



# Speech therapy with teachers: analysis of Distance Education

Intervenção fonoaudiológica com professores:  
análise de uma proposta realizada à distância

Terapia del habla con los maestros: el análisis  
de una propuesta hecha la distancia

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## Abstract

**Objective:** to analyze the impression of the participants of a course included in the Vocal Wellness Program, destined to teachers of the network of a municipality, offered in the modality of Distance Education. **Method:** to sensitize teachers about voice issues, a distance education course was presented in a municipal teaching network (40 hours divided into three face-to-face meetings, eight modules, eight forums and eight evaluations). A total of 257 teachers participated in the study. These data were categorized and subjected to descriptive analysis using absolute and relative frequencies. **Result:** all the modules were put into practice, and the content of one of them, known as Articulation and Resonance, registered the highest frequency of notes on being put into practice (89.29%), as it was the one that received the greatest number of praise (25.30%). The Voice module in the teaching work registered 97.14% of

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### Authors' contributions:

LPF: Study design; Methodology; Critical review; Article elaboration; Guidance. RVS: Study design; Methodology; Data collection; Article elaboration. JSB and ARS: Study design; Methodology; Data collection.. MMP: Article elaboration. SPPG, TMTSP and BMC: Study design; Methodology; Data collection; Article elaboration.

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the suggestions. **Conclusion:** The findings showed the need to make adjustments in the Course to be offered to new classes, with greater emphasis on modules whose content requires greater conceptual understanding and subsequent implementation of practices. The Distance Learning mode achieved its goal by providing a moment to listen (record) to the needs of the teacher, as well as a reflection on part of the teachers with respect to their practice and working environment.

**Keywords:** Voice; Voice Disorders; Faculty; Distance, Education.

### Resumo

**Objetivo:** analisar a impressão dos participantes de um curso inserido no Programa de Bem-Estar Vocal, destinado a professores da rede de um município, oferecido na modalidade de Educação à Distância. **Método:** para sensibilizar professores quanto às questões da voz, foi apresentado um curso na modalidade de Educação à Distância, numa rede municipal de ensino (40 horas divididas em três encontros presenciais, oito módulos, oito fóruns e oito avaliações). Participaram 257 professores que emitiram 592 relatos sobre esse curso. Esses dados foram categorizados e submetidos à análise descritiva por meio de frequências absolutas e relativas. **Resultado:** todos os módulos foram colocados em prática, e quanto ao conteúdo deles, o denominado Articulação e Ressonância registrou a maior frequência de apontamentos quanto a ter sido colocado em prática (89,29%), assim como foi o que recebeu maior número de elogios (25.30%). O módulo Voz no trabalho docente registrou 97.14% de sugestões. **Conclusão:** os achados registraram a necessidade de se realizar ajustes no Curso a ser oferecido a novas turmas, com maior ênfase em módulos cujo conteúdo exige maior entendimento conceitual e posterior realização de práticas. A modalidade EAD alcançou seu objetivo, propiciando um momento de escuta (registro) das necessidades do professor, assim como uma reflexão por parte dele sobre sua prática e ambiente de trabalho.

**Palavras-chave:** Voz; Distúrbios de Voz; Docentes; Educação à Distância.

### Resumen

**Objetivo:** analizar la impresión de los participantes de un curso insertado en el Programa de Bienestar Vocal, destinado a profesores de la red de un municipio, ofrecido en la modalidad de Educación a Distancia. **Método:** para sensibilizar a los profesores sobre las cuestiones de la voz, se presentó un curso en la modalidad de Educación a Distancia, en una red municipal de enseñanza (40 horas divididas en tres encuentros presenciales, ocho módulos, ocho foros y ocho evaluaciones). Participaron a 257 profesores que emitieron 592 relatos sobre ese curso. Estos datos fueron categorizados y sometidos a análisis descriptivo por medio de frecuencias absolutas y relativas. **Resultado:** todos los módulos fueron puesto en práctica, y en cuanto al contenido de ellos, el denominado Articulación y Resonancia registró la mayor frecuencia de apuntes en cuanto a haber sido puesta en práctica (89,29%), así como fue el que recibió mayor número de apuntes elogios (25.30%). El módulo Voz en el trabajo docente registró 97.14% de sugerencias. **Conclusión:** los hallazgos registraron la necesidad de realizar ajustes en el Curso a ser ofrecido a nuevas clases, con mayor énfasis en módulos cuyo contenido exige mayor entendimiento conceptual y posterior realización de prácticas. La modalidad EAD alcanzó su objetivo, propiciando un momento de escucha (registro) de las necesidades del profesor, así como una reflexión por parte de él sobre su práctica y ambiente de trabajo.

