



# Self-perception of the effects of oral communication training in public speaking situations: a study before and after intervention with announcers of a university radio

Autopercepção dos efeitos de um treinamento de comunicação oral em situações de fala em público: um estudo antes e após intervenção com locutores de uma rádio universitária

Autopercepción de los efectos del entrenamiento en comunicación oral en situacionista de hablar en público: un estudio antes y después de la intervención con locutores de una radio universitária

Denis de Jesus Batista\*   
Aline Santos da Conceição\*\* 

## Abstract

**Introduction:** training for the development of oral communication can improve self-perception of speech and voice, especially in public speaking situations. **Objective:** to describe the self-perception of the effects of oral communication training for university radio announcers in public speaking situations. **Method:** this is a before and after intervention study. The Expressiveness Development Program for Oral Communication was applied to eight speakers during eight two-hour meetings. The Self-Assessment of Voice and Speech Skills in Different Communicative Contexts questionnaire was applied in the first and

\* Universidade Federal da Paraíba (UFPB) - João Pessoa, PB, Brazil.

\*\* Centro Universitário Jorge Amado (UNIJORGE) - Salvador, BA, Brazil.

### Authors' contributions:

DJB: conception and design of the study, data collection and analysis, writing of the final manuscript.

ASC: study conception and design, data collection, review of final manuscript.

**Correspondence e-mail:** Denis de Jesus Batista - [denis.batista@outlook.com.br](mailto:denis.batista@outlook.com.br)

**Received:** 29/03/2022

**Accepted:** 13/02/2023

last meeting. **Results:** the sample consisted mostly of young single women and students, who worked part-time for three days. The public speaking situations that occurred at the beginning of the training eventually became more frequent. There was a reduction in the symptoms of nervousness, anxiety, worry and confusion in the content during the speech. The perception of tremor and voice breaks reduced, and the symptom of faster speech increased. There was a previous report that the interlocutors evaluated their variable diction with the situation, and in the end, they stated that it was the same as usual. At the end, they said, people rated their communication as good. **Conclusion:** the training discreetly resulted in positive self-perception for speech organization and in symptoms of vocal deviations and changes in the speakers' speech.

**Keywords:** Communication; Speech; Radio; Voice training; Universities.

### Resumo

**Introdução:** os treinamentos para o desenvolvimento da comunicação oral podem melhorar a autopercepção da fala e da voz, principalmente, em situações de fala em público. **Objetivo:** descrever a autopercepção dos efeitos de um treinamento para a comunicação oral dos locutores de uma rádio universitária em situações de fala em público. **Método:** este é um estudo antes e após intervenção. Foi aplicado o Programa de Desenvolvimento da Expressividade para Comunicação Oral em oito locutores durante oito encontros de duas horas de duração. O questionário de Autoavaliação das Habilidades de Voz e Fala em Diversos Contextos Comunicativos foi aplicado no primeiro e no último encontro. **Resultados:** a amostra constituiu-se, majoritariamente, por mulheres jovens, solteiras e estudantes, que trabalhavam por meio período durante três dias. As situações de fala em público que no início do treinamento ocorriam eventualmente passaram a ser mais frequentes. Houve redução nos sintomas de nervosismo, ansiedade, preocupação e confusão no conteúdo durante o discurso. A percepção de tremor e quebras na voz reduziram, e o sintoma de fala mais rápido aumentou. Houve relato prévio de que os interlocutores avaliavam a sua dicção variável com a situação, e ao final, afirmaram que era igual ao habitual. No término, segundo eles, as pessoas avaliavam a sua comunicação como boa. **Conclusão:** o treinamento resultou discretamente na autopercepção positiva para organização do discurso e nos sintomas de desvios vocais e alterações na fala dos locutores.

**Palavras-chave:** Comunicação; Fala; Rádio; Treinamento da voz; Universidades.

### Resumen

**Introducción:** el entrenamiento para el desarrollo de la comunicación oral puede mejorar la autopercepción del habla y la voz, especialmente en situaciones de hablar en público. **Objetivo:** describir la autopercepción de los efectos del entrenamiento en comunicación oral para locutores universitarios de radio en situaciones de hablar en público. **Método:** este es un estudio de intervención antes y después. El Programa de Desarrollo de la Expresividad para la Comunicación Oral se aplicó a ocho ponentes durante ocho encuentros de dos horas. En la primera y última reunión se aplicó el cuestionario Self-Assessment of Voice and Speech Skills in Different Communicative Contexts. **Resultados:** la muestra estuvo compuesta en su mayoría por mujeres jóvenes, solteras y estudiantes, que trabajaron a tiempo parcial durante tres días. Las situaciones de hablar en público que ocurrieron al comienzo de la capacitación eventualmente se hicieron más frecuentes. Hubo una reducción en los síntomas de nerviosismo, ansiedad, preocupación y confusión en el contenido durante el discurso. Se redujo la percepción de temblores y roturas de voz, y aumentó el síntoma de habla más rápida. Hubo un reporte previo de que los interlocutores evaluaron su dicción variable con la situación, y al final afirmaron que era la misma de siempre. Al final, dijeron, las personas calificaron su comunicación como buena. **Conclusión:** el entrenamiento resultó discretamente en una autopercepción positiva para la organización del habla y en síntomas de desviaciones vocales y alteraciones en el habla de los hablantes.

