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# Hearing and Speech Sciences in Educational Environment Mapping in Brazil: education, work and professional experience

Mapeamento da Fonoaudiologia Educacional no Brasil: formação, trabalho e experiência profissional

# Keywords

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#### **Descritores**

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# **ABSTRACT**

The Hearing and Speech Sciences in Educational Environment is the area of performance that aims at promoting educational actions directed to the school community in different life cycles, taking into account the socio-educational reality of those involved, from studies comprising the health and education context of that population. **Purpose:** To map the profile of Brazilian Speech Therapists who report acting in Educational Speech Therapy, with regard to aspects related to training, performance and professional experience. **Methods:** Retrospective study, based on secondary database analysis of the Federal Council of Hearing and Speech Sciences on the questionnaires reporting acting with Educational Environment. **Results:** 312 questionnaires were completed, of which 93.3% by women aged 30-39 years. Most Speech Therapists continued the studies, opting mostly for specialization. Almost 50% of respondents, have worked for less than six years with the speciality, most significantly in the public service (especially municipal) and private area. **Conclusion:** The profile of the Speech Therapists active in the Educational area in Brazil is a professional predominantly female, who values to continue their studies after graduation, looking mostly for specialization in the following areas: Audiology and Orofacial Motor. The time experience of the majority is up to 10 years of work whose nature is divided mainly in public (municipal) and private schools. The performance of Speech Therapists in the Educational area concentrates in Elementary and Primary school, with varied workload.

#### **RESUMO**

A Fonoaudiologia Educacional é a área de atuação que visa à promoção de ações de educação dirigidas à comunidade escolar nos diferentes ciclos de vida, levando-se em consideração a realidade socioeducacional dos indivíduos envolvidos, a partir de estudos que envolvam o contexto de saúde e educação daquela população. Objetivo: Mapear o perfil dos fonoaudiólogos brasileiros, que relatam atuar na especialidade de Fonoaudiologia Educacional, no que diz respeito aos aspectos relacionados à formação, atuação e experiência profissional. Método: estudo retrospectivo, baseado na análise de banco de dados secundários do Conselho Federal de Fonoaudiologia dos questionários de fonoaudiólogos que relatam atuar com Fonoaudiologia Educacional. Resultados: Foram respondidos 312 questionários, dos quais 93,3% eram mulheres na faixa etária de 30 a 39 anos. A major parte dos fonoaudiólogos deu continuidade aos estudos, optando, em sua majoria, pela especialização. Quase 50% dos participantes trabalham a menos de 6 anos com a especialidade, mais expressivamente em serviço público (especialmente municipal) e na área privada. Conclusão: O perfil do fonoaudiólogo atuante na área de Fonoaudiologia Educacional no Brasil é de um profissional predominantemente do gênero feminino, que valoriza a continuidade de estudos após a graduação, sendo a especialização a mais procurada. As áreas mais procuradas na especialização foram audiologia e motricidade orofacial. O tempo de experiência da maioria é de até 10 anos de trabalho e a natureza do serviço se divide, principalmente, em pública municipal e privada. A atuação dos fonoaudiólogos da área Educacional se concentra no Ensino Infantil e Fundamental 1, com carga horária variada.

Study carried out at Departamento de Fonoaudiologia, Universidade de Brasília – UnB - Brasília (DF), Brazil.

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#### INTRODUCTION

Educational speech language therapy is the performance area of the speech language therapist which views at promoting educational actions directed to the school community in the different cycles of life; taking into account the socio educational reality of the involved individuals, from studies that involve the health and education context of that population<sup>(1,2)</sup>.

It is a speciality that, despite being recognized in Brazil only in 2010, consists of one of the most antique fields of the speech language therapist work. The scope of work in this area is extensive and of great importance. It establishes strong interface with education and health, fields in which bases its actions and investigations in the school range. It covers actions on health and education promotion, since the early years until adult education.