**Palabras claves:** ; Trastornos de la Voz; Docentes; Educación a Distancia.

## Introduction

Among voice professionals, teachers are the most researched in Speech-language Pathology, including registration studies, ranging from voice assessment to establish the prevalence of voice disorders in this professional class, to the relationship between teacher's voice and teaching work<sup>1</sup>.

It is clear the high prevalence of voice disorders in this category within the researches that trace vocal profile of these professionals. These disorders result from an intense vocal demand in adverse conditions related to the environment (presence of noise, dust, etc.)<sup>2</sup> combined with multiple concomitant factors related to the organization of work (overwork, lack of discipline of students and others)<sup>3,4</sup>.

In a survey conducted by DRAGONE et al. (2010)<sup>1</sup>, only 14% of the 500 literature sources made reference to some kind of intervention carried out by a speech-language pathologist with teachers. This number is certainly due to the hard task of outlining an intervention research.

Most speech therapist interventions refer to clinic interventions<sup>5,6,7</sup>, since Distance Learning initiatives (DL)<sup>9</sup> have only recently emerged as an option.

DL modality is presented as a possible way to increase people's access to certain information, which normally would not be able to attend classroom courses, such as most teachers, due to the excessive demands related to their work. However, the distance learning modality is still facing many challenges, since people consider that it is important to know the educators involved in the teaching processes, as well as their expectations, and motivations<sup>9</sup>.

Therefore, in order to raise awareness of teachers on their vocal well-being, and considering the large number of teachers in our country, proposing a distance learning initiative would definitely be a solution, since it would allow to include a greater number of teachers working in different regions of the country, enabling teachers to gain knowledge about vocal health and well-being at their own homes and at convenient times, in addition to incorporate more and more digital resources in the teaching perspective<sup>8</sup>.

In 2005, the municipal government of a municipality established the Municipal Vocal Health Program due to the large demand for voice-related

disorders recorded by teachers of the municipal education network. The program consisted of workshops conducted by speech-language pathologists from the Municipal Health Office and by 2010 it had served more than 2,329 teachers of the Municipal School Network<sup>10</sup>.

A group was created in 2011 with representatives of the municipal government and also from a university, including teachers and students of the Speech-Language Pathology Course and the Graduate Program in Speech-Language Pathology, to develop an educational initiative aimed at promoting health, which was called "Promoting Teacher Vocal Well-Being", in order to raise awareness of teachers on the vocal care, to attenuate health problems, recognizing that the teacher's voice is a learning resource, in addition to playing a communication, interaction and, therefore, teaching-learning role.

Distance Learning was regarded as a restructuring proposal for this Program, since it would allow including more teachers of the Municipal Education Network.

The "Promoting Teacher Vocal Well-Being" course is offered by the group each semester, with seven classes so far (two in 2014, two in 2015, one in 2016, one in 2017 and one in 2018). At each class completed, the process is evaluated according to issues related to its form or content.

Therefore, this study is justified since it allows to find flaws or difficulties in the process of a certain class (fourth class of the second half of 2015), from the feedback of those involved, and to create solutions.

It should be noted that at this time, besides teachers and students of the Speech-Language Pathology Course, representatives of the Physiotherapy Course are also part of the group (a teacher and a student), providing more discussion especially at the module in which body and voice are discussed.

The approach proposed by Zabala<sup>11</sup> was used for data analysis, which indicates that the entire learning process includes three levels: the first level, which is called conceptual, and in which definitions and concepts are presented; then the procedural level, at which point people work with what they must know how to do, and at that moment rules, techniques, methods, skills or abilities, and strategies, come into play; and, finally, the attitudinal level, which is the moment to put into

practice, incorporate for reasons of values (ethical principles), attitudes (tendency or predisposition to act in a certain way) or norms (standards or behavioral rules obligatory to members of a social group).

The initial hypothesis is that, when analyzing the form and content of the course, and mainly evaluating how the participants put into practice the topics addressed, the aspects that are more disseminated can be better understood and put into practice by teachers, and that, due to the high demand of work these teachers will find it difficult to conduct the activities proposed to each module of the Course.

This study aims to analyze the impression of the participants of a course included in the Vocal Wellness Program, destined to teachers of the network of a municipality, offered in the modality of Distance Education.

## Methods

This observational and descriptive study was duly recorded at Brazil Platform (CAEE no.: 52496715.9.0000.5482 and CEP no.: 1.409.960). Participants were provided with information on the objectives, risks and contributions of this study and signed an Free, Prior And Informed Consent (FPIC).