**Palabras clave:** Comunicación; Habla; Radio; Entrenamiento de la voz; Universidades.



## Introduction

University radios began in the last century in Argentina and the United States; however, their development only occurred in the 2000s in Italy and Spain<sup>1</sup>. Knowledge of how these radios work is superficial because of the limited number of scientific publications in the literature. However, this scenario changed after the formation of the *Associação das Rádios Universitárias* (ARU) in Spain, which systematized the actions of university radios, consequently increasing scientific publications on the subject<sup>2,3</sup>. In Brazil, there are a few publications on university radios in the form of brief case reports and experiences of the last two decades. These reports are restricted to the radios of the *Universidade Federal do Ceará* (UFC) and the *Universidade Federal da Paraíba* (UFPB), which are transmitted in web or traditional broadcast formats, such as AM and FM. However, as the activities of these radios are restricted to their campuses, it is difficult to know about their conduct<sup>3</sup>.

University radios have peculiar characteristics and use jovial language to share scientific, academic, and cultural information with the academic community. In addition, the transmission is done over the web through podcasts and streaming platforms because of financial constraints. Being run by students from Journalism, Social Communication, Audiovisual Production, and Advertising and Public Relations courses, university radios operate during business hours. These collaborators take up different occupational functions, such as announcers, programmers, editors, directors, producers, reporters, sound designers, and musicians. Interns working in university radios consider it as an opportunity to improve their professional skills<sup>4-7</sup>.

Currently, the job market values announcers with versatility and flexibility in adapting to the oral communication used by the radio station, in addition to having healthy, clear, natural, and expressive speech<sup>7</sup>. For this reason, training for the prevention of work-related vocal disorders (WRVD) and professional development of oral communication is of great relevance for these professionals, as voice is their primary work tool<sup>8</sup>.

Training for the development of oral communication is moderated by speech therapists, usually through voice specialists. It involves expressiveness exercises using linked speech tasks, simulations associated with reading texts with different

emotions, and vocal health guidelines. Audiovisual recordings are useful resources for developing participants' self-perception of communication. These trainings should be carried out in small groups so that there is an interaction between all participants, whether speakers or listeners. Thus, it is possible to stimulate the active attitudes of speakers and promote the exchange of experiences and knowledge<sup>9</sup>.

A study<sup>8</sup> applied the *Programa de Desenvolvimento da Expressividade para Comunicação Oral* to eight announcers of a university radio station. The results showed that training reduced vocal deviations and improved other characteristics of professional speech, including reading informational text and the proper use of vocal resources (vocal intensity, speech rate, pauses, modulation, and emphasis resources). In this study, only auditory-perceptual assessment was considered, without knowing the participants' self-perception of the training effects.

Self-assessment is part of a multidimensional voice assessment. It is a subjective measurement that cannot be obtained by clinical measurement and is a low-cost, simple, fast, and noninvasive instrument. Self-assessment explores a patient's perspective on their condition or situation and is an important outcome measure for assessing the effects of vocal interventions<sup>10</sup>. For this reason, the objective of this study is to describe the self-perception of the effects of training on the development of oral communication of announcers of a university radio station in public speaking situations.

## Methods

The present study is an intervention study. The research was approved by the Ethics and Research Committee under opinion no. 2,780,453 and consent was obtained from the radio station. All participants agreed to participate in the study by signing an informed consent form.

The invitation to participate in the study took place at the radio administrative meetings. The following inclusion criteria were adopted: academic and active in university radio broadcasting. The following exclusion criteria were applied: self-reported cognitive deficit or difficulty in understanding and performing the requested assessments and exercises, undergoing communicative or vocal training concomitantly with the study period, and not participating in all stages of the research.

Initially, the sample consisted of nine participants, with one dropout leading to a final sample of eight participants.

The *Programa de Desenvolvimento da Expressividade para Comunicação Oral*<sup>11</sup> was administered between March and April 2018. The objective of this intervention was to improve oral communication in an interactive context between interlocutors, vocal psychodynamics, and dyad form/content and sound/meaning. In addition to practicing reading aloud and connected speech involving different emotions, a sample of audiovisual recordings for the development of self-perception of oral communication and vocal health was used (Chart 1). The intervention consisted of eight two-hour meetings. Two members of the research team conducted the moderation in a climate-controlled classroom within the campus where the radio station was located.

In the first meeting, the training base was presented, and a self-assessment instrument was applied. The operation was divided into three parts from the second to the seventh meetings:

- part one: dialogued exposition and auditory stimulation for the development of communicative perception;
- part two: application of exercises and strategies for vocal preparation;
- part three: application of linked speech exercises with text reading (brief and short) for the development of oral communication.

The duration of these blocks varied according to the theme and proposed activities. In the last meeting, the training topics were resumed, and the self-assessment instrument was reapplied.

**Chart 1.** Description of the Expressiveness Development Program for Oral Communication applied to the participants of this study.

<b>Meeting 1: Opening – Program Bases (2 hours)</b>	
<b>Part I</b>	Presentation of vocal training and researchers
	Delivery of the Free and Informed Consent Form
	Application of assessment protocols
<b>Part II</b>	Individual voice recording
<b>Homework</b>	Perception of your oral communication and others
<b>Meeting 2: Breathing (2 hours)</b>	
<b>Part I (40 minutes long)</b>	Participants rate their involvement in homework from 0 to 10
	Dialogued exposition: presentation on the basic mechanisms of voice production (notions of anatomy and physiology of vocal production) and basic principles of interpersonal communication
<b>Part II (20 minutes long)</b>	Discussion on punctuation and breathing/performing a breathing pause according to the logic of the text, with an example of a sentence with different meanings according to the punctuation used
	Cervical movements and shoulder rotation technique
<b>Part III (20 minutes long)</b>	Large movements of the costal phragmatic region during sequences of deep inspirations and expirations
	Punctuation marking exercise, such as comma and period, in printed texts without graphic signs; The annotation should be done according to the logic of the text, noting the difference in the duration of the pauses in the case of the comma and the period
<b>Part IV (40 minutes long)</b>	Reading aloud text with brief individual feedback
	Individual videorecording of the reading aloud of the informative text "Brazil, a country with a partially free press" for later analysis by the participants
<b>Homework</b>	Exercises and reading aloud proposed at the meeting
	Perception of your oral communication and others
	Observation of breathing and its relation to the content of what is said

