

Reviewing the Concept of Voice: Toward a Comprehensive Definition

Revisión del Concepto de Voz: Hacia una Definición Integral

 Marcelo Saldías.¹

Abstract

The concept of voice is usually defined in different manners depending on the perspective of each author. Currently, there exists neither a unique definition for “voice” nor “normal voice”. Also, traditional definitions tend to be narrow and do not integrate all the available perspectives. A more comprehensive definition of voice can be obtained by compiling different perspectives, which potentially can complement and broaden the existing vision regarding the process of vocal intervention, both in training and in rehabilitation.

Purpose: The present article aims to propose a more comprehensive definition of the concept of voice. Also, a brief discussion about the idea of “normal voice” is presented.

Conclusion: A sufficiently broad definition of voice is needed to include the whole variety of factors that converge when working with people with specific vocal needs. Also, a review of the concept of “normality” is needed to better understand the physical, biological, and social phenomenon of voice. A comprehensive perspective of the voice implies changing the approaches of intervention, which need to be adapted to the cultural and generational changes that accompany human beings throughout their history.

Keywords: .Voice concept, Normal voice, Quality of life.

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***Correspondence:** Avenida Independencia 1027, Independencia, Santiago, Metropolitan Region, Chile. Email: msaldias@uchile.cl

¹ Departamento de Fonoaudiología, Universidad de Chile, Santiago, Chile.

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Resumen

El concepto de voz generalmente se define de manera diferente según la perspectiva de cada autor. Actualmente, no existe una definición única para “voz” ni para “voz normal”. Además, las definiciones tradicionales tienden a ser limitadas y no integran todas las perspectivas disponibles. Al compilar diferentes perspectivas, se puede obtener una definición más completa de la voz, lo que potencialmente puede complementar y ampliar la visión existente sobre el proceso de intervención vocal, tanto en el entrenamiento como en la rehabilitación.

Propósito: El presente artículo tiene como objetivo proponer una definición más completa del concepto de voz. Además, se presenta una breve discusión sobre la idea de “voz normal”.

Conclusión: Se necesita una definición lo suficientemente amplia de voz para incluir toda la variedad de factores que convergen cuando se trabaja con personas con necesidades vocales específicas. Además, se necesita una revisión del concepto de “normalidad” para comprender mejor el fenómeno físico, biológico y social de la voz. Una perspectiva integral de la voz implica cambiar los enfoques de intervención, que deben adaptarse a los cambios culturales y generacionales que acompañan a los seres humanos a lo largo de su historia.

Palabras clave: Concepto de voz, Voz normal, Calidad de vida.

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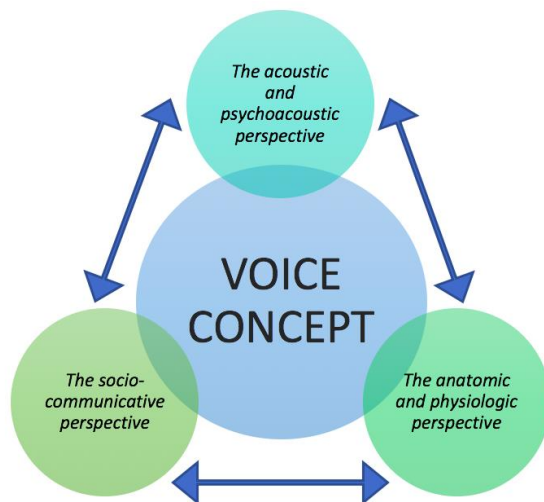
Voice is essential for human expression. As such, it is considered a powerful, versatile, communicative and artistic tool.^(1,2) Although voice sounds are close to the human being on a daily basis, at present there is neither a unique definition for “voice” nor “normal voice”.⁽³⁻⁵⁾ Therefore, voice can be defined from as many perspectives as authors exist. By compiling these various perspectives, a comprehensive definition of the concept of voice can be obtained, which, in turn, can complement and broaden the existing vision

regarding the process of vocal intervention, both in training and in rehabilitation. Based on a literature review, the present article aims to propose a comprehensive definition for the concept of voice, in line with the needs of modern society and current scientific development. Then, a brief discussion is presented about the idea of “normal voice” and how a comprehensive definition of voice potentially allows changing the understanding of vocal production in some specific contexts.

A comprehensive definition of voice

The concept of voice is usually defined differently depending on the perspective of each author. However, the most traditional definition of voice corresponds to a sound produced in a person's larynx, which is characterized by certain parameters such as pitch, loudness and quality.⁽⁶⁾ According to Titze,⁽⁷⁾ limiting the voice to the sound produced by the vocal folds corresponds to a narrow definition. That is why it is needed to have a broader view of the concept of voice that integrates the most relevant aspects of this physical, biological and social phenomenon. Thus, the comprehensive definition of voice proposed in this article consists of three complementary and inseparable perspectives (Fig. 1).