### Course Participants

Teachers of the municipal network who were interested in participating in the “Promoting Teacher Vocal Well-Being” Program were invited through the Federal Official Gazette. 300 vacancies were offered and 257 participants were enrolled. The course was validated for promotion and career development of teachers, and it probably enhanced the enrollment. The analysis of this research included the 592 notes produced by the 257 participants.

### The course analyzed

The “Promoting Teacher Vocal Well-Being” course, which lasts nine weeks, is a 40-hour course, with eight hours divided into three face-to-face meetings and the remaining hours are for

the Distance Learning (DL) modality. The DL modality consists of eight modules, eight discussion forums and eight evaluations inserted in the *Moodle* platform.

The three face-to-face meetings are conducted at the beginning, middle and end of the Program, with a one month between them and are held in the facilities of a higher education institution of easy access to enrolled teachers.

The proposal, and operation of the course, as well as information on the use of the *Moodle* tool, was presented in the first face-to-face meeting for the class to be analyzed here. In the second meeting, the teachers were able to clarify questions related to the modules and in the third and final meeting, a series of vocal warm-up and cool-down exercises was performed and, at the end, each teacher received a book marker with these practices detailed, so that the participants could perform them daily.

The eight modules in the *Moodle* platform were presented in eight weeks, allowing the participants to access the previous modules, if they needed to review some content, until the Workshop was concluded. The PowerPoint software was used to elaborate the content of these modules, including texts with definitions and explanations about the topics and videos to facilitate understanding. Additional texts were also made available for participants interested in further information.

A questionnaire consisting of seven questions was made available at the end of each of the eight modules, which, upon being answered, could verify the understanding regarding the subject studied. Each module was made available on the same day of the week, and then the participant was invited to participate in a forum. In this forum, two questions were presented to make teacher aware on the topic relevant to the content of each module.

One tutor was assigned to every 30 participants and followed the class throughout the course, participating in the forums, and presenting or answering the questions.

Chart 1 shows the title, content, and questions raised and discussed at the end of each module in the forums that have always been managed by the responsible tutors.

**Chart 1.** Presentation of eight modules, according to title, content and questions in each Forum.

<b>Module 1</b>	<b>"What is voice?"</b>
Content	This module addressed issues related to voice production, in order to relate the use of voice with emotional aspects and teaching work, highlighting that voice is an important working tool and, therefore, professionals need to take care of it, in addition to an emphasis on the anatomophysiological aspect.
Questions on the Forum	1st Teacher, do you see yourself as a voice professional? Why? 2nd This module showed that voice production depends on several aspects, such as breathing, articulation (diction), and resonance. In your opinion, which of these aspects is more difficult to perceive?
<b>Module 2</b>	<b>"Voice care"</b>
Content	This module clarified that one of the most important factors to ensure voice well-being is to keep the vocal folds well hydrated. This module addresses factors such as general health care, clothing, enough sleep and leisure time, sudden changes in temperature, smoking, alcoholic beverages, air conditioning, use of anesthetic sprays and drops.
Questions on the Forum	1st Of all the factors mentioned in this module, which one do you perceive that impacts your voice? What do you do to try to solve this issue? 2nd Of all the factors that may affect vocal production, which one were you not aware of?
<b>Module 3</b>	<b>"Voice at teaching work"</b>
Content	In this module, teachers were able to notice that there are adverse conditions in teaching work, both from physical environment and organization of work that may impact on their voice well-being, such as: noise, dust and chalk dust, irritant chemicals used in cleaning, fans and air conditioning, excessive number of students per class, school renovation, overwork, violence, and indiscipline.
Questions on the Forum	1st Did you recognize yourself in any of the situations addressed in this module? In your opinion, what can be done to try to change the situations related to the physical environment and work organization that may be affecting the health of the workers at your school? 2nd Is there an Internal Commission on Accident Prevention at your school? If so, is it active? What has this Commission been doing? If not, what is your opinion on an Internal Commission on Accident Prevention? Why?
<b>Module 4</b>	<b>"Body, posture and voice"</b>
Content	This module highlights the importance of having a good body posture, especially during working hours to avoid injuries. The module also includes some stretching practices that facilitate vocal production.
Questions on the Forum	1st Do you notice any part of your body that gets more tense during your professional activity? What have you done to improve it? 2nd Among the exercises in this module, which one(s) did you put into practice? What did you notice?
<b>Module 5</b>	<b>"Breathing"</b>
Content	This module allows learning on the importance of breathing for the body and the vocal production. The respiratory cycle consists of two stages: Inspiration, allows air to be moved into the lungs, and is given by the contraction of the diaphragm and the intercostal muscles; and Expiration that is, when air leave the lungs and there is a relaxation of the diaphragm and of the intercostal muscles.
Questions on the Forum	1st Have you ever paid attention to your breathing? Have you ever noticed any changes in your breathing? 2nd Among the exercises, which one(s) did you put into practice? What was it like?
<b>Module 6</b>	<b>"Articulation / Resonance"</b>
Content	When we speak, we transform the sound of the voice into words through the articulation, and this favors vocal projection. In this module, teachers were able to learn that they must use the resonator chambers (nose, mouth and pharynx) in a balanced way in order to enable a more enjoyable and effortless voice.
Questions on the Forum	1st How do you perceive your articulation? Do you notice any change when producing a sound, vowel or consonant? 2nd What did you notice during articulation exercises? And what about resonance exercises?
<b>Module 7</b>	<b>"Expressiveness"</b>
Content	This module highlights the importance of the entire body in communication. This is what we call expressiveness, which can be verbal (speech and voice resources) and non-verbal (body resources). The use of verbal and non-verbal expressiveness during class ensures a more effective communication in teaching activity.
Questions on the Forum	1st Regarding verbal and non-verbal resources discussed in this module, which ones are most commonly used in the classroom? 2nd Which one holds the attention of students? Did you put into practice the exercises mentioned? What was it like?
<b>Module 8</b>	<b>"Voice and emotion"</b>
Content	In this module, we see that emotions may impact with breathing control, vertical positioning of the larynx, relaxation of the vocal folds and muscles of the pharynx, larynx, neck and shoulders. All stress may affect the voice: breathing changes, the habitual tone varies, the articulation gets locked, in fact, various parameters are changed.
Questions on the Forum	1st Do you believe that stressors are present in your school environment? If so, what can you do to attenuate the stress? 2nd Are there any factors that make you feel stressed and that do not impact on your co-worker on the same way?

