



Speech-language pathology intervention proposal in a social project: preliminary study

Proposta de intervenção fonoaudiológica em projeto social: estudo preliminar

Propuesta de intervención fonoaudiológica en proyecto social: estudio preliminar

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Abstract

Introduction: This is a preliminary study about the insertion of Speech-Language Pathology in a social project, whose objectives were to carry out a speech-language intervention; raise speech-language demands related to written language and promote actions to stimulate language and learning. **Description:** Participated in the study children and adolescents with complaints of reading and writing difficulties sent by the institution's coordination. Participants were probed about reading, writing, memory and phonological awareness. After the survey, 15 interventions were performed to stimulate phonological awareness, memory and written language. Participants were then reassessed in order to compare, verify, analyze and describe the results obtained. Of the 22 students with below-expected performance, only 6 participated in the interventions. When analyzing the group data before and after the stimulations, no statistically significant differences were found. **Final Considerations:** The social project provides sports and leisure activities for the students during the shift that they're not at school. Throughout the study it was identified difficulty in adhering to the interventions with lack of motivation to attend the stimulation meetings. It was possible to raise the speech-language demands related to the written language

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Received: 2/8/2019

Accepted: 3/23/2019



and to promote the phonological awareness stimulation of the participants. It is necessary to organize the activities and the routine with a view to inserting Speech-language intervention without detriment to participation in other activities. Awareness should be given to those involved about the benefits of participating in the stimulation groups.

Keywords: Speech, Language and Hearing Sciences; Language; Language Arts; Learning; Social Vulnerability; Motivation.

Resumo

Introdução: Trata-se de estudo preliminar acerca da inserção da Fonoaudiologia em projeto assistencial, cujos objetivos foram realizar proposta de intervenção fonoaudiológica a partir do levantamento de demandas relacionadas à linguagem escrita e promover ações com vistas à estimulação da linguagem e da aprendizagem. **Descrição:** Participaram do estudo crianças e adolescentes em situação de vulnerabilidade social, com queixas de dificuldades de leitura e escrita encaminhados pela coordenação da instituição. Os participantes foram sondados acerca da leitura, escrita, memória e consciência fonológica, em seguida participaram de 15 intervenções de estimulação da consciência fonológica, memória e linguagem escrita. Após as intervenções, os participantes foram reavaliados a fim de se comparar, verificar, analisar e descrever os resultados obtidos. 22 escolares com desempenho abaixo do esperado participaram da sondagem e seis participaram das intervenções. A análise dos dados do grupo antes e após as estimulações não apresentou diferenças estatisticamente significantes. **Considerações Finais:** O projeto social proporciona atividades de esporte e lazer para o escolar no turno em que não se encontra na escola. Ao longo do estudo identificou-se dificuldade de adesão às intervenções e falta de motivação para frequentar os encontros de estimulação. Foi possível levantar as demandas fonoaudiológicas relacionadas à linguagem escrita e promover a estimulação de consciência fonológica dos participantes. É importante privilegiar a conscientização dos envolvidos acerca dos benefícios da participação nos grupos de estimulação.

Palavras chave: Fonoaudiologia; Linguagem; Estudos de Linguagem; Aprendizagem; Vulnerabilidade Social e Motivação.