Fig. 1. A comprehensive definition of voice. Schematic representation of the three complementary perspectives resorted to producing a comprehensive definition of the concept of voice

*The acoustic and psychoacoustic perspective*

Sound is defined as a physical phenomenon that implies the propagation of mechanical waves

through an elastic medium (as in the case of air).⁽⁸⁾ If one considers voice as a sound, then it can be defined as the acoustic signal of speech, which carries the communicative message.^(1,7) According to the acoustic theory of speech production,⁽⁹⁾ voice originates with the vibration of a source that generates several mechanical waves (harmonics) that propagate through the air of the vocal tract (filter). The complex sound of the voice is modified in the vocal tract, acquiring its final characteristics. However, the physical parameters of this sound (frequency, intensity and complexity) have a psychoacoustic homologation (pitch, loudness, and quality or timbre, respectively).⁽⁷⁻⁹⁾ These subjective characteristics of sound are the result of an individual's sensation when the hearing mechanism is stimulated.⁽⁸⁾ Thus, as a physical phenomenon, voice acquires specific characteristics that can be perceived as different sensations by the people who participate in a communicative process. Hence, both the acoustic and psychoacoustic aspects should be considered into a comprehensive definition of voice.

The anatomic and physiologic perspective

Voice production relies on the interactive and coordinated action of breathing, phonation and resonance.^(1,10) According to research, the interaction between these voice subsystems is nonlinear,⁽¹⁰⁻¹²⁾ which means that aerodynamic and acoustic energies do not flow in a one-way direction (e.g., from downstream to upstream) as in a linear circuit, but flow in different directions or interactively. Thereby, any subsystem can be affected by any other subsystem.⁽¹⁰⁾ Consequently, voice can be defined as the product of the interactive and nonlinear phenomenon between voice production subsystems. This complex mo-

tor activity is coordinated both by the central and peripheral nervous systems, including the efferent and afferent pathways.⁽¹⁾ Therefore, not only is voice produced, but perceived (i.e., voice can be heard and felt).⁽⁷⁾ This is why vocal learning and control systems are not solely motor, but sensory-perceptual as well.⁽¹⁰⁾ Since cognitive and emotional aspects play a primary role in sensory-motor learning,⁽¹⁰⁾ the anatomic and physiologic perspective of the voice becomes more complex and dynamic, which invites us to consider other relevant factors, beyond the larynx itself, when defining a concept of voice.

The socio-communicative perspective

Several authors have established that voice is the primary means of human expression.^(1,3,7) Based on this perspective, voice sounds provide our daily thoughts with feelings and intentions.^(1,13) According to Titze,⁽⁷⁾ the emotional expression is highly vocal (as in the case of fear, hungry, joy or sadness). Since voice delivers information about our wishes, intentions, and feelings (i.e., information about who we are), it has been considered as an extension of our personality.^(3,7,14) Thus, babies are capable of recognizing their parents by hearing their voices. People can also infer if someone is happy or sad, healthy or ill, if someone is young or old, nervous or quiet.^(3,7) Voice can reveal the cultural background of an individual as well; therefore, this perspective of the voice allows understanding how important acoustic, psychoacoustic, anatomic and physiologic processes are for human communication. This is why the communicative and social perspective of voice is highly related to the people's quality of life and their communicative-emotional

well-being,⁽¹⁵⁾ which are determined by cultural, geographic, occupational and age factors, among others.^(3,7) Well-being applied to voice has been discussed deeply in relation to performers (as in the case of actors and actresses).⁽¹⁵⁾ Though, vocal-communicative and emotional well-being should be considered for all people regardless of the use of their voice.

In summary, considering these three perspectives, it is possible to determine that voice is so much more than a sound produced in the larynx. Thus, based on a comprehensive perspective, it is proposed to define voice as a complex and dynamic acoustic, biological and social phenomenon, in which the interactive actions and adjustments between breathing, phonation and resonance allow people to produce and learn unlimited combinations of pitches, loudness and qualities. These combinations are part of the melodic signal that individuals use to express ideas, thoughts, feelings and emotions, depending on their particular vocal needs and daily life contexts, reflecting the expression of identity and impacting the quality of life of both the speakers and listeners who are part of a communicative process.

A brief discussion on the concept of "normal voice"

Considering that understanding "normality" is relative and its boundaries are broad, there is no single definition for "normal voice".⁽³⁾ These boundaries are highly dynamic and depend, among others, on age, gender, education, race and culture.^(3,16) In this way, the concept of "normal voice" varies according to each particular community and depends on human behavior, which also is influenced by cultural and ideological aspects.⁽³⁾ Nevertheless, the consensus

points out that a normal voice can be defined based on specific parameters that are related to auditory-perceptual assessment.^(3,6) Thus, according to the perceptual characteristic of a voice, it would be possible to establish how far from “normality” that voice is.