### Data collection

The study aimed to analyze the report of teachers from the questions presented by the tutors in the forums (Chart 1).

Each report of participants in a certain forum was recorded on the course website and then copied one by one into a Microsoft Word document. In order to comply with ethical standards, the names of the participants were removed.

### Data analysis

In a first step, the reports were categorized based on the specificity on the form or content of the course. Then the reports were separated into four groups, which were called Doubts, Practical Applicability, Appraisals and Suggestions. These categories were recorded in relation to each of the eight modules, that is, a report related to suggestions for the course could be categorized at the time of the completion of any of the modules and thus be categorized in the column referring to the forum of the module in which it occurred.

The items were reorganized into a Microsoft Excel spreadsheet for statistical analysis, in which all the modules were assigned to the horizontal lines while the categories were assigned to the vertical columns: report related to the CONTENT; report

related to the FORM; report related to Practical Applicability (that was subdivided into THOSE WHO PUT INTO PRACTICE, THOSE WHO DID NOT PUT INTO PRACTICE and THOSE WHO FACED DIFFICULTIES TO PUT INTO PRACTICE); reported related to APPRAISALS; and SUGGESTIONS.

A descriptive analysis of the data was performed using absolute and relative frequencies. The proportional comparison test with 95% intervals (95% CI) was used to compare the modules. Data was entered and analyzed in the Excel for Windows v.10. Some notes will be mentioned at the discussion for illustrative purposes.

### Results

592 notes were evaluated, which were produced by 257 teachers who concluded the eight DL modules. (Table 1).

Table 1 shows that, among the 35 notes recorded in the evaluation on CONTENT, 31.43% were assigned to the module called “What is voice?”, as well as the only mention to FORM that was also associated with this module.

**Table 1.** Number and percentage of answers of content and form, according to the module.

Modules	Evaluations			
	Content		Form	
	n	(%)	n	(%)
What is voice?	11	(31,43)	1	(100,00)
Voice care	9	(25,71)	0	(0,0)
Voice at teaching work	0	(0,0)	0	(0,0)
Body, posture and voice	1	(2,86)	0	(0,0)
Breathing	5	(14,29)	0	(0,0)
Articulation and resonance	8	(22,86)	0	(0,0)
Expressiveness	1	(2,86)	0	(0,0)
Voice and emotion	0	(0,0)	0	(0,0)
Total	35	(100,00)	1	(100,00)

In turn, Table 2 shows that all modules have been PUT INTO PRACTICE. There were 1.35 notes per module on average, ranging from 1 to 94 notes. Considering the total number of notes, it can be noted that the “Articulation and resonance” module presents at the same time the highest frequencies of participants who PUT INTO PRAC-

TICE the content (27.01%) and also of participants WHO DID NOT PUT INTO PRACTICE (48.15%). The module that registered the greatest number of participants referring to DIFFICULTIES TO PUT INTO PRACTICE was the “Breathing” module, with 89.29% of the notes in this category.

