The voice that educate rescue identities: playful interventions with a board game in the teacher's vocal health care

A voz que educa resgata identidades: intervenções lúdicas através do jogo de trilha na saúde vocal do professor

DOI:10.34117/bjdv8n11-256

Recebimento dos originais: 24/10/2022
Aceitação para publicação: 23/11/2022

Arthur Brito Marcelino
Specialist in Collective Health and Health Network Management
Institution: Centro de Especialidades Médicas de Aracaju (CEMAR)
Address: R. Bahia, S/N, Siqueira Campos, Aracaju - SE, CEP: 49075-490
E-mail: arthurbmarcel@gmail.com

Carlos Alberto Menezes
PhD in Genetics and Cell Biology
Institution: Universidade Estadual de Santa Cruz (UESC)
Address: Campus Soane Nazaré de Andrade, Rod. Jorge Amado, Km 16, Salobrinho, Ilhéus - BA, CEP: 45662-900
E-mail: camenezes@uesc.br

Katienne Brito Marcelino
Graduated in Medicine
Institution: Universidade de Gurupi (UNIRG)
Address: Av. Rio de Janeiro, Nº 1585 - St. Central, Gurupi - TO, 77403-090
E-mail: katmarcelino@hotmail.com

Maria Aparecida Lima Brito
Master in Environmental Planning
Institution: Secretaria Estadual de Educação da Bahia, Colégio Estadual Luís Rogério de Souza
Address: R. Deográcia Manoel dos Santos, S/N, Plataforma, Salvador - BA, CEP: 40717-633
E-mail: cidalb2018@gmail.com

Genivaldo Galindo Neto
Medical Undergraduate
Institution: Universidade Tiradentes (UNIT)
Address: Av. Murilo Dantas, 300, Farolândia, Aracaju - SE, CEP: 49032-490
E-mail: arthurbmarcel@gmail.com

Felipe Pessoa Melo
PhD in Geography
Institution: Faculdade Ages
Address: Avenida Universitária, 23, Parque das Palmeiras, Paripiranga - BA, CEP: 48430-000
E-mail: felippemelo@hotmail.com
ABSTRACT
A teacher is susceptible to vocal disorders. Aims: To develop an activity based on an informative playful approach to teachers’ vocal health. Method: Literature review study and development of a health communication strategy from a playful approach. Results: A board game was developed, namely Teachers’ vocal health quest, containing information about vocal health. Discussion: There are many factors that compromise the health of a teacher's vocals, ranging from unhealthy habits to work organizational factors. Conclusion: The ludic can be used as a tool to take care of teachers’ vocal health.

Keywords: voice, teachers, voice disorders, games and toys, worker's health.

RESUMO
O professor é o profissional que utiliza sua voz como instrumento de trabalho sendo suscetível a distúrbios vocais. Objetivo: Desenvolver atividade a partir de uma abordagem lúdica informativa sobre saúde vocal do professor. Método: Estudo de revisão bibliográfica e desenvolvimento de estratégia comunicação de saúde a partir de uma abordagem lúdica. Resultados: foi desenvolvido um jogo de tabuleiro- Trilhando pela saúde vocal do professor- contendo informações sobre saúde vocal. Discussão: Há muitos fatores que comprometem a saúde do vocal do professor que vão desde hábitos não saudáveis a fatores organizacionais do trabalho. Conclusão: O lúdico pode ser um utilizado como um importante mecanismo para o cuidado saúde vocal do professor.

Palavras-chave: voz, professores, distúrbios vocais, jogos e brinquedos, saúde do trabalhador.

1 INTRODUCTION
The voice constitutes one’s identity (Fillis et al., 2016); an important individual record in human communication and socialization, which also reveals aspects of an individual’s personality and subjectivity (Anhaia et al., 2013; Dornelas et al., 2017). Behavioral, ethnic, cultural, and temporal factors influence the voice (Ceballos et al., 2011), even though there are anatomical structures common to all human beings that produce it. This fact makes the voice of each human being a unique, exclusive, and singular phenomenon (Dornelas et al., 2017).