<b>Meeting 3: Vocal warm-up (2 hours)</b>	
<b>Part I (60 minutes long)</b>	Participants rate their involvement in homework from 0 to 10
	Dialogued exposition: presentation of slides on vocal health and aspects related to the impressions conveyed by different vocal resources
<b>Part II (30 minutes long)</b>	Reading aloud of informative text
	Strategy to guide the participant in the overall understanding of the text through questions to identify the structure of the text and infer the author's intention
	Reading aloud the same text and comparison between readings before and after understanding the text
	Cervical movements and shoulder rotation technique
	Large movements of structures in the costal diaphragmatic region during sequences of deep inspirations and expirations
	Technique of vibrant sounds in sustained, modulated emissions and musical scales
	Yawn-sigh technique
	Glottal firming technique
<b>Part III (30 minutes long)</b>	Technique of nasal sounds associated with the masticatory technique
	Reading aloud the same informative text, analysis of situations
	First reading - without discussion of the text
	Second reading - after discussion and understanding of the text
	Third reading - after understanding the text and after warming up
	Comparison between readings and brief individual feedback
<b>Homework</b>	Reading aloud another informative text with brief individual feedback, scoring parameters such as frequency, intensity, speech articulation and resonance, in addition to their relationship with the text content
	Exercises and reading aloud proposed at the meeting
	Perception of your oral communication and others
	Observation of voice frequency and intensity, speech articulation and resonance, in addition to the relationship with the content of what is said
<b>Meeting 4: Articulation of speech sounds (2 hours)</b>	
<b>Part I (50 minutes long)</b>	Participants give a score from 0 to 10 for their involvement in homework and for their oral communication during the week
	Video presentation to show examples of vocal psychodynamics, a topic already discussed in the previous meeting in which the impressions transmitted by vocal resources were discussed
	Dialogued exhibition: slides how with audio and video examples that show people with different types of articulatory patterns
<b>Part II (30 minutes long)</b>	Reading aloud informational text
	Questions to guide the overall understanding of the text: identification of the structure of the text and inference of the author's intention
	Technique of neck movements and shoulder rotation associated with the technique of vibrating sounds
	Technique of vibrating sounds in modulated emissions
	Technique of nasal sounds associated with the masticatory technique
	Tongue rotation technique in the buccal vestibule associated with the nasal sounds technique
	Masticatory technique
Over-articulation technique	
<b>Part III (40 minutes long)</b>	Reading aloud the same informative text and comparing readings before and after exercises with brief individual feedback
	Reading aloud an advertising text that is aimed at a young audience; therefore, to be read at a fast speech rate, maintaining articulatory precision;
	Gathering all the skills worked on during this meeting: strategies for understanding the text and exercises to ensure a well-defined articulation
	Brief individual feedback
<b>Homework</b>	Exercises and reading aloud proposed at the meeting
	Perception of your oral communication and others
	Observation of the articulation of speech sounds and their relationship to the content of what is said

<b>Meeting 5: Frequency and intensity modulation (2 hours)</b>	
<b>Part I (50 minutes long)</b>	Participants give a score from 0 to 10 for their involvement in homework and for their oral communication during the week
	Dialogued exhibition: slide show with audio and video examples showing people with different types of frequency and intensity modulation
	Audio example presentation to show different vocal inflections according to text punctuation
<b>Part II (30 minutes long)</b>	Reading aloud text in which the same sentence has different meanings according to the position of the comma graphic sign
	Technique of neck movements and shoulder rotation associated with the technique of vibrating sounds
	Technique of nasal sounds associated with the masticatory technique
	Basal sound technique
	Blowing technique and high-pitched sound
	Technique of vibrating sounds in modulated emissions and musical scales
<b>Part III (40 minutes long)</b>	Frequency and intensity modulation technique: reading of special phrases to train different inflections and with previously marked words to exercise emphasis
	Poetry reading aloud: noticing how each participant uses vocal resources according to their personal interpretation of the text and the message they want to convey; Brief individual feedback
<b>Homework</b>	Exercises and reading aloud proposed at the meeting
	Perception of your oral communication and others
	Observation of frequency and intensity modulation and their relation to the content of what is said
<b>Meeting 6: Ressonance (2 hours)</b>	
<b>Part I (20 minutes long)</b>	Participants give a score from 0 to 10 for their involvement in homework and for their oral communication during the week
<b>Part II (30 minutes long)</b>	Reading aloud advertising text
	Questions to guide the overall understanding of the text: identification of the structure of the text and inference of the author's intention
	Reading aloud informational text before exercises
	Technique of neck movements and shoulder rotation associated with the technique of vibrating sounds
	Technique of fricative sounds: emission of concatenated sound fricatives "vzjvzjvzj"
	yawn-sigh technique
	Technique of nasal sounds associated with the masticatory technique
Tongue rotation technique in the buccal vestibule associated with the nasal sounds technique	
<b>Part III (40 minutes long)</b>	Reading aloud of the same advertising text and comparison between readings before and after the exercises, with brief individual feedback
	Singing voice technique associated with articulatory sequences and automatic speech
	Reading aloud informative text with brief individual feedback; Gathering all the skills worked on during this meeting: strategies for understanding the text and exercises to ensure a balanced resonance and promote better vocal projection
<b>Part IV (30 minutes long)</b>	Individual videorecording of the reading aloud of the informative text "Brazil, a country with a partially free press", the same text used in Meeting 2 for the analysis of the participants
<b>Homework</b>	Exercises and reading aloud proposed at the meeting
	Perception of your oral communication and others
	Observation of resonance and its relation to the content of what is said