**Table 2.** Number and percentage of answers of “who put into practice”, “who did not put into practice” and “who faced difficulties to put into practice”, according to the eight modules.

Modules	Evaluations					
	Those who put into practice		Those who did not put into practice		Those who faced difficulties to put into practice	
	n	(%)	n	(%)	n	(%)
What is voice?	4	(1,15)	0	(0,0)	0	(0,0)
Voice care	4	(1,15)	0	(0,0)	0	(0,0)
Voice at teaching work	9	(2,59)	0	(0,0)	0	(0,0)
Body, posture and voice	83	(23,85)	1	(3,70)	0	(0,0)
Breathing	74	(21,26)	9	(33,3)	25	(89,29)
Articulation and resonance	94	(27,01)	13	(48,15)	3	(10,71)
Expressiveness	79	(22,70)	4	(14,81)	0	(0,0)
Voice and emotion	1	(0,29)	0	(0,0)	0	(0,0)
Total	348	(100,00)	27	(100,00)	28	(100,00)

Concerning the APPRAISALS, Table 3 shows that 25.30% of the 83 notes were related to the “Articulation and resonance” module. As for the

SUGGESTIOS, 97.14% were related to the “Voice at teaching work” module.

**Table 3.** Number and percentage of answers of appraisals and suggestions, according to the eight modules.

Modules	Evaluations			
	Appraisals		Suggestions	
	n	(%)	n	(%)
What is voice?	12	(14,46)	1	(1,43)
Voice care	6	(7,23)	0	(0,0)
Voice at teaching work	3	(3,61)	68	(97,14)
Body, posture and voice	13	(15,66)	1	(1,43)
Breathing	8	(9,64)	0	(0,0)
Articulation and resonance	21	(25,30)	0	(0,0)
Expressiveness	18	(21,69)	0	(0,0)
Voice and emotion	2	(2,41)	0	(0,0)
Total	83	(100,00)	70	(100,00)

The following analysis considers the proportion between the number of notes (n=592) and participants (n=257). Figures 1 and 2 show that only the items present in more than one module were evaluated. As for the CONTENT, there was a statistically significant difference between the module “What is voice?” and the modules “Body, posture and voice” and “Expressiveness”.

In turn, there was a statistically significant difference between “Voice and emotion” and the other modules (Figure 1) with respect to the item “THOSE WHO PUT INTO PRACTICE”. There was also a statistically significant difference between “What is voice?” versus “Body, posture and

voice”, “Breathing”, “Articulation and resonance” and “Expressiveness”. This difference was also found between the modules “Care of the voice” and “Voice in the teaching work” versus “Body, posture and voice”, “Breathing”, “Articulation and resonance” and “Expressiveness”.

Regarding the item THOSE WHO DID NOT PLACED IN PRACTICE (Figure 1), there was a difference between the modules “Body, posture and voice” versus “Breathing” and “Articulation and Resonance”.

As for the item THOSE WHO FACED DIFFICULTIES TO PUT INTO PRACTICE (Figure 1), a statistically significant difference was noticed

Content							Those who put into practice								
Proportion and 95% CI	6.75	5.75	1.15	3.64	5.23	1.15	Proportion and 95% CI	3.07	3.07	5.75	38.02	24.32	42.48	36.38	1.15
	4.28	3.50	0.39	1.95	3.11	0.39		1.51	1.51	3.50	32.30	28.79	36.58	30.74	0.39
	1.81	1.25	0.37	0.25	0.99	0.37		0.05	0.05	1.25	26.58	23.25	30.68	25.10	0.37
	What is voice?	Voice care	Body, posture and voice	Breathing	Articulation and resonance	Expressiveness		What is voice?	Voice care	Voice at teaching work	Body, posture and voice	Breathing	Articulation and resonance	Expressiveness	Voice and emotion
	Lower Limit	Proportion			Higher Limit				Lower Limit	Proportion			Higher Limit		