Table 1 shows the traditional definition of normal voice by Johnson *et al.*^(3,6) According to this definition, a normal voice is perceived as pleasant and balanced, while it adjusts to age, gender and context. Although this definition of normal voice includes aspects related to the communicative context and occupation (under the criteria of sustainability), it seems to rely mainly on the judgment that an individual does over the quality and versatility of the voice of another person. In this sense, it may not consider

the feelings of that individual about his or her voice. In other words, a normal voice seems to be understood as what others expect of someone’s voice, disregarding what the expectations of that person are. From a comprehensive perspective, it is essential to consider that a normal voice is also capable of satisfying the social, recreational, occupational and artistic needs of human beings. People should not experience difficulties or discomfort with their voices, even in situations of high vocal demand. Also, vocal efficiency and vocal health should be sheltered.^(3,6,10) Since the voice is a tool to accomplish professional and communicative goals,⁽¹⁶⁾ people’s expectations regarding their voice should be emphasized over external or social ones.

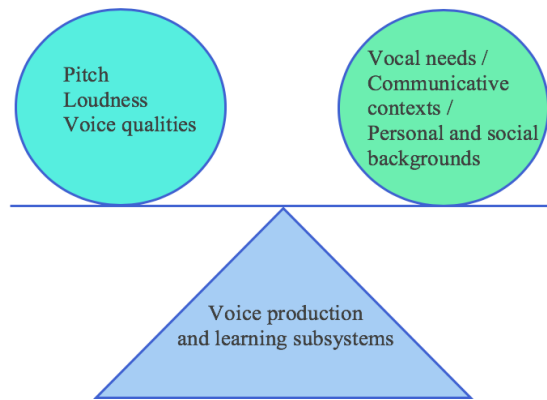
Table 1. Definitions of voice criteria for a normal voice by Johnson *et al.*^(3,6)

<i>Voice criteria</i>	<i>Criterion definitions for a normal voice</i>
Quality	Must be pleasant, with a certain musical quality and absence of noise, inappropriate breaks, voice perturbations or atonality.
Pitch	Must be appropriate to the age and gender of the speaker.
Loudness	Must be appropriate to the communication event, not so weak as to be borderline intelligible or unintelligible under ordinary speaking circumstances, not so loud that it calls attention to itself, and appropriately adjusted to the context of the event be it for confidential communication, speaking in a large lecture hall or yelling for help.
Flexibility	Pitch and loudness variations are available to express emphasis, meanings or subtleties indicating individual feelings and semantic differences.
Sustainability	must meet one’s social and occupational needs even when extended voice is required.

Hence, it is possible to conceptualize “normal voice” as the functional balance of the vocal production and learning subsystems, which allows well-adjusted acoustic and perceptual characteristics of the voice to the particular vocal needs of an individual (Fig. 2). As a result, individuals can feel comfortable with themselves.

This perspective invites us to put the person’s complaints, needs and concerns in the center of attention during voice assessment processes and voice therapy and training. This way, it is possible to suggest replacing the label “normal voice” for “vocal balance”.

Fig. 2. Vocal balance concept. Schematic representation of vocal balance based on the interaction of the three perspectives that define voice



Some possible applications in specific contexts

It is possible to apply the comprehensive definition of voice and the concept of vocal balance in a number of contexts. Here, some examples will be briefly presented.

One clear example of how these concepts can be applied is the case of singing voice. In singing, voice can be considered as the sound, produced by the singer, and its acoustic and perceptual characteristics. Albeit, the sound produced must be related to the several physiologic possibilities available, i.e., the different vocal techniques that exist.⁽²⁾ The vocal techniques used, on the other hand, need to be associated to the specific singing style of each singer,^(2,17,18) taking into account that the singing style could reflect both the expression of identity and cultural background. This means there is no “right” and “wrong”, or that a vocal technique is better than another, because the optimal vocal performance should depend on the interaction and balance of the three perspectives of the voice previously described. This balance between the perspectives would enable an adequate voice production,

which can be efficient and healthy according to the aesthetic requirements and interests, style, wellness and satisfaction of each performer. The above can be applied in a similar manner to other vocal forms of artistic expression, as in the case of impersonators, actors, and drag-queens and drag-kings.

As regards voice in speech (non-artistic), we can apply the comprehensive definition of voice and vocal balance to populations such as teachers, telemarketers, transgender people (binary and non-binary), the pediatric population and the elderly, among others. Each of the vocal possibilities of the human being is susceptible to be analyzed from a comprehensive perspective. In this sense, any particular characteristic of a person and his/her vocal-communicative needs become relevant and must be adequately addressed. Hence, it is possible to understand that it is not enough to conceive voice from a reductionist point of view. It is not possible either to define “normality” from the evaluator’s perspective only. Thus, deeply and broadly understanding voice give us the opportunity to count on varied options to approach voice therapy and training.

Conclusion

Voice is a complex and dynamic phenomenon. In this sense, a sufficiently broad definition of voice is needed to include the whole variety of factors that converge when working with a person with specific vocal needs. That is why a comprehensive definition of voice has been proposed to be applied in different vocal contexts. Additionally, a discussion about the concept of normal voice was proposed. One of the goals when working with voice should be to embrace the individual’s needs, avoiding that intervention process are li-

mitted to perceptually judging his or her vocal performance. A comprehensive perspective implies changing the approaches of intervention, which need to be adapted to the cultural and generational changes that are and will always be present in the history of human beings.

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