<b>Meeting 7: Comparison of oral communication before and after training (2 hours)</b>	
<b>Part I (20 minutes long)</b>	Participants give a score from 0 to 10 for their involvement in homework and for their oral communication during the week
<b>Part II (10 minutes long)</b>	Dialogued exposition: presentation of slides on verbal expressiveness in the text, calling attention to the issue that voice and sound are always loaded with meaning, as well as a review of all vocal parameters worked on during vocal training, relating impressions transmitted by the various voice resources
	Explanation of how the following dynamic will happen – comparison between videos before and after training: individual comments, self-assessment, feedback from colleagues and the speech therapist
	Presentation of the videos of each participant, organized in pairs, recorded in meetings 2 and 6, and considered as material before and after training, respectively
	Analysis of the recordings
	<i>Feedbacks made immediately after watching each student's video</i>
	Comments on the points that improved and those that could still be improved
<b>Homework</b>	Performing the exercises proposed throughout the training, according to individual needs
	Perception of your oral communication and others
<b>Meeting 8: Finalization of the program (2 hours)</b>	
<b>Part I (20 minutes long)</b>	Participants give a score from 0 to 10 for their involvement in homework and for their oral communication during the week
<b>Part II (100 minutes long)</b>	Summary of the training proposal, resumption of exercises and reinforcement of the most important points
	Application of assessment protocols
	Individual voice recording

The instrument used for self-assessment was the *Autoavaliação das Habilidades de Voz e Fala em Diversos Contextos Comunicativos*<sup>12</sup>. This instrument consists of a questionnaire with 26 questions categorized into two blocks: the first 12 questions are related to sociodemographic and occupational characteristics, while the others encompass different public-speaking situations. It was developed based on several scientific studies, and its objective is to evaluate the communicative abilities of those who use their voice professionally.

Data analysis was performed with simple descriptive statistical analysis using relative and absolute frequencies and inferential statistical analysis using RStudio software version 2021.09.2. The Shapiro-Wilk test was applied to verify the normality of the data distribution, and the Wilcoxon signed-rank test was used to compare ordinal qualitative variables.

## Results

The sample consisted mainly of young women between 20 and 30 years of age (mean=23.12; standard deviation=4.3) who were single and had only one brother. One speaker reported general health problems related to blood pressure. One speaker reported undergoing psychological therapy, but it was not a clinical condition associated with a psychiatric disorder that would prevent follow-up. Two speakers reported the use of medication—one for maintaining ocular lubrication and the other for controlling hypertension. All participants were students attending their undergraduate degree for the first time; most worked part-time for three days (mean=3; standard deviation=9.87), and were unable or preferred to not report monthly income (Table 1).

**Table 1.** Sociodemographic and occupational characteristics of the sample in this study.

Identification	n	%
<b>Sex</b>		
Feminine	5	62,5
Masculine	3	37,5
<b>Age</b>		
Less than 20 years	1	12,5
Over 20 years	6	75
Over 30 years	1	12,5
<b>Marital status</b>		
Single	8	100
<b>Have any brothers</b>		
1 brother	5	62,5
2 brothers	1	12,5
3 brothers	2	25
<b>General Health Problems</b>		
Yes	1	12,5
No	7	87,5
<b>Have you ever had or are you undergoing psychological treatment?</b>		
Yes	1	12,5
No	7	87,5
<b>Have you ever had or are you undergoing psychiatric treatment?</b>		
No	8	100
<b>Medication use</b>		
Yes	2	25
No	6	75
<b>Education</b>		
Incomplete higher	8	100
<b>Paid work</b>		
Yes, part time	5	62,5
Yes, full time	1	12,5
Yes, in addition to self-employment	1	12,5
No	1	12,5
<b>Work days</b>		
2 days	1	12,5
3 days	4	50
4 days	1	12,5
6 days	1	12,5
None	1	12,5
<b>Monthly income</b>		
I do not know	3	37,5
I prefer not to inform	3	37,5
Up to BRL 1,000	2	25

There were no statistically significant differences in the data in Table 2; therefore, the results presented below were analyzed descriptively, considering most of the responses.

Work presentations were situations in which participants had more experience in public speaking before (n=7; 87.5%) and after training (n=8; 100%). The frequency of public speaking situations changed from occasional (n=4; 50%) to weekly

(n=4; 50%) for most responses. The number of people that the participants preferred to have as an audience when speaking in public did not change after the training; thus, it continued between “few people” (n=4; 50%) or “indifferent” (n=4; 50%), and the amount of training to improve oratory did not evolve, remaining in the “none” option (n=7; 87.5%). Three participants (37.5%) reported that their symptoms of nervousness, anxiety, or worry



during the event were reduced. The situation in which speakers were more nervous or uncomfortable when speaking in public was when they were unsure about the content, both at the beginning (n=8; 100%) and at the end of the training (n=8; 100%). The most frequently reported manifestation of anxiety was content confusion during speech (n=5; 62.5%), which reduced after training (n=2; 25%). When speaking in public, the speakers evaluated the sound of their own voice as a variable according to the situation (before: n=7, 87.5%; after: n=3, 37.5%), considering that the others also evaluated their voice in a similar way (before: n=6, 75%; after: n=4, 50%). Symptoms of tremor (before: n=5; 62; 50%; after: n=4; 50%) and voice breaks (before: n=4, 50%; after: n=3; 37.5%) were

reduced after training. Meanwhile, they evaluated their own diction as a variable according to the situation (before: n=6; 75%; after: n=4; 50%) with symptoms of difficulty in coordinating speech, breathing, and swallowing reduced (before: n=4; 50%; after: n=3; 37.5%), and the faster speech symptom increased at the end of training (before: n=4; 50%; after: n=5; 62, 5%). At the beginning of the intervention, the speakers thought that others evaluated their diction, which varied according to the situation (n=6; 75%); however, in the end, they stated that it was the same as usual (n=4; 50%). Finally, according to the participants, people generally evaluated their communication in public as good (before: n=2, 25%; after: n=4, 50%) (Table 2).