The actions in this field of work have been adjusted, improved and were transformed according to the speech language therapy evolution while science and also according to the modifications in the educational field actions. The new theoretical, educational, social and ethical models as well as the legislation have shaped the new practices. From a process centered in a health-disease relation, moves on to the preventive focus and, from this, to the health promotion, notably regarding learning promotion and human development potentiation. Therefore, this paradigm change has conducted the speech language therapy actions at schools to a perspective centered in the biological, psychological, cultural and social development process of the human being<sup>(3,4)</sup>.

According to Resolution 387/2010<sup>(2)</sup> of Conselho Federal de Fonoaudiologia, the actions developed involve the elaboration, follow up and performance of educational projects, programs and actions that contribute to the development of abilities and competences of teachers and students with the objective of optimizing the teaching and learning processes.

It is the speech language therapist's responsibility to offer technical guidelines and suggestions to the teachers, in an exchange relationship, in order to reveal the favorable factors to the individual's learning. The actions include periodical dialogues with the school community, in a way that the students, parents and teachers themselves get involved in the search of means to suggest better bio psychoeducational development to the schools. In a classroom environment, the speech language therapist can work in a partnership with the teacher at the development or guidelines on collective proposals that provide the improvement of hearing, orofacial motricity, speaking, voice, oral and written language. It is interesting that the educator has got knowledge on the development of these communication aspects in order to be a facilitator of this development for the student<sup>(1,5-7)</sup>.

The speech language therapist's participation can also occur in association with the pedagogical team on choosing methods and techniques that favor the learning, always taking into consideration the students' conditions, whether children, adolescents or adults, with the objective of improving their reading and writing standards. Besides, the speech language

therapist is responsible for clarifying the professionals as problems, related to their area<sup>(5)</sup>, come up.

Some aspects related to the oral communication can be strengthen in face of common objectives between teachers and speech therapists in order to create situations that favor their development and also some abilities related to reading and writing learning, as the metalinguistic abilities and, among them, the speech language therapy awareness<sup>(8)</sup>.

Due to the course of the changes in this promising field of work, it becomes necessary to perform some investigations regarding the speech language therapist's activities in order to build a panel of actions in this area in which strengths and weaknesses be raised in this field of practice, viewing at a bigger knowledge and strengthening of Educational Speech Language Therapy in the country.

Therefore, the objective of this study is to map the profile of the Brazilian speech language therapists, who report working in the Educational Speech language therapy specialty, regarding the aspects related to the professional training, acting and experience.

#### **METHODS**

It is about a retrospective study, based on the secondary database analysis of the Sistema de Conselhos de Fonoaudiologia, therefore it got exemption application of the Informed Consent form. The present research was approved under protocol CAAE 41787314.9.0000.0030.

The questionnaire used in the study was based in some closed categories of the questionnaire used by the Council System. It was virtually applied by means of voluntary participation request to speech language therapists acting in the area. Its initial objective was to give to the Regional Councils and Council a general overview on the profile of speech language therapists working in the Educational Speech Language Therapy.

Data related to the answers to those questionnaires were analyzed. Specifically for this research, the analyzed data were regarding:

- a. Gender: male or female.
- b. Age range: five age ranges were made available (21 to 29; 30 to 39; 40 to 49; 50 to 59 and above 60 years old).
- c. Professional training data: aspects related to initial graduation (Speech-Language Therapy, Pedagogy, Psychology and others) such as education institution where graduated from Speech Language Therapy; year of conclusion; post-graduation course, if any, which one (extension, refinement, specialization, mastership, doctorate, post doctorate) and in which area (Speech Language Therapy, Education, or others).
- d. Professional Background: length of professional experience with Educational Speech Language Therapy (7 ranges were made available, namely: 0 to 5 years, from 5 to 10 years, from 10 to 15 years, from 15 to 20 years, from 20 to 25 years, from 25 to 30 years and more than 30 years); nature of the service where works (with the following options: municipal public, state public, federal public, private,

philanthropic institution, NGO and others), employment relationship (such as self-employed or service provider as legal entity, contracted or employed, approved in public contest), state of the country where he works, level of teaching (such as elementary, primary 1 or 2, high school and college) and program in which he operates (such as especial education/inclusion, youth and adult education, indigenous education and others).

