General Acoustical Characteristics of Pansori Singing Voice. *Korean Society of Speech Science*. 2001;42:15-24. Available from: <https://www.koreascience.or.kr/article/JAKO200113842068743.pdf>
13. Teixeira JP, Oliveira C, Lopes C. Vocal Acoustic Analysis – Jitter, Shimmer and HNR Parameters. *Procedia Technology*. 2013;9:1112-1122. Doi: <https://doi.org/10.1016/j.protcy.2013.12.124>
14. Mecorio F, Santangelo F, Gucciardo AG. The Korean “han” in Voice Performance: Preliminary Findings of a Pilot Study. *ePhonoscope*. 2020;3:5–9. Available from: <https://ephonoscope.org/vol-3-2020/>

15. Hirano M, McCormick KR. Clinical Examination of Voice by Minoru Hirano. The Journal of the Acoustical Society of America. 1986 Oct;80(4):1273. Doi: <https://doi.org/10.1121/1.393788>
16. Iwarsson J, Bingen-Jakobsen A, Johansen DS, K lle IE, Pedersen SG, Thorsen SL, et al. Auditory-Perceptual Evaluation of Dysphonia: A Comparison Between Narrow and Broad Terminology Systems. Journal of Voice. 2018 Jul;32(4):428-436. Doi: <https://doi.org/10.1016/j.jvoice.2017.07.006>
17. Jacobson BH, Johnson A, Grywalski C, Silbergleit A, Jacobson G, Benninger MS, et al. The Voice Handicap Index (VHI): Development and Validation. American Journal of Speech-Language Pathology. 1997;6(3):66-70. Doi: <https://doi.org/10.1044/1058-0360.0603.66>
18. Calvache-Mora CA. Par metros vocales para definir la severidad de una disfon a. Revista de Investigaci n e Innovaci n en Ciencias de la Salud. 2020 Dec 28;2(2):14-30. Doi: <https://doi.org/10.46634/riics.39>
19. Cantor-Cutiva LC, Malebr n Bezerra de Mello MC, Hunter EJ. Translation and adaptation of the Vocal Fatigue Index into Spanish. Revista de Investigaci n e Innovaci n en Ciencias de la Salud. 2020 Dec 28;2(2):4-13. Doi: <https://doi.org/10.46634/riics.29>
20. Yun Young Sun, Kim HyangHee, Son Young-Ik, Choi H. Validation of the Korean Voice Handicap Index (K-VHI) and the Clinical Usefulness of Korean VHI-10. Korean Journal of Communication Disorders. 2008;13:216-41. Available from: <https://www.e-csd.org/upload/10041581.pdf>
21. Chae SJ. Hyangyucheung cui pueongdonggwa kwallyeon haeseobon pansori cui hyeon-jae wa mirae (Present and Future of Pansori and its Changing Audiences). Pansori Yeuongu (Journal of Pansori Studies). 2000;11:115-32.
22. McAllister-Viel T. Peer-reviewed Article A Cross-Cultural Examination of Breath and Sound Production in Pansori. Voice and Speech Review. 2001 Jan;2(1):297-311. Doi: <https://doi.org/10.1080/23268263.2001.10761483>
23. Pihl MR. Pansori: the Korean Oral Narrative. Korean Studies. 1981 Jan;5:43-62. Available from: <https://www.jstor.org/stable/23718812>
24. Lee K-S. An Essay on Korean Modes. Asian Music. 1978;9(2):41-7. Doi: <https://doi.org/10.2307/833755>
25. Titze IR. Breath is not the carrier of speech. Voice and Speech Review. 2015 Jan 2;9(1):91-93. Doi: <https://doi.org/10.1080/23268263.2015.1091172>
26. Um Hae-Kyung. New ‘pansori’ in Twenty-first Century Korea: Creative Dialectics of Tradition and Modernity. Asian Theatre Journal. 2008;25(1):24-57. Available from: <https://www.jstor.org/stable/27568434>
27. Killick AP. Jockeying for Tradition: the Checkered History of Korean Changgeuk Opera. Asia Theatre Journal. 2003;20(1):43-70. Available from: <https://www.jstor.org/stable/1124052>
28. Killick Andrew. In Search of Korean Traditional Opera - Discourses of Ch’angguk. Honolulu: University of Hawai’i Press; 2010.