**Table 2.** Comparison of public speaking situations before and after training.

Public speaking situations	Before		After		p*
	n	%	n	%	
<b>Public speaking experience</b>					
Meetings	5	62,5	4	50	1
Work presentations	7	87,5	8	100	1
Lectures or conferences	2	25	2	25	1
Classes	4	50	1	12,5	0,23
Courses	3	37,5	2	25	1
Social and cultural events	2	25	1	12,5	1
Outros	1	12,5	-	-	1
<b>The frequency of public speaking situations</b>					
None	1	12,5	1	12,5	
Weekly	3	37,5	4	50	
Fortnightly	-	-	1	12,5	0,41
Possibly	4	50	2	25	
<b>How many people do you find it easier to talk to?</b>					
Few people	4	50	4	50	
Indifferent	4	50	4	50	1
<b>How many courses and trainings have you attended for public communication?</b>					
None	7	87,5	7	87,5	
One	1	12,5	1	12,5	1
<b>Times when you get nervous, anxious and/or worried about public speaking</b>					
During the event	8	100	5	62,5	0,14
Hours before the event	6	75	5	62,5	1
One day before the event	1	12,5	2	25	0,77
For several days leading up to the event	1	12,5	1	12,5	1
Other	-	-	1	12,5	1

Public speaking situations	Before		After		p*
	n	%	n	%	
<b>Speaking situations where you are more nervous or uncomfortable when speaking in public</b>					
Talk to some people	2	25	-	-	0,34
Chat with someone unknown	1	12,5	2	25	1
Express your opinions	3	37,5	1	12,5	0,34
Present works, lectures and meetings and classes	4	50	3	37,5	0,77
When you are unsure about the content	8	100	8	100	1
Being alone with someone you do not know	1	12,5	1	12,5	1
Eating or drinking in front of people	1	12,5	1	12,5	1
Make a call to a stranger	2	25	2	25	1
Attend parties or social gatherings	1	12,5	1	12,5	1
Entering a room where unknown people are sitting	3	37,5	3	37,5	1
Dealing with people in authority (e.g. boss, teacher, manager)	3	37,5	3	37,5	1
Speak offhand	4	50	5	62,5	0,77
Use microphone	3	37,5	2	25	1
When it is filmed when speaking in public	4	50	5	62,5	1
When you are evaluated during your presentation in public	4	50	6	75	0,34
<b>Manifestations of anxiety in which you feel when speaking in public</b>					
I do not have any manifestations and anxiety when speaking in public	1	12,5	1	12,5	1
Hand tremor	2	25	3	37,5	0,77
Sweating (excessive sweating)	3	37,5	2	25	1
Muscle tension	3	37,5	3	37,5	1
Tremor in the voice	5	62,5	4	50	1
Gastrointestinal discomfort	1	12,5	2	25	1
Redness on the face	1	12,5	2	25	0,77
Palpitations	3	37,5	1	12,5	0,34
Diarrhea	1	12,5	-	-	1
Confusion in content during speech	5	62,5	2	25	0,14
Avoid eye contact with the audience	3	37,5	2	25	1
Increased blood pressure	2	25	2	25	1
Urination (urine frequently)	1	12,5	1	12,5	1
Dry mouth	1	12,5	1	12,5	1
Wheezing	1	12,5	4	50	0,23
Throat clearing	2	25	1	12,5	1
Difficulty swallowing saliva	1	12,5	-	-	1
Using a lot of gestures (moves hands, legs, arms or body a lot)	3	37,5	3	37,5	1
Reduces a lot of gestures (moves hands, legs, arms or body a lot)	-	-	1	12,5	1
<b>When speaking in public, how is the self-perception of the sound of your voice?</b>					
Same as always	1	12,5	1	12,5	
Better than ever	-	-	2	25	
Worse than ever	-	-	2	25	0,17
Variable according to the situation	7	87,5	3	37,5	