Those who did not put into practice					Those who faced difficulties to put into practice		
Proportion and 95% CI	1.15	5.75	7.74	3.07	Proportion and 95% CI	13.35	2.48
	0.39	3.50	5.06	1.56		9.73	1.17
	0.37	1.25	2.38	0.05		6.11	0.14
	Body, posture and voice	Breathing	Articulation and resonance	Expressiveness		Breathing	Articulation and resonance
	Lower Limit	Proportion		Higher Limit		Lower Limit	Higher Limit

Figure 1. Comparison of proportion and their respective 95% CI between the modules.

between the modules “Breathing” and “Articulation and Resonance”. There was a higher proportion (P=9.73, 95% CI = 6.11-13.35) of teachers who reported difficulties in the “Breathing” module when compared to the “Articulation and resonance” module (P=1.17, 95% CI = 0.14-2.48).

It can be observed in Figure 2 that there was a statistically significant difference in the item “APPRAISALS” between the module “Voice and emotion” in comparison to the modules “Expres-

siveness”, “Articulation and resonance”, “Body, posture and voice” and “What is a voice?”. It can also be noted that there was a difference between the modules “Voice care” and “Articulation and resonance”, and also between the modules “Breathing” and “Articulation and resonance”.

There was also a difference in SUGGESTIONS (Figure 2) between the module “Voice in the teaching work” versus “What is voice?” and “Body, posture and voice.”

Those who put into practice							Suggestions		
Proportion and 95% CI	7.25	4.17	2.48	4.19	10.12	Proportion and 95% CI	1.15	29.21	1.15
	4.67	2.33	1.17	5.06	3.11		0.39	26.46	0.39
	2.09	0.48	0.14	2.38	2.03		0.37	23.71	0.37
	What is voice?	Voice care	Voice at teaching work	Body, posture and voice	Breathing	Articulation and resonance	What is voice?	Voice at teaching work	Body, posture and voice
	Lower Limit	Proportion			Higher Limit		Lower Limit	Proportion	Higher Limit

Figure 2. Comparison of proportion and their respective 95% CI between the modules.

## Discussion

The participation of teachers in the “Promoting Teacher Vocal Well-Being” course was evaluated considering the reports of the participants in forums. Probably due to their interest as learners of the course, and also to the mandatory character of this activity, in order to receive a certificate of conclusion, the participation was effective, as participants were required to participate in at least five of the eight forums. This practice of validating this type of activity has been used in other actions

conducted by the São Paulo Municipal Government<sup>10</sup>, and unfortunately it has been responsible for maintaining the participation of teachers until the last module.

It can be noticed by the findings that all the modules received more notes regarding the CONTENTS, than the FORM. Among them, the “What is voice?” and “Voice care” modules were the most referred as for the CONTENT. This is probably due to the fact that these matters are most disseminated in the media, especially during World Voice Day celebrations (April 16), in which speech-language



pathologists conduct campaigns and disseminate information of this nature<sup>12,13</sup>.

It is worth noting that POMPEU (2016)<sup>14</sup>, when analyzing a group of course of the same nature, used a questionnaire in which the participant was asked to answer what module was more or less interesting, and the “Voice Care” module was among the most interesting, according to participants.

The following stand out notes among the notes on the CONTENTS:

*“First of all, I would like to say that the material and content of the course has been very good! It is easy to read, but also a consistent and interesting content, which was elaborated in a dynamic way. I liked it!”*. (Module 2 – Voice care)

*“I really enjoyed the module and its exercises”*. (Module 5 – Breathing)

*“In my opinion, this was the most interesting of all the modules, since I learned many things that I did not know”*. (Module 6 – Articulation and resonance)

*“This module is exciting, I did all the exercises and it was very interesting to do so”*. (Module 7 – Expressiveness)

*“The course allowed me to reflect on the impacts of these factors on our voice. I believe that I would not have made this association, and many others, without the learnings of this course”*. (Module 8 – Voice and emotion)

On the other hand, the “Voice and emotion” and “Voice and teaching work” modules did not receive any notes regarding their CONTENT. It should be noted that the “Voice and emotion” module was considered the least interesting in the study conducted by POMPEU (2016)<sup>14</sup>.

Only related to the presentation of the “What is voice?” module as for the FORM, one of the participants said *“What should I do to participate in the forum? I thought I was already participating, but I did not find the questions or the text to interact”*. It should be noted that several participants in the previous classes complained on the way that the course was presented, highlighting problems regarding the use of the Moodle platform and the internet. Probably with the adjustments made by the management group, after a discussion with more experienced professionals in the use of distance learning, it was possible to address the main failures during the semesters. The course is currently being offered by the Municipal School of Health, which uses the Moodle v2.7.5, and therefore it is more prepared to present the course.