In addition, the voice is utilized for working purposes in many professions, including that of teachers (Valente, Botelho and Silva, 2015). The latter, when developing classes, use their voices as a vehicle to transmit knowledge to students in the teaching and learning process (Ceballos et al., 2011; Fillis et al., 2016; Pereira, Masson and Carvalho, 2015). The voice is of great relevance for the teacher in the classroom. Moreover, the school provides the scenario to consolidate a new identity component – that of a worker who educates through the voice (Fillis et al., 2016).
Some elements favor the development of work-related voice disorder (WRVD) (Cediel and Neira, 2014; Fillis et al., 2016; Limoeiro et al., 2019), namely: the long working hours of teachers and the continuous use of the voice, in addition to other organizational and work environment factors (e.g., excess number of students, sound competition, improper classroom acoustics, poor hygiene in the work environment, and chemical substances from the chalk). In addition, other factors that can make the development of this type of dysphonia in teachers even more serious (Cediel and Neira, 2014; Fillis et al., 2016; Medeiros et al., 2016) include: the habit of talking loudly, singing (in the case of preschool), as well as factors such as musculoskeletal tension, bad eating habits, alcoholism and smoking.

Work-related voice disorder is characterized in terms of any voice changes, with or without the presence of structural modifications in the vocal tract, resulting from professional practice (Jesus et al., 2020; Lins, Pereira and Masson, 2020; Masson et al., 2020; Valente, Botelho and Silva, 2015). The most common vocal alterations are: voice failures, hoarseness, pain, itching, throat clearing, difficulty to project the voice, and tiredness when speaking (Cielo et al., 2016; Limoeiro et al., 2019). The presence of nodules, cysts, clefts, and other alterations in the laryngeal structure may also be present in cases of WRVD.

Despite numerous studies on WRVD, this disorder still lacks greater recognition by the Ministry of Health.

Therefore, the creation of activities in the field of health communication is useful to raise awareness about WRVD. The understanding of the voice as a work tool for the teacher, the prevention of voice disorders, and the promotion of vocal health through playful strategies can be more effective in health communicating when it comes to WRVD.

This study seeks to present a practical example of health communication about teachers’ voice, using a playful activity built from a bibliographic review on voice disorders.

2 MATERIALS AND METHODS

A literature review study encompassing 10 years was carried out on voice disorders in teachers. Next, a health communication activity was built from an informative playful approach, through the construction of a board/trail game. The
research design was divided into the following steps: literature review, development, construction, and final result.

In the review, the Scielo database (Scientific Electronic Library Online) was used with the descriptors: vocal disorder “and” teacher, from 2010 to 2020 in Portuguese. Initially, 45 articles were identified. After excluding duplicates and texts unrelated to voice disorders in teachers and work scenarios, 24 articles were selected.

In the development stage, types of games to be built were analyzed, along with how and what information about voice disorders would be inserted in the activity. Additionally, the game should spark interest, enable easy access, and present low cost.

Among several possibilities, a game in the trail or board model was chosen. It is made up of numbered houses, through which the player advances by rolling a dice. Some squares that contain information are classified as special squares, allowing for faster or slower progress in the path to be followed.

3 RESULTS

From 2010 to 2020, 24 articles related to teachers’ voice were identified. Regarding the type of study, results include: 9 cross-sectional studies, 6 reviews, 2 randomized clinical trials, 2 intervention studies, 2 descriptive studies, an exploratory study with secondary data, a case-control study, and an editorial. 20 studies directly refer to teachers in their titles. The other texts mention such professionals indirectly, reporting aspects of different work categories, including teachers. Some also referred to voice disorders as occupational diseases and/or discussed the judicialization and the historical process of including this condition in the list of occupational diseases.

Based on the information found in the articles, illustrations were created to depict diverse situations, such as: hydration, healthy eating, vocal abuse, silence in the classroom, bad eating habits, teacher appreciation, alcoholism, occupational stress, creativity in the classroom, monitoring speech therapy and otorhinolaryngology, chalk dust, inclusion of WRVD in the list of occupational diseases, vocal warm-up, and smoking. These images were inserted in a trail, containing houses numbered from 1 to 50.

The activity starts with the figure of a teacher explaining how to roll the dice and wishing good luck to participants. The special squares include attached text, which describes the illustration and the player's situation, allowing one to move forward or
backward through the game. All figures that contain human beings were made according to different age groups and different ethnic aspects characteristic of the Brazilian population.