In this research, data were included regarding the database of the professionals registered at the Sistema de Conselhos de Fonoaudiologia, which comprehends both the Conselhos Regionais and Conselho Federal de Fonoaudiologia, reaching all the Brazilian regions. The incomplete questionnaires were excluded.

Measures were performed regarding descriptive statistics and hypothesis test about proportion and the significance level adopted was 5%.

# **RESULTS**

312 questionnaires were answered, from which 291 (93.3%) were answered by women and 21 (6.7%) by men, with clearly distinct numbers.

The majority of the participants is in the age range between 30 and 39 years (46%), as shown in Figure 1.

The results show a proportional increase of the Speech Language Therapy egresses who answered the questionnaire between the years 1970 and 1999, revealing a moderate increase in this period (Figure 2).

Yet, the difference of growth between 1990-1999 and 2000-2009 is very significant, going from 67 egresses to 160. Despite the figure shows a fall in absolute numbers from the penultimate (2000-2009) to the last range (2010-2012), proportionally this difference is not relevant: the proportion of egresses in Speech Language Therapy in 3 years in the

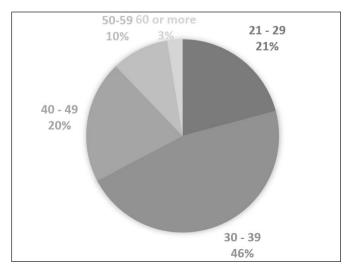


Figure 1. Characterization of age range of participants in percentage

decade of 2000-2009 is of 48, very close to the 43 found in the three-year-period 2010-2012.

Regarding the following on study after the graduation, Table 1 exposes the results for the number of speech-language therapists who tried to follow the studies in the area, type of training (for example specialization, mastership) and the most chosen area, being the last two of multiple selection. The results showed that most of the speech language therapists continued their studies, with a statistically significant difference, and that most of them opted for specialization, also with statistically significant difference when compared to the other types of Post-Graduation.

Within such study continuity, most of the participants preferred focusing on the Speech-language therapy area (Table 1). Still regarding the area in which the professional continued his studies, the participants could choose "others" and specify the area in a descriptive way. In this item, 28 subdivisions were pointed from which the most related in a decreasing order were audiology (19%), orofacial motricity (16%), language (15.7%) and voice (11.8%).

Regarding professional experience, its period, nature of work and type of connection, the findings are exposed in Table 2. Period of experience and type of connection present simple answer selection, opposing to nature of service. The results show that almost 50% of the participants are within less than 6 years working with Educational Speech Language Therapy and that they work more expressively in the public service (specially Municipal) and in the private area, without significant statistic difference between them.

The participants also marked the level of teaching that they directed their actions (Table 3), being elementary and primary 1 the levels with most speech language therapy actions. This question was of multiple answers and as "other" alternative, the most found descriptions were special education and youth and adults education, both with 18.6% of the options.

Only 253 participants answered the question related to workload, which represents a loss of 59 respondents (19% of the sample). The results show a concentration trend within the range from 11 to 20 weekly hours, with statistically significant difference compared to the others.

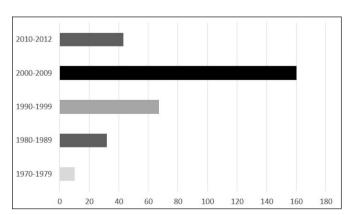


Figure 2. Characterization of the year of conclusion of the undergraduate course of the participants, in Speech Language Therapy

Table 1. Characterization of graduate studies

		Continuity of graduate studies								
		NA	No	Yes	р					
	•	1	22	289	0.000					
							p <sup>(1)</sup>			
					Extension	Imp./Ref.	Spec.	Mast.	Doct.	Post-Doct.
	Extension			57		0.000	0.000	0.2	0.000	0.000
	Imp./Ref.			99	0.000		0.000	0.000	0.000	0.000
Types of	Spec.			210	0.000	0.000		0.000	0.000	0.000
Graduate studies.	Master			45	0.2	0.000	0.000		0.002	0.000
	Doctorate			21	0.000	0.000	0.000	0.002		0.000
	Post-Doct.			2	0.000	0.000	0.000	0.000	0.000	
						p <sup>(2)</sup>				
					Speech Lang T	Education	Others	•		
Area of	Speech Lang T			178		0.000	0.000			
Graduate	Education			107	0.000		0.1			
Studies	Others			89	0.000	0.1				