Public speaking situations	Before		After		p*
	n	%	n	%	
<b>What happens to the sound of your voice when speaking in public?</b>					
I feel no difference in my voice when speaking in public	1	12,5	1	12,5	1
Tremor in the voice	5	62,5	4	50	1
Voice breaks	4	50	3	37,5	0,77
Hoarseness	1	12,5	1	12,5	1
Tiredness (fatigue) in the voice	2	25	3	37,5	1
Thicker than usual	-	-	2	25	0,34
Thinner than usual	2	25	1	12,5	0,77
<b>How do you think others perceive the sound of your voice when speaking in public?</b>					
Same as always	1	12,5	2	25	
Better than ever	-	-	2	25	0,19
Worse than ever	1	12,5	-	-	
Variable according to the situation	6	75	4	50	
<b>When speaking in public, how is the self-perception of your diction (speech)?</b>					
Better than ever	-	-	2	25	
Worse than ever	2	25	2	25	0,34
Variable according to the situation	6	75	4	50	
<b>What happens to your diction (speech) when you speak in public?</b>					
I speak faster	4	50	5	62,5	1
I speak slower	1	12,5	1	12,5	1
I stutter	2	25	3	37,5	1
I change to letters	2	25	1	12,5	1
I have trouble coordinating speech, breathing, and swallowing	4	50	3	37,5	0,77
I speak louder	2	25	2	25	1
I speak lower	3	37,5	1	12,5	0,34
I get more breathless (difficulty breathing)	1	12,5	2	25	1
I repeat the words	2	25	3	37,5	0,34
I have language addictions	3	37,5	3	37,5	1
<b>How do you think others perceive the sound of your voice when speaking in public?</b>					
Same as always	-	-	4	50	
Better than ever	-	-	1	12,5	0,06
Worse than ever	2	25	-	-	
Variable according to the situation	6	75	3	37,5	
<b>Generally, how people rate your communication in public?</b>					
I never received feedback on my public communication	1	12,5	1	12,5	
Excellent	1	12,5	1	12,5	
Very Good	1	12,5	2	25	0,37
Good	2	25	4	50	
Reasonable	2	25	-	-	
Bad	1	12,5	-	-	

Lyrics: \*Wilcoxon Signed Rank Test.

## Discussion

Understanding the working of university radios in Brazil and the vocal performance of announcers who are part of these radios is difficult<sup>8</sup>. Therefore, the objective of this study was to determine the self-perception of university radio station announcers before and after training. The results did not present a statistically significant difference, possibly due to the sample size; therefore, they were analyzed descriptively to understand and expand the scientific knowledge of these radios.

The sample for this research was mostly composed of young, single women and students who associated their studies with part-time work for three days. These data are consistent with the current profile of university speakers from other studies conducted in Hispanic countries, Europe, and Brazil<sup>2,4-6,8</sup>.

Work presentations and meetings are situations in which the participants have more experience with public speaking as these are a part of academic experiences. This was expected as the same being university population<sup>11,13</sup>. However, the communicative experiences of professional voiceovers are more intense during and outside the work period, involving voiceovers in other environments, such as parties, auctions, and private ceremonies<sup>14,15</sup>. This supports the need for training for vocal and communicative preparations.

The fear of public speaking is one of the most prevalent fears in the world<sup>16</sup>. Public speaking is a demand in the professional training process of university students, especially those graduating from journalism and social communication courses. Presentation of seminars, works, or clarification of doubts during class can be challenging, generating discomfort and apprehension<sup>17,18</sup>. In Brazil, a study revealed that 60% of students are afraid of public speaking, which can be associated with excessive anxiety, consequently affecting oral communication<sup>16,18</sup>. After training, the speakers in this study were better prepared for other public speaking situations, suggesting that the intervention may have increased confidence and mastery of communicative skills in addition to reducing apprehension when speaking in public<sup>19</sup>.

Some people report difficulties in public speaking because of fear or other psychological issues. Untrained speakers have difficulty using their communication skills. They possibly avoided

public speaking because they had a negative self-perception of their communication skills and had never carried out any type of communication training<sup>20</sup>. In addition, shyness is a very common trait among university students who are afraid of public speaking and can make communicating in public a difficult task, making them prefer environments and situations with few or no people<sup>11,12</sup>. Half of the speakers in this survey preferred to speak in public with small audiences. The other half claimed that they were indifferent to the number of people. This indifference can be justified by the fact that their communication performance takes place inside a studio without the presence of an audience besides the radio employees, or inside a classroom with familiar interlocutors<sup>21</sup>.

Lack of training for voice and communication in speakers can lead to poor vocal habits<sup>15</sup>. Although the vocal load of a professional broadcaster is relative and dependent on the dynamics of the radio station, they generally have a lower risk of work-related voice disorders (WRVD) than teachers and telemarketers. This justification is based on the unique characteristics of working within a radio station where the working day is short, working conditions and organizations are better, there is accessibility of vocal amplifiers, and there is a low level of noise in the environment. In university radio stations, this reality prevails as the average number of days and shifts worked is low, and the studios and equipments are professional<sup>21</sup>. This also justifies the low demand from speakers for training in oral communication. In general, university students report the need for training to improve oral communication, especially in public-speaking situations<sup>16</sup>.

Public speaking is a stressful activity. Excessive stress causes psychological changes with cognitive effects, such as decreased attention, concentration, and short-term memory. This can directly affect the organization of speech, clarity of information, and content of communication<sup>22</sup>. There was a reduction in symptoms of nervousness, anxiety, or worry during the event, and participants stated that the speaking situation in which they were most nervous or uncomfortable when speaking in public was when they were unsure of the content, both at the beginning and end of the training. In addition, the most frequently reported manifestation of anxiety was confusion about the

content during the speech, which showed a slight reduction after training.

When a speaker is faced with a situation that they are not used to, there is a possibility of instability in their oral communication owing to their inexperience. This can lead to discomfort, insecurity, and shyness. It is found that after this training, public speaking situations went from occasional to weekly, becoming more recurrent due to the reduction of insecurity and fear of public speaking<sup>19</sup>.

The current job market values professional speakers with clear, believable, pleasant, and natural speech<sup>7</sup>. This demands control from the speaker over the vocal resources used in speech<sup>8</sup>. When speaking in public, speakers evaluated the sound of their own voice as a variable according to the situation, considering that others also evaluated their voice in a similar way. This may indicate that they had no control over their vocal behavior and that their interlocutors had the same impression.