Moreover, there are seven characters, in addition to a disassembled dice and instructions on how to cut and piece it together. Each of the characters was created to represent the game's participants. Among the characters are: a preschool teacher, an infant student, a teenage student, a natural science teacher, a Portuguese language teacher, a physical education teacher, and a politician.
Figure 1. The trail game (English)
Figure 2. The trail game (Portuguese)
Figure 3. Dice and How to play (English)

HOW TO MAKE THE DICE

1. Cut following the exterior dotted lines;
2. Use glue on the dark tabs, fold them and assemble the dice.

HOW TO PLAY

1. Each player chooses one character and places them at the start line.
2. The first player rolls the dice. The number they roll is how many spaces their character is going to move. After that, it is the next player's turn;
3. The first player to get at the VICTORY space wins the game!
4 DISCUSSION

Games have been part of human culture for centuries. Despite being related to childhood, along with other kinds of play, their dynamic favors teaching and learning (Chiarato et al., 2018).

Serious games refer to the options that mainly seek to convey knowledge and information rather than entertainment (Chiarato et al., 2018; Dias et al., 2016).
Technology advancements have favored the development of games with increasingly dynamic interfaces, which are modern and attractive to new generations. Consequently, this type of playful approach is being used frequently and occasioning positive results in the health area, helping children and adults with diseases such as diabetes, asthma, and cancer, in addition to psychotherapeutic treatments (Dias et al., 2016).

Although the trail or board game organized for this study has modest aspects in comparison to new communication and information technologies, it was possible to contemplate important information about the care with the teacher's voice. In an integrative review study on the use of recreational activities in health education, the list of articles that used the trail or board game strategy to promote health includes four texts. The trail games utilized to guide pregnant women, as well as to encourage general health care, alcoholism prevention, and the control of Aedes aegypti were considered excellent strategies to promote health (Coscrato, Pina and Mello, 2010).

No health promoting strategies in game format were identified in the researched literature on the teacher's voice. Several actions, in turn, have been carried out in the field of health promotion for teachers. Lectures, events, and campaigns are organized, above all, during the celebrations of World Voice Day, placing the teacher as one of the professionals that most use the voice in their work. Worldwide research shows the occurrence of vocal alterations in teachers more often than in non-teachers. Voice disorders in the general population range from 6% to 15%; meanwhile, the percentage ranges from 20% to 50% in teachers and can reach 80% (Limoeiro et al., 2019). This fact justifies the need for care for this professional category, as well as the importance of strategies to prevent WRVD.

The literature refers to the strenuous use of voice associated with organizational factors in the work environment as factors that favor the development of WRVD (Cielo et al., 2016; Giannini, Latorre and Ferreira, 2012; Jesus et al., 2020; Medeiros et al., 2016; Moreti, Zambon and Behlau, 2016; Santana, Araújo and Masson, 2018; Valente, Botelho and Silva, 2015). Such aspects were represented in the trail game through the houses with illustrations, in which the player advances faster or goes back on the path to be covered along the trail. Therefore, it is possible that the player can acquire knowledge about the teacher's vocal health.
In many cases, simple information such as the importance of hydration and healthy eating, represented in two houses of this activity, can impact voice care. Hydration is responsible for promoting vocal efficiency, minimizing phonatory effort, in addition to relieving symptoms and discomforts related to laryngeal dryness (Santana, Araújo and Masson, 2018).

Besides the lack of continuous hydration during classes, the sound competition generated by students in the classroom is one of the triggering factors of WRVD. According to NBR 10152/1733, the average acceptable noise value in the classroom would be 35 dB (Lins, Pereira and Masson, 2020). However, studies identify that the noise in this environment actually varies from 55 db to 102db (Lins, Pereira and Masson, 2020).