Resumen

Introducción: Se trata de un estudio preliminar acerca de la inserción de la Fonoaudiología en proyecto asistencial, cuyos objetivos fueron realizar propuesta de intervención fonoaudiológica; levantar demandas fonoaudiológicas relacionadas con el lenguaje escrito y promover acciones de estimulación del lenguaje y del aprendizaje. **Descripción:** Participaron del estudio niños y adolescentes con quejas de dificultades de lectura y escritura encaminadas por la coordinación de la institución. Los participantes fueron sondados acerca de la lectura, escritura, memoria y conciencia fonológica. Después del sondeo se realizaron 15 intervenciones de estimulación de la conciencia fonológica, memoria y lenguaje escrito. A continuación, los participantes fueron reevaluados a fin de comparar, verificar, analizar y describir los resultados obtenidos. De los 22 escolares con desempeño por debajo de lo esperado solamente 6 participaron de las intervenciones. Al analizar los datos del grupo antes y después de las estimulaciones no se encontraron diferencias estadísticamente significativas. **Consideraciones finales:** El proyecto social proporciona actividades de deporte y ocio para el escolar en el turno en que no está en la escuela. A lo largo del estudio se identificó dificultad de adhesión a las intervenciones con falta de motivación para frequentar los encuentros de estimulación. Fue posible levantar las demandas fonoaudiológicas relacionadas al lenguaje escrito y promover la estimulación de conciencia fonológica de los participantes. Se hace necesaria organización de las actividades y de la rutina con miras a insertar la Fonoaudiología sin perjuicio de la participación en otras actividades. Se debe privilegiar la conscientización de los involucrados acerca de los beneficios de la participación en los grupos de estimulación.

Palabras clave: Fonoaudiología; Lenguaje; Estudios del Lenguaje; Aprendizaje; Vulnerabilidad Social; Motivación.

Introduction

This study is a senior research project of the undergraduate course in Speech-Language Pathology and Audiology and describes the experience of the researchers in a non-governmental institution that assists children and young students in a region of great social vulnerability.

As the professional who studies, prevents, rehabilitates and promotes human communication, the speech-language pathologist deals with changes related to speech, hearing, voice, orofacial motricity, oral and written language. The work of speech-language pathologists may be performed in partnership with other health professionals - physiotherapists, occupational therapists, doctors, nurses, psychologists, physical education professionals, nutritionists, among others. Speech-language pathologists are responsible for health promotion, prevention, evaluation and diagnosis, guidance, therapy (habilitation and rehabilitation) and improvement of speech-language aspects of peripheral and central auditory function, vestibular function, oral and written language, voice, fluency, speech articulation and myofunctional, orofacial, cervical and swallowing systems¹.

Health promotion is a highly effective action in order to solve the many problems that affect the population². Discussing health and health promotion implies the search for other strategies for speech-language pathology action, incorporating dialogic, reflective, participatory and questioning characteristics, which enable subjects to identify and analyze the determinants of their living and health conditions and provide alternatives to control them in order to improve and transform reality^{3,4}.

Aspects related to health promotion are taking on a large and relevant part in the performance of the speech-language pathologist, which has ceased to be essentially clinical and has started to gain space in the institutions due to the benefits it can bring to a greater number of individuals⁵. This work was valued in schools after the publication of the Brazilian Federal Council of Speech-Language Pathology and Audiology (CFFa) with recommendations on the contribution of the speech-language pathologist in the promotion, improvement and prevention of communication disorders through the development of actions in partnership with teachers¹.

The *Espaço Criança Esperança de Belo Horizonte* (ECE BH) was established in 2002 in the Center-South Region of Belo Horizonte, which is a highly dangerous region in the city. This institution was the result of a partnership between Rede Globo/TV Globo Minas, UNESCO, PUC Minas and the Municipal Government of Belo Horizonte. More than 12,000 children and adolescents participated in the activities of the ECE BH in its 14 years, a period in which the institution offered cultural and sports workshops and provided psychosocial care for children, adolescents and their families, in addition to working with the education of youth and adults and with the 'World of Work', being closed by its national founders at the end of 2017.

As of 2018, the *Instituto Belo Horizonte Futuro* (IBHF) started to operate in the structure in which the *Espaço Criança Esperança de Belo Horizonte* operated. It should be noted that the IBHF was established as a solution to continue the previous project and proposing to maintain the knowledge and expertise obtained over the years in the development of actions that contributed to the human development based on education for values, in a territory notably marked by social vulnerability.

The definition of vulnerability refers to the idea of fragility and dependence, which may be associated with the situation of children and adolescents, especially those of lower socioeconomic status. Due to the fragility and dependence of older people, this population becomes very submissive to their physical and social environment. Even in the absence of a disease, the vulnerability status may affect health in certain situations, impacting on the psychological, social or mental state of children and adolescents⁶. Since the recognition of vulnerabilities and health needs by professionals enables more appropriate actions, the concept of vulnerability has been used in health research with the potential for intervention in the lives of individuals and communities^{7,8}.