Among the 403 notes made with respect to the APPLICABILITY, 86.3% were referred to THOSE WHO PUT INTO PRACTICE what was presented in the Course. This percentage seems to be a positive development, since putting into practice something that is learned is not that simple, as it depends on several internal and external factors of different natures (cultural, cognitive, social, political, economic) for this action to be successful or not<sup>15</sup>.

It is possible to highlight a relevant issue in the analysis according to the module: of all the modules presented, three modules presented questions in the forum that directly asked the participant if they had put into practice any of the proposed exercises (“Body, posture and voice”, “Breathing”, and “Articulation and Resonance” Modules). Thus, it was to be expected that all three modules recorded a greater number of notes by the participants. However, there is a difference that can be pointed out among them: two of them, “Breathing” and “Articulation and Resonance”, received a high number of notes in which the participants said that they had put into practice what was presented, but also presented notes referring to participants that did not put into practice or, faced difficulties to put into practice. However, this is not the case with the “Body, posture, and voice” module in which most participants reported to have put into practice.

This difference may be due to the fact that the topic presented in the “Body, posture and voice module” may be less subjective when compared to the other two modules. Questions referring mainly to “Breathing” and “Resonance” are difficult to be taught in speech-language pathology courses. Literature shows this difficulty<sup>16</sup>, and singing teachers often use metaphorical expressions to assist in this understanding<sup>17</sup>.

Some notes record what was mentioned by teachers.

#### **Those who put into practice:**

*“I have been practicing physiotherapy and stretching before leaving for work. Of the exercises presented, I put the exercises of shoulders and arms into practice. I was relieved to do so”* (Module 4 - Body, posture and voice).

*“I performed the breathing exercises and I felt great. I also performed the articulation exercises, but only at home, so I will try to perform at school before starting work”* (Module 5 – Breathing).

*“I had not yet paid attention to articulation and resonance; and after performing some exercises*

*I noticed a clearer and quieter speech” (Module 6 – Articulation and resonance).*

**Those who did not put into practice:**

*“I’ll be honest, the exercises have not become a routine in my life, I even forgot some of them” (Module 6 – Articulation and resonance).*

*“I have not put any into practice until this forum, but I will in a timely manner” (Module 5 – Breathing).*

**Those who faced difficulties to put into practice:**

*“I’m trying to do the exercises, and it was a bit difficult, but I believe it will get easier with practice” (Module 5 – Breathing).*

*“I have done the exercises as proposed. I notice that the resonance exercises provide greater difficulty, but I always try to perform them” (Module 6 – Articulation and resonance).*

It should be noted that, on several occasions, the management team thought of making video recordings of the exercises to facilitate understanding, but it was not possible with the version of the Moodle Platform used. As previously mentioned, as the Platform currently used is up to date, it will allow to add more information to the modules.

Two other modules deserve reflection: the “Expressiveness” and “Voice and emotion” modules. The first module is among the modules that recorded the highest percentage of notes and this is important, since this type of content is still little explored in the intervention actions performed by speech-language pathologists.

The report of a participant illustrates the importance:

*“By putting the exercises into practice, I could see how we can change the meaning of the speech with expressiveness, intonation, fluency, and the relevance of being attentive to all of this”.* (Module 7 – Expressiveness)

*“This module is exciting, I did all the exercises and it was very interesting to do so”.* (Module 7 – Expressiveness)

The work carried out with the issues related to Expressiveness is allowing teachers to realize how much the question of how you speak impacts in the teaching-learning relation, which is able to approach or to move students away. The use of pauses, different intonations, more or less intensity can become resources to be used by teachers, together

with the content of what a teacher wants to teach to the student. A survey<sup>11</sup> included interviews with 18 teachers to investigate the resources used to obtain students’ attention in the classroom. Resources such as well-structured language, articulatory definition, frequency and vocal intensity variation, use of pauses and emphases, eye contact with students, request for attention or silence, and use of gestures were highlighted among the strategies mentioned.

The “Voice and emotion” module asked the teacher directly on the relationship between the stressors present in the school environment and the impact of it on their voice. The example below illustrates the report of one participant.

*“When I go through stressful situations, the first thing I feel is that my voice fails and I cough a lot.”* (Module 8 – Voice and emotion)

As for the APPRAISALS and SUGGESTIONS, it can be noticed that the teachers emphasized the “Breathing” and “Voice at teaching work” modules. As stated above, the work with breathing issues is complex, especially with females that usually have the breathing type changed, even among subjects who do not have voice changes.