Keeping students silent in the classroom during explanations is ideal and was represented in one of the houses in the game. Nonetheless, this silence is something difficult, especially in early childhood education. Given that, the transmission of knowledge about voice both to teachers and students can be a differential factor. Information about the voice and vocal illnesses allows the educator to practice self-care. Moreover, the transmission of this knowledge to students can promote a collective sense of responsibility and care for others. The student becomes the protagonist in taking care of his teacher's health: avoiding noise and abstaining from talking to colleagues during explanations; consequently, teachers’ vocal overload might be reduced. Actions aimed at teachers and students have already been carried out in some regions of the country. Activities such as “a minute of silence” and “the voice-friendly school certificate” are examples of actions that instruct teachers and students about voice care and the importance of silence in the classroom (Sales et al., 2015).

Political aspects also make it difficult for teachers and other professionals who use the voice as a working tool to have access to specialized care in the case of WRVD. There has been a long-standing effort to make the disorder part of the list of occupational diseases. After a long trajectory of struggle by various institutions, on July 30, 2020, WRVD was included in the new list of work-related diseases (WRD) of the Ministry of Health (Masson et al., 2020). However, its stay on this list was very brief. One day after publication, the Ministry of Health revoked the new WRDL, rendering it ineffective.
(Masson et al., 2020). As a result, WRVD was once again excluded from the list of occupational diseases.

The exclusion of the WRVD from the list of grievances creates limits to the development of interventions for the prevention, promotion, and assistance of the vocal health of teachers – among other professionals. The inclusion of occupational diseases in the list, despite being a function of the Ministry of Health, also depends on the support of representatives elected by the population through voting. The game created in this research alluded to these aspects, pointing out two situations. On one of them, a politician makes a decision in favor of valuing the teacher and, on the other, he/she demonstrates a position against the inclusion of the WRVD in the list of occupational diseases.

Another aspect that is strongly associated with vocal alterations is psycho-emotional illness. The teacher has a stressful workday, which is represented in the game. Even though the school is a place of learning, it is also a hostile environment. It is possible to experience situations of violence, tense relationships between colleagues and students, low autonomy, lack of recognition, and little stimulation for creativity (Giannini, Latorre and Ferreira, 2012; Luz et al., 2019). In a work context like this, psycho-emotional illnesses, anxiety, depression, and burnout syndrome also become part of the repertoire of diseases that affect the health of the teacher (Luz et al., 2019).

The use of chalk is a factor associated with vocal alterations, still being a reality in some Brazilian schools. The powder from the chalk in contact with the board promotes irritation in the nasal mucosa and larynx when inhaled, causing vocal alterations (Ceballos et al., 2011). This situation was described in the game as negative – harmful to the teacher.

The lack of adequate assistance in the field of vocal health is responsible for leaves and absences of many teachers, generating economic and social impacts (Cediel and Neira, 2014; Giannini, Latorre and Ferreira, 2012). In this context, greater awareness from the Ministry of Health to vocal disorders can favor the creation of programs aimed at their prevention. Approaches and techniques performed in these programs have been positively referenced for decreasing the symptoms these professionals reported after the monitoring (Souza, Masson and Araújo, 2017).

Promotional and guidance actions in the field of vocal health are considered indirect interventions, that is, they instruct the individual to understand the vocal tract and
how to take care of it. They are considered effective, although the combination of the direct (use of vocal techniques) and indirect approaches is ideal (Anhaia et al., 2013).

The direct approach carried out through warm-up techniques - represented in the described activity - and vocal cool-down, using specific therapeutic approaches, is carried out in specialized treatment with a speech therapist (Pereira, Masson and Carvalho, 2015; Souza, Masson and Araújo, 2017). These techniques can be of great help both for the prevention and for the treatment of vocal diseases with or without the presence of laryngeal lesions. Therefore, it is essential to have speech therapy and otorhinolaryngological monitoring cases in which a vocal disease is installed. The importance of expert assessment was also described in the game.

Smoking is responsible for a number of diseases, including laryngeal cancer. In a less serious perspective, it can generate vocal fold edema, making it difficult to mobilize the mucosa, causing instability in phonation and a noisy voice (Cielo et al., 2016). As a habit that is severely harmful to health, the game eliminates the participant who is in the house that refers to the use of cigarettes.

All the information illustrated in the game was developed based on important content from the bibliographic review previously carried out.