The IBHF has a partnership with PUC Minas that is more focused on projects and continuing education of the Medicine, Nursing, Physical Education and Psychology courses, whose target audience is children, adolescents and young people, from six to 24 years old, who live in communities close to the institution. The great vulnerability and the precarious living conditions of this population include a great difficulty in accessing health and quality education, in addition to the little condition

of the family structure to provide the proper support for the proper learning of reading and writing.

Due to the high rate of complaints of school failure, the Speech-Language Pathology and Audiology course of PUC Minas was invited at the end of 2017 to conduct a survey of speech-language pathology demands related to the written language of children and adolescents who attend the institution and to identify changes and risks for changes in written language.

The research focused on the language of children and adolescents who participate in the IBHF can raise questions about the speech-language pathology work in primary health care, and also about speech-language pathology strategies to promote the development of communication and language of children and adolescents living in situations of social vulnerability⁹.

As school failure was the main complaint of the institution, and the researcher of the project had been developing phonological awareness stimulation studies for schoolchildren in order to achieve a better performance in reading and writing, it was agreed that this study would include the stimulation of the phonological awareness of students who were underperforming their peers.

Phonological awareness is defined as a set of skills ranging from the simple global perception of the extension of words and phonological similarities between them, to the segmentation and manipulation of syllables and phonemes, thus developing gradually as the child becomes aware of the sound system of the language¹⁰. The relevance of phonological awareness for the process of reading and writing acquisition has been well recognized. Several studies conducted in Brazil have adopted a procedure to develop phonological awareness and to teach graphophonemic correspondences to schoolchildren of medium and low socioeconomic levels, which has been shown to be effective in improving the phonological awareness, reading and writing performance of children at early literacy^{11,12}.

Due to the large number of children with literacy difficulties, many authors have studied and support the need to organize pedagogical activities aiming to stimulate and develop phonological awareness even at the beginning of literacy, and thus facilitating the beginning of the literacy process in order to facilitate the acquisition of written language. These studies showed that children's reading and writing performance tends to be better

when there is a greater mastery of phonological awareness skills¹³.

Given the context of the research center and the needs of the participants, this study aimed to conduct a pilot proposal for speech-language pathology intervention at the IBHF, identify the speech-language pathology demands related to the written language of the children and adolescents participating in the project and promote actions to stimulate the phonological awareness of children and adolescents participating in the project.

Description

This is a descriptive study and data collection was performed at Instituto BH Futuro after approval by the Research Ethics Committee (CEP) of PUC Minas through the CAAA protocol: 60438716.1.0000.5137, opinion no. 2.300.081.

Methods

At first, a list of 99 students between 8 and 12 years old was prepared by the management of the institute - inclusion criterion: students enrolled in elementary school. 82 children and adolescents on the list had complaints of learning difficulties, according to reports from family members and/or teachers, in addition to IBHF monitors. All students who were invited to participate in the study received the Informed Consent Term (ICF) and information about the research. Finally, the study included 39 children and adolescents whose parents signed the informed consent form. Data collection related to reading, writing and phonological awareness started after the participants signed the Consent Term. Data were collected in groups organized according to the school grade of the participants, through the Survey Protocol, which consisted of the following tests:

- (1) Reading: evaluation of decoding and comprehension skills through the corresponding figure identification test¹⁴ and Procomle¹⁵.
- (2) Writing: dictation about the figures prepared by the authors, and dictation proposed by the Cognitive and Linguistic Skills Protocol¹⁶.
- (3) Memory: through the Digit Memory test¹⁶.
- (4) Phonological awareness: through the phonological awareness test proposed by Adams¹⁷.

Data obtained in the survey of the 39 participants were tabulated and then the average obtained

by the participants was calculated per school grade. The 22 children who scored below the average were selected for stimulation. Among them, only nine attended the first stimulation meetings and three had an irregular attendance during the process.