Symptoms of vocal deviation—tremors and voice break—were slightly reduced after training. Previously, the Programa de Desenvolvimento da Expressividade para Comunicação Oral showed good results in the vocal quality of announcers at a university radio station, thus revealing a slight reduction in vocal deviations in the studied population<sup>8</sup>. Individuals who experience excessive anxiety when speaking in public may have a higher voice pitch, laryngopharyngeal resonance, voice breaks, increased muscle tension, pneumo-phono-articulatory incoordination, and disfluencies among other manifestations<sup>23</sup>. These alterations may be related to the activation of the brain's defense system, causing muscle tension and hormonal physiological changes<sup>16,20,24</sup>. In response to stressors, the body activates various processes to preserve life and restore homeostasis. Physical and psychological factors can activate stress reactions in the body<sup>25</sup>.

Speakers evaluated their own diction as a variable according to the situation, with symptoms of difficulty in coordinating speech, breathing, and swallowing reducing at the end of the intervention. Training for the development of communication uses many activities involving reading texts and spontaneous speech, in addition to pneumophonic articulation, speech rate, articulation, and facial and body expressions. This learning, when applied in the ideal context, generates competent, effective, and stable communication and ensures

greater emotional security, social interaction, and communicative self-perception<sup>9,26</sup>.

Faster speech symptoms increased marginally after training. These results were also found in a study that evaluated the auditory-perceptual effects of this training in a group of university speakers<sup>8</sup>. A fast speech can compromise the intelligibility of the speech, especially the speech of a speaker who passes all the information through their orality<sup>27</sup>. In informational news, speaking speed must be balanced, neither slow nor fast, unlike sports or commercial news, where the speed is faster<sup>28</sup>. This suggests that the training did not allow the participants to adequately master the speech rate.

In the beginning, the speakers thought that others evaluated their variable diction according to the situation, but in the end, they stated that it was the same as usual. A speech variable according to the situation is unstable, being influenced by the environment and the situation, giving a connotation that the speaker does not control it, while a habitual speech refers to a natural speech similar to everyday communication. An interesting fact about the career of an announcer is that the primary characteristic that radio contractors value is natural and spontaneous speech<sup>7-9</sup>.

At the end of the intervention, people generally rated speakers' public communication as good. This is because training for communicative skills reduces anxiety rates and improves social interactions, whether with the opposite sex, in public speaking situations, in interaction with strangers, and even in the fear of failing and experiencing embarrassing situations<sup>22</sup>.

This research describes the effects of the Programa de Desenvolvimento da Expressividade para Comunicação Oral on the self-perception of university radio announcers, thus guiding future speech therapy interventions with the university population; it contributes to the literature on speech therapy performance in university radio stations<sup>1,8</sup>. When university students undergo training for professional improvement during their undergraduate period, their chances of entering the job market increase, and their knowledge of the particularities of their service increases. In addition, prior training reduces the risk of vocal disorders for voice professionals<sup>15</sup>.

The results of this research must be considered in light of the particularities of the studied population as well as the methodological limitations

of the study, especially the small sample size. It is worth noting that the sample was selected for convenience and, therefore, it was not possible to perform a sample calculation, making it difficult to formulate more robust statistical hypotheses. Another limitation is the design of the study (before and after intervention) that does not have a random or controlled allocation, with only one intervention group, which increases the risk of the Hawthorne effect<sup>29</sup>.

New research is encouraged, including instruments for the objective assessment of speech and voice, such as acoustic analysis of speech, in addition to larger sample size, evidently respecting interventions in small groups. It is also important to measure the long-term development of communication skills.

## Conclusion

Although the presented results did not have a statistically significant difference, this study pointed out that the training administered brought a marginally positive self-perception to the eventuality and frequency of public speaking situations, as well as to the symptoms of nervousness, anxiety, worry, vocal deviations, and speech confusion during public speaking. These results also led to a better perception of interlocutors.

New research must be stimulated with more objective voice instruments, a larger sample size, and a longitudinal follow-up of oral communication development.