Therefore, it was possible to transmit clarifications and information about vocal health from a playful approach. This type of approach allows the transmission of knowledge in a pleasant way, facilitating its incorporation into daily life. Additionally, the game enables participants to see themselves in new situations they have not experienced before. Ergo, the game participant – teacher, student, and any other individual – starts to understand new unfamiliar scenarios, which occasions more sensibility in the search for the prevention of vocal disorders both in relation to self-care and to the care of others.

5 CONCLUSION

The voice is a working tool for many professionals, especially the teacher. Given that, ludic activities that incorporate a game strategy in a learning context favors the acquisition of new knowledge in a pleasant way. Therefore, the use of the board game - containing information about the teacher's voice and the steps to take care of one’s vocal apparatus - provides subsidies for the prevention of WRVD.
Moreover, it is possible for other citizens to understand what WRVD is, even if they do not use their voice as a working tool, but benefit from the craft of those who use it. They might, this way, become aware and join the struggle for the incorporation of vocal disorders in the list of work-associated diseases of the Ministry of Health.

This study, in turn, has limitations. The initial objective was to build and present a communication proposal on the teacher's vocal health. Nonetheless, it was not possible to apply this activity and observe the opinion, performance, and behavioral change of those submitted to this strategy. The application of this game in a population group requires ethical protocols and the prior approval of committees, because it is an intervention with human beings. Even if it presents minimal risks to the physical and moral integrity of the researched, these ethical protocols must be followed. Therefore, the intention is to pursue the proposal and apply the activity to groups of teachers and students.

Considering what has been exposed, the conclusion is that health communication strategies that use recreational resources can promote knowledge, expanding information about occupational and vocal health. Valuing and respecting teachers - professionals who use their voices to educate - is an essential condition for a fair and ethical society that uses knowledge as a way of guaranteeing citizenship and dignity to the individual.
REFERENCES

ANHAIA, T. C.; GURGEL, L. G.; VIEIRA, R. H.; CASSOL, M. Intervenções vocais diretas e indiretas em professores: revisão sistemática da literatura. Audiology - Communication Research, v. 18, n. 4, p. 361–366, 2013.

CEBALLOS, A. G. DA C. DE; CARVALHO, F. M.; ARAÚJO, T. M. DE; REIS, E. J. F. B. DOS. Avaliação perceptivo-auditiva e fatores associados à alteração vocal em professores Auditory. Revista brasileira de epidemiologia = Brazilian journal of epidemiology, v. 14, n. 2, p. 285–95, 2011.

CEDIEL, M. R.; NEIRA, J. A. R. Analysis of teacher working environment: factors that influence the voice. Audiology - Communication Research, v. 19, n. 4, p. 399–405, 2014.

CHIARATO, A. C.; LUCENA, T. F. R.; BORTOLOZZI, F.; MACUCH, R. DA S. Os jogos sérios como forma de aprendizagem na saúde. Anais do V CONEDU - Congresso Nacional de Educação, n. 1, p. 1–9, 2018.

CIELO, C. A.; PORTALETE, C. R.; RIBEIRO, V. V.; BASTILHA, G. R. Perfil vocal, ocupacional e de saúde geral de docentes de Santa Maria/RS. Revista CEFAC, v. 18, n. 3, p. 635–648, 2016.

COSCRATO, G.; PINA, J. C.; MELLO, D. F. DE. Utilização de atividades lúdicas na educação em saúde: uma revisão integrativa da literatura. Acta Paulista de Enfermagem, v. 23, n. 2, p. 257–263, 2010.

DIAS, J. D.; MEKARO, M. S.; LU, J. K. C.; OTSUUKA, J. L.; FONSECA, L. M. M.; ZEM-MASCARENHAS, S. H. Desenvolvimento de serious game como estratégia para promoção de saúde e enfrentamento da obesidade infantil. Revista Latino-Americana de Enfermagem, v. 24, 2016.

DORNELAS, R.; SANTOS, T. A. DOS; OLIVEIRA, D. S. DE; IRINEU, R. DE A.; BRITO, A.; SILVA, K. Violence in schools and the voice of teachers. Codas, v. 29, n. 4, p. 1–4, 2017.