The researchers performed 15 intervention sessions to stimulate phonological awareness, memory and written language skills, in 1-hour sessions in an appropriate room, performing tasks as described.

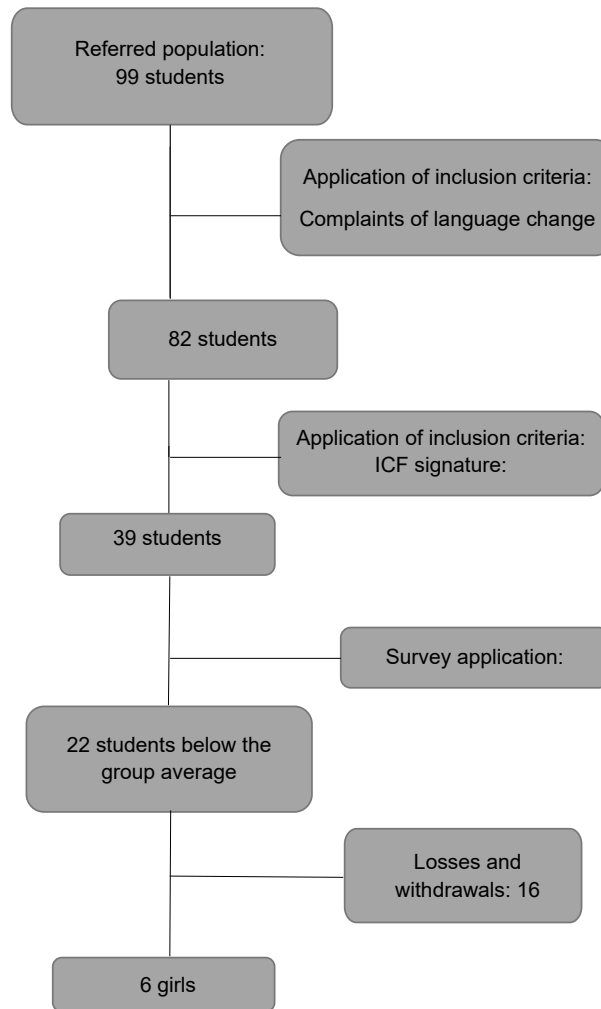


Figure 1. Flowchart of the sample composition process, prepared by the authors

After the conclusion of the 15 intervention sessions, the six participants were reevaluated using the same tests in order to compare, verify, analyze and describe the benefits of the stimulation process in an institution as the IBHF.

Data were observed according to the percentage of correct answers in each variable - reading, writing and phonological awareness - before and

after the intervention sessions. Due to the very low sample size (6 participants), the Wilcoxon signed-rank test was used to analyze the statistical significance, comparing the results obtained in the reading, writing and phonological awareness tests of each participant, before and after the stimulations.

Chart 1. Description of tasks stimulated at each session

1st day (8/20/2018)	Syllable awareness, alliteration and rhyme.
2nd day (8/21/2018)	Alliteration, rhyme, letter-sound relationships, syllable awareness, syllable manipulation and syntactic awareness.
3rd day (8/24/2018)	Syllable awareness, rhyme, syntactic awareness, letter-sound relationships, alliteration and syllable manipulation.
4th day (8/27/2018)	Alliteration, rhyme, letter-sound relationships, syllable manipulation and syntactic awareness.
5th day (8/28/2018)	Phonemic awareness, alliteration, rhyme, phonemic manipulation and letter-sound relationships.
6th day (9/3/2018)	Phonemic awareness, alliteration, rhyme, phonemic awareness, letter-sound relationships and reading.
7th day (9/4/2018)	Phonemic awareness, alliteration, rhyme, phonemic manipulation, reading, letter-sound relationships (phoneme).
8th day (9/10/2018)	Phonemic awareness, alliteration, rhyme, phonemic manipulation, reading, letter-sound relationships (phoneme).
9th day (9/11/2018)	Reading, letter-sound relationships (phoneme) and rhyme.
10th day (9/14/2018)	Phonemic awareness, alliteration, reading and rhyme.
11th day (9/17/2018)	Rhyme, reading and interpretation, and phonemic manipulation.
12th day (9/18/2018)	Reading, phonemic awareness and rhyme.
13th day (9/21/2018)	Rhyme, phonemic manipulation and phonemic awareness.
14th day (9/24/2018)	Reading and interpretation, alliteration and letter-sound relationships (phoneme).
15th day (9/25/2018)	Rhyme, phonemic awareness and phonemic manipulation.