*“I really enjoyed the module and its exercises”.* (Module 5 – Breathing)

Another aspect worth mentioning is the need to maintain face-to-face meetings, since these meetings allow to clarify questions and the practices are conducted together.

*“The second meeting was really great, it was full of tips and new information”.* (Module 5 – Breathing)

*“Thank you so much for your commitment and for the tips on the second meeting! It was really a MAGNIFICENT AND UNFORGETTABLE experience!”* (Module 5 – Breathing)

It should be notice the fact that the majority of teachers do not have any information about their voice care or how to use it in the best way. While professionals, such as actors, telemarketers, and radio broadcasters, participate in courses, workshops or trainings in which the voice is discussed, teachers begin their professional performance without any attention to this topic. On the one hand, the reports of participants illustrate that even with a small workload (40 hours) the proposed course was able to mobilize and raise awareness among the participants; and, on the other hand, how teachers feel “needy” of activities aimed at taking care

of themselves, since most courses are directed to better understand and assist their students.

*"The course has helped me a lot, thank you!"* (Module 6 – Articulation and resonance)

*"I have learned a lot from this course and I'm really grateful".* (Module 6 – Articulation and resonance)

*"The course has helped a lot in my work, since voice is our working tool"* (Module 6 – Articulation and resonance).

*"The study conducted in this module allowed me to know and progress even more in the search for better voice quality"* (Module 6 – Articulation and resonance).

*"In my opinion, this was the most interesting of all the modules, since I learned many things that I did not know"* (Module 6 – Articulation and resonance).

*"First, I would like to congratulate for the material provide, which includes a lot of productive content, I loved it, I did not know the information that I read about vowels and consonants, it was very interesting"* (Module 6 – Articulation and resonance).

*"The exercises proposed are excellent and I really enjoyed doing them"* (Module 6 – Articulation and resonance).

*"This module is very good and helped me the most, since the exercises provides us with a greater awareness of how we produce the different vowel sounds, consonants and verification in practice"* (Module 6 – Articulation and resonance).

*"All these exercises are worth it. This course has helped me a lot"* (Module 7 – Expressiveness).

*"I have learned a lot from this course and I've been using the recourses provided by it. I'm really grateful for this course"* (Module 7 – Expressiveness).

*"I'm loving the course! It's really good"* (Module 7 – Expressiveness).

*"This module is exciting, I did all the exercises and it was very interesting to do so"* (Module 7 – Expressiveness).

Finally, some aspects are worth mentioning. The first is to emphasize the role of tutors in the process of raising the awareness of the participants. The management group often raised aspects related to the greater or lesser commitment of tutors, which may impact the process. Questions rose regarding the subject in the learning process, the relationship between the learner and the tutor, as well as with other people involved, can make a difference in the success rate of the action and thus assist some groups that may have participated more effectively than others<sup>19</sup>.

The fact that the data show that distance learning helped to raise awareness on voice issues

among participants also must be highlighted, since it constitutes an action that can be better explored by speech-language pathologists in interventions conducted with teachers. When participating in the Course, teachers approached the universe of their students, by taking the place of student, thus the DL may have contributed to the professional training of the participants. One of the positive aspects was the breakdown of barriers regarding geographic space and time, providing knowledge for a larger number of people, without breaking the teaching-learning binomial, and the teacher-student relationship. This experience may contribute to Health Education, making the teacher an agent of their own health<sup>21</sup>.

Face-to-face and distance communication have their specificities. The interaction is different in a computer language when compared to a regular class, when it is possible to observe the expressions of those involved in the teaching-learning process. The technological resources used in DL classes are diverse (presentations, videos, links, texts, chat, forum, etc.), but it is not possible to observe the class in real time, as in a classroom lesson. It takes some time to perceive the difficulties and the learning pace of the students in distance learning, and to prevent such barriers, tutors must monitor the class and they should not hesitate to change the approach, if required<sup>22</sup>.

A new evaluation of these participants a while after the completion of the Course would be essential to analyze what they actually put (or not) into practice, considering the aspects presented in the modules.

The evaluation of the process presented here will provide resources allowing the management group to make adjustments mainly in the content of some modules, remembering that a new evaluation should be conducted at each new class.

## Conclusion

The findings showed the need to make adjustments in the Course to be offered to new classes, with greater emphasis on modules whose content requires greater conceptual understanding and subsequent implementation of practices. The Distance Learning mode achieved its goal by providing a moment to listen (record) to the needs of the teacher, as well as a reflection on part of the teachers with respect to their practice and working environment.

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