FILLIS, M. M. A.; ANDRADE, S. M. DE; GONZÁLEZ, A. D.; MELANDA, F. N.; MESAS, A. E. Frequência de problemas vocais autorreferidos e fatores ocupacionais associados em professores da educação básica de Londrina, Paraná, Brasil. Cadernos de Saúde Publica, v. 32, n. 1, p. 1–10, 2016.

GIANNINI, S. P. P.; LATORRE, M. DO R. D. DE O.; FERREIRA, L. P. Distúrbio de voz e estresse no trabalho docente: Um estudo caso-controle. Cadernos de Saúde Publica, v. 28, n. 11, p. 2115–2124, 2012.

JESUS, M. T. A. DE; FERRITE, S.; ARAÚJO, T. M. DE; MASSON, M. L. V. Distúrbio de voz relacionado ao trabalho: revisão integrativa. Revista Brasileira de Saúde Ocupacional, v. 45, p. 1–14, 2020.

LIMOEIRO, F. M. H.; FERREIRA, A. E. M.; ZAMBON, F.; BEHLAU, M. Comparison
of the occurrence of signs and symptoms of vocal and change discomfort in the vocal tract in teachers from different levels of education. **Codas**, v. 31, n. 2, p. 1–8, 2019.

LINS, M. N. B.; PEREIRA, L. M. DE A.; MASSON, M. L. V. Danos morais por distúrbio de voz relacionado ao trabalho: levantamento de julgados do Tribunal Superior do Trabalho. **Revista Brasileira de Saúde Ocupacional**, v. 45, p. 1–12, 2020.

LUZ, J. G.; PESSA, S. L. R.; LUZ, R. P. DA; SCHENATTO, F. J. A. Implications of the environment, conditions and organization of work on teacher health: A systematic review. **Ciencia e Saude Coletiva**, v. 24, n. 12, p. 4621–4632, 2019.

MASSON, M. L. V.; FERREIRA, L. P.; GIANNINI, S. P. P.; SOUZA, M. T. DE; MAENO, M.; GÂNDARA, M. E. R.; SOUSA, F. N. E F. DE. Distúrbio de voz: reconhecimento revogado junto com a nova lista de doenças relacionadas ao trabalho. **Revista Brasileira de Saúde Ocupacional**, v. 45, p. 4–7, 2020.

MEDEIROS, J. DA S. A.; SANTOS, S. M. DE M.; TEIXEIRA, L. C.; GAMA, A. C. C.; MEDEIROS, A. M. DE. Sintomas vocais relatados por professoras com disfonia e fatores associados. **Audiol Commun Res**, v. 21:c, p. 1–8, 2016.

MORETI, F.; ZAMBON, F.; BEHLAU, M. Voice care knowledge by dysphonic and healthy individuals of different generations. **Codas**, v. 28, n. 4, p. 463–469, 2016.

PEREIRA, L. P. DE P.; MASSON, M. L. V.; CARVALHO, F. M. Vocal warm-up and breathing training for teachers: Randomized clinical trial. **Revista de Saúde Publica**, v. 49, p. 1–8, 2015.

SALES, N. J.; VIEIRA, N. M.; MACEDO, S. C.; BRITO-MARCELINO, A.; SANTOS, M. J. S.; VIEIRA, S. A. O. Programa Educação Vocal e Certificação Escola Amiga da Voz da Secretaria de Estado da Educação de Sergipe. In: ROCCA (Ed.). **Distúrbios de voz relacionados ao trabalho: práticas fonoaudiológicas**. 1º ed. São Paulo: [s.n.]. p. 95–108.

SANTANA, E. R.; ARAÚJO, T. M. DE; MASSON, M. L. V. Self-perception of surface hydration effect on teachers’ voice quality: an intervention study. **Revista CEFAC**, v. 20, n. 6, p. 761–769, 2018.

SOUZA, R. C. DE; MASSON, M. L. V.; ARAÚJO, T. M. DE. Efeitos do exercício do trato vocal semiocluído em canudo comercial na voz do professor. **Revista CEFAC**, v. 19, n. 3, p. 360–370, 2017.

VALENTINE, A. M. S. L.; BOTELHO, C.; SILVA, A. M. C. DA. Distúrbio de voz e fatores associados em professores da rede pública. **Revista Brasileira de Saúde Ocupacional**, v. 40, n. 132, p. 183–195, 2015.