Results and Discussion

Of the 22 students aged 8 to 13 years whose performance was below expectations for the school grade (4th to 6th year), only 6 girls aged between nine and ten years participated in the study attending at least 9 intervention sessions. Of the other 16 students, 3 attended only two intervention sessions and the others did not attend any of the 15 intervention sessions.

The following are notes on the six participants who attended the sessions:

- Participant 1 (attended 10 intervention sessions): 20% improvement in phonological awareness and 2% in writing, with the reading result slightly below the result of the first assessment.
- Participant 2 (attended 12 intervention sessions): she was the participant with the best result after the intervention, since she had an improvement in the percentage of correct answers in all areas evaluated, with the same result of the evaluation only in reading. She achieved an improvement of 15.7% in writing, 14% in memory and 23.3% in phonological awareness.
- Participant 3 (attended 13 intervention sessions): showed an improvement of 5% only in reading.
- Participant 4 (attended 12 intervention sessions): showed an improvement of 5% in reading and

10% in writing. Her results in phonological awareness and memory were lower than the results of the first assessment.

- Participant 5 (attended 12 intervention sessions): showed an improvement of 16% in reading, 4% in writing and 13% in memory, and had the same result of the first assessment in phonological awareness.
- Participant 6 (attended 12 intervention sessions): achieved great improvement in reading (22%), writing (12%) and phonological awareness (13%), and her result in memory was similar to the result of the first assessment.

The results obtained before and after in the 3 tasks - reading, writing and phonological awareness - were compared in order to verify the statistical significance of the progress/improvement after the intervention sessions; however, there was no statistically significant difference in the analysis of these data.

The final sample of children participating (six) in the intervention was significantly below the number of children selected after the survey (twenty-two). It should be noted that this number of participants (22) was obtained due to the selection of only those who had results below the average of the group.

Table 1. Test scores before and after stimulation

Students	Reading			Writing			Phonological Awareness		
	Before	After	p-value	Before	After	p-value	Before	After	p-value
1	28	27		56	58		19	25	
2	27	27		40	51		22	29	
3	24	26	0,11	50	48	0,53	30	28	0,13
4	26	28		37	44		24	22	
5	25	31		58	61		23	27	
6	22	30		41	50		23	27	

* P-value obtained by T Student

The IBHF is a place where children and teenagers stay after school activities and provides activities such as swimming, ballet, football, dance, theater and arts, with presence control. When the student's attendance is irregular, they are removed from the activity giving place to another student in the waiting line. As a place of leisure, it was an obstacle in the IBHF both in the application of the survey and in the stimulation and reassessment of the participants. In a way, speech-language pathology activities "competed" with sports and leisure activities, which students were already used to and which, in general, are seen as more pleasurable. In this way, children had to choose between going to intervention sessions or some other sport and/or leisure workshop and even when the teachers released them from activities, they chose to participate in the workshops provided by the IBHF. This made clear the lack of motivation of children to participate in the stimulation.

Some studies include motivation as an important factor that benefits students' learning. The concerns of educators and scholars about motivation in the school environment have been evidenced by studies on the topic, since they report it as one of the main factors that promote student learning. A motivated student shows greater involvement and effort in the learning process, is more willing to face challenging tasks and persists in performing them, without being discouraged in the face of failure. Without motivation, it is possible to observe students who study little or nothing, who show little resilience and, consequently, have difficulties in learning¹⁸⁻²¹.

This competition, and the lack of motivation of the participants, made it difficult to attract children and adolescents for stimulation, since it was often only possible to continue the study when one of the researchers was at the reception waiting

for the children to arrive and guiding them to the room where the other researcher was waiting. This strategy was necessary to ensure the participation of some children.