## References

1. Martín Pena D, Gómez-Crisóstomo R, Romo-Fernández LM. Producción científica sobre radio universitaria (Scopus, 2000-2017). Cuadernos de Documentación Multimedia. 2018; 30:59-74. doi:10.5209/CDMU.62803
2. Bernad MS, Martín-Pena D, Guillem Aldave C. Análisis de las herramientas de producción radiofónica en las radios universitarias españolas. Cuadernos de Documentación Multimedia. 2017; 28(2):170-186. doi:10.5209/CDMU.58341
3. Kischinhevsky M, Mustafá I, Matos CM de, Hang L. Por uma historiografia do rádio universitário no Brasil. Revista Brasileira de História da Mídia. 2018; 7(2). doi:10.26664/issn.2238-5126.7220186200
4. Mora-Jaureguialde B, Pérez-Rodríguez MA. Blogs como recurso de una radio universitaria. El caso de Uniradio-Huelva. Dos Algarves A Multidisciplinary e-Journal. 2017; 31:15-33. doi:10.18089/DAMEJ.2017.31.2
5. Ortiz Sobrino MÁ, Marta-Lazo C, Pena DM. La formación de competencias profesionales en los estudiantes de Comunicación Social de las emisoras universitarias en España y Portugal: situación y resultados asimétricos. Signo y Pensamiento. 2016; 35(68): 34. doi:10.11144/Javeriana.syp35-68.fcpe
6. Mariano Giorgi S. Origin and decline of the first university radio web in France. EMI Educ Media Int. 2017; 54(3): 185-198. doi:10.1080/09523987.2017.1384152
7. Warhurst S, McCabe P, Madill C. What Makes a Good Voice for Radio: Perceptions of Radio Employers and Educators. Journal of Voice. 2013; 27(2): 217-224. doi:10.1016/j.jvoice.2012.08.010
8. Batista D de J, Conceição AS da. Efeitos perceptivo-auditivos de um treinamento de comunicação oral em locutores de uma rádio universitária. Distúrbios da Comunicação. 2021; 33(3): 557-570. doi:10.23925/2176-2724.2021v33i3p557-570
9. Borrego MC de M, Behlau M. Mapeamento do eixo condutor da prática fonoaudiológica em expressividade verbal no trabalho de competência comunicativa. Cotas. 2018; 30(6). doi:10.1590/2317-1782/20182018054
10. Patel RR, Awan SN, Barkmeier-Kraemer J, et al. Recommended protocols for instrumental assessment of voice: American speech-language-hearing association expert panel to develop a protocol for instrumental assessment of vocal function. Am J Speech Lang Pathol. 2018; 27(3): 887-905. doi:10.1044/2018\_AJSLP-17-0009
11. Fernandes M. Proposta de Atuação Fonoaudiológica Para Estudantes de Comunicação: Efeitos de Dois Tipos de Treinamento [Tese de Doutorado]. Universidade Federal de São Paulo – UNIFESP - Escola Paulista de Medicina - EPM; 2017.
12. Ugulino A. Autoavaliação Do Comportamento Comunicativo Ao Falar Em Público Das Diferentes Categorias Profissionais. Universidade Federal de São Paulo – UNIFESP - Escola Paulista de Medicina - EPM; 2014.
13. Celeste LC, Russo LC, Fonseca LM de S. Influência da mídia sobre o olhar pedagógico da gagueira: reflexões iniciais. Revista CEFAC. 2013; 15(5): 1202-1213. doi:10.1590/S1516-18462013005000042
14. Farghaly SM, Andrade CRF de. Programa de treinamento vocal para locutores de rádio. Revista da Sociedade Brasileira de Fonoaudiologia. 2008; 13(4): 316-324. doi:10.1590/S1516-80342008000400004
15. Molin PD, Silva M da, Chuproski AP, Galli JFM, Dassi-Leite AP, Ribeiro VV. Caracterização dos hábitos e sintomas vocais de locutores de rádio. Distúrb Comun. 2014; 26(1): 86-94.
16. Ferreira Marinho AC, Mesquita de Medeiros A, Côrtes Gama AC, Caldas Teixeira L. Fear of Public Speaking: Perception of College Students and Correlates. Journal of Voice. 2017; 31(1): 127.e7-127.e11. doi:10.1016/j.jvoice.2015.12.012
17. Hakim Yassi A, Arafah B, Imran N. Correlation between Level of Anxiety and Public Speaking Performance through Systematic Learning Approach in Foreign Language. International Journal of Science and Research (IJSR) ISSN Published online 2015 doi:1021275/ART20161991. Published online 2015.
18. Pantuza JJ, Alexandre IO, Medeiros AM de, Marinho ACF, Teixeira LC. Senso de Coerência e o medo de falar em público em universitários. Cotas. 2020; 32(5). doi:10.1590/2317-1782/20202019071





19. Hancock AB, Stone MD, Brundage SB, Zeigler MT. Public Speaking Attitudes: Does Curriculum Make a Difference? *Journal of Voice*. 2010; 24(3): 302-307. doi:10.1016/j.jvoice.2008.09.007
20. Carney DR, Cuddy AJC, Yap AJ. Power Posing. *Psychol Sci*. 2010;21(10):1363-1368. doi:10.1177/0956797610383437
21. Cantor-Cutiva LC, Bottalico P, Hunter E. Work-related communicative profile of radio broadcasters: a case study. *Logoped Phoniatr Vocol*. 2019; 44(4): 178-191. doi:10.1080/14015439.2018.1504983
22. Lira AA de M, Marchand DLP, Carvalho LSR, Cassol M. Efeito de um programa de aprimoramento das habilidades de comunicação oral na ansiedade e no estresse autorreferidos. *Audiology - Communication Research*. 2021; 26. doi:10.1590/2317-6431-2021-2545
23. Almeida AAF de, Behlau M, Leite JR. Correlação entre ansiedade e performance comunicativa. *Revista da Sociedade Brasileira de Fonoaudiologia*. 2011; 16(4): 384-389. doi:10.1590/S1516-80342011000400004
24. Hofmann SG, Dibartolo PM. An instrument to assess self-statements during public speaking: scale development and preliminary psychometric properties. *Behav Ther*. 2000; 31(3): 499-515. doi:10.1016/s0005-7894(00)80027-1
25. Russell G, Lightman S. The human stress response. *Nat Rev Endocrinol*. 2019; 15(9): 525-534. doi:10.1038/s41574-019-0228-0
26. Law T, Lee KYS, Ho FNY, Vlantis AC, van Hasselt AC, Tong MCF. The Effectiveness of Group Voice Therapy: A Group Climate Perspective. *Journal of Voice*. 2012; 26(2): e41-e48. doi:10.1016/j.jvoice.2010.12.003
27. Rodero E, Diaz-Rodriguez C, Larrea O. A Training Model for Improving Journalists' Voice. *Journal of Voice*. 2018; 32(3): 386.e11-386.e19. doi:10.1016/j.jvoice.2017.05.006
28. Dias TEC, Martins PC, Teixeira LC, Gama ACC. Análise da variação prosódica em diferentes estilos de reportagens telejornalísticas. *Audiology - Communication Research*. 2015; 20(3): 210-214. doi:10.1590/2317-6431-2014-1528
29. Medronho R, Carvalho D, Bloch K. *Epidemiologia*. 1st ed. Atheneu; 2002.