The lack of signature of the ICF and motivation to participate in speech-language pathology activities on the part of parents/caregivers may be another factor related to the low number of students participating in the project. The Institution reported that most of its public consists of vulnerable people; that is, students that most of the time are not accompanied by their caregivers, who do not encourage their development and academic activities as they are not involved in the family environment - for being imprisoned, hospitalized for chemical dependency or even not involved with the development of their children due to chemical dependency or other factors. The vulnerability is high in the age of the participating children, as they have not developed their own abilities and depend on the care of others, which will determine "the degree of development that the children will achieve". Research shows that the involvement of the parents and the family environment influence learning, student motivation for studies and cognitive development²⁰⁻²³, corroborating or explaining the low adherence of children and adolescents in this study.

The literature reports that phonological awareness activities are essential to improve students' reading and writing skills. Studies also report the importance of stimulation of phonological awareness in children, as it enables the understanding of the alphabetic writing system through the use of the phonological route. The phonological route is essential for competent reading and writing, as it makes use of a generative system that converts spelling into phonology and vice versa, which allows the child to read and write any new word,

despite making mistakes in irregular words^{11, 24, 25}. The environment in which the human being develops may contribute to reading competence, with a greater or lesser degree of vulnerability to risks or to success in the learning process²⁶. Children need to learn everything that allows them to live adapted to the world in which they are inserted. Learning is reduced to a transmission of historically accumulated knowledge that is undoubtedly important, but not sufficient. Based on this assumption, focused attention emerges as a fundamental condition for learning: the greater the power to focus on a particular object, the greater the chances of child success. As the teaching methods are essentially based on recognition processes, the act of paying attention is associated with them as one of their indispensable conditions²⁷. These statements corroborate the unfavorable results of the sample: there was no statistically significant difference in the performance of students before and after the intervention. This result can be explained by the focus of the students' attention on activities that they were "missing" while they were performing the tasks proposed by the researchers. Some girls had worse results on tests after stimulation, which was not expected.

The low sample size (n=6) did not allow for a broader analysis of the results. Another possibility for the lack of statistical significance before and after stimulation is that the participating children are identified as at risk for Specific Learning Disorders. At first, the sample consisted of subjects who need to undergo a complete speech-language pathology assessment for diagnosis and probable treatment indication.

As for the lack of interest of children in the proposed activities, the low motivation may be related to a cultural factor present in the Brazilian population, which indicates sport (more specifically football) as a way to achieve professional and financial success in adulthood, disregarding the importance of reading and writing and its fundamental role in the formation of a critical and prepared citizen in any profession.

Final Considerations

Based on the results of this work, it can be concluded that the interventions of this model were not as effective as expected. It is inferred that this may be due to the fact that the institution included

interactive activities and thematic workshops - as a leisure environment for students on the shift when they are not at school. This was found throughout the work due to the difficulty of children adhering to the interventions, with little or no motivation to attend stimulation meetings, as well as the way they maintained the focus of attention on the activities that they were "missing" while they were with the researchers. Children, adolescents and their families often overvalue sports practices to the detriment of study through reading and writing, as they usually believe that future athletes will have greater financial and professional success than other professionals.

It was possible to identify the speech-language pathology demands related to the written language of the participants and to promote actions to stimulate tasks in order to improve the learning of reading and writing. However, in order to develop an efficient proposal for speech-language pathology intervention at the IBHF, it is necessary to better organize the activities and routine at the institution with a view to inserting Speech-Language Pathology and Audiology at the expense of participation in other workshops and activities. In addition, further actions are required with strategies aimed at raising awareness among children, adolescents and caregivers about the benefits that the participation in speech-language pathology stimulation groups can bring to the process of learning to read and write.

Given the advances that this type of study may bring to science and to the population involved, this study suggests the inclusion of a step to clarify and raise awareness among those involved, students, family members and IBHF members, such as teachers and monitors, prior to the development of such projects. The involvement of these players in the whole process is also suggested, from the survey of the sample calculation to the organization of the schedule and focus of activities.

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