**Caption:** p: hypothesis test for one proportion (p<0.05); p<sup>(1)</sup>: hypothesis test for one proportion (p<0.05) comparing all types of Graduate level studies among themselves; p<sup>(2)</sup>: hypothesis test for one proportion (p<0.05) comparing all the areas of Graduate level studies among themselves; NA: not answered; Imp.: improvement; Ref.: refinement; Spec. specialization; Mast.: mastership; Doct.: doctorate

**Table 2.** Total number of answers and answer percentage for speech language therapist professional experience and the amount of p (p<0.05) for comparison among the answers

or companson amor	<u> </u>		perience wor	kina in the Ed	ucational Speed	h Language 1	herapy area	-		
		%	Р							
In years	N		0-5	5-10	10-15	15-20	20-25	25-30	30	
0-5	150	48.08		0.000	0.000	0.000	0.000	0.000	0.000	
5-10	67	21.47	0.000		0.003	0.000	0.000	0.000	0.000	
10-15	39	12.50	0.000	0.003		0.06	0.001	0.000	0.000	
15-20	25	8.01	0.000	0.000	0.06		0.1	0.002	0.002	
20-25	15	4.81	0.000	0.000	0.001	0.1		0.2	0.2	
25-30	8	2.56	0.000	0.000	0.000	0.002	0.2		1	
30	8	2.56	0.000	0.000	0.000	0.002	0.2	1		
				Nature of ser	vice where work	(S				
			Р							
	N	%	Pub. Municipal	Pub. State	Pub. Federal	Private	Ph. Inst.	NGO	Other	
Pub. Municipal	155	49.68		0.000	0.000	0.9	0.000	0.000	0.000	
Pub. State	42	13.46	0.000		0.000	0.000	0.6	0.009	0.000	
Pub. Federal	11	3.53	0.000	0.000		0.000	0.000	0.6	0.2	
Private	151	48.40	0.9	0.000	0.000		0.000	0.000	0.000	
Ph. Inst.	37	11.86	0.000	0.6	0.000	0.000		0.001	0.000	
NGO	14	4.49	0.000	0.009	0.6	0.000	0.001		0.070	
Other	6	1.92	0.000	0.000	0.2	0.000	0.000	0.070		
				Type of	relationship					
		N.	0.4	Р						
		N	%	Autonomous or LE		Contracted or employee		Approved in Public Contest		
Autonomous or LE		87	27.88			0.02		0.03		
Contracted or employee		113	36.22	0.02				0.9	94	
Approved in Public Contest		112	35.9	0.03		0.94				

Caption: P: hypothesis test for one proportion (p<0.05); N: absolute number found in the answer; %: percentage regarding the total number of participants; Pub.: public; Ph. Inst.: philanthropic institution; NGO: non-governmental organization; LE: legal entity

Table 3. Total number of answers and answer percentage for speech language therapist working in each teaching level and the value of p (p<0.05) for comparison among them

	N.I.	%	Р						
	N		Elementary	Primary I	Primary II	High school	College	Others	
Elementary	247	79.2		0.5	0.000	0.000	0.000	0.000	
Primary I	239	76.6	0.5		0.000	0.000	0.000	0.000	
Primary II	132	42.3	0.000	0.000		0.000	0.000	0.000	
High school	58	18.6	0.000	0.000	0.000		0.006		
College	34	10.9	0.000	0.000	0.000	0.006		0.1	
Others	43	13.8	0.000	0.000	0.000	0.006	0.1		

Caption: p: hypothesis test for one proportion (p<0.05); N: absolute number found in the answer; %: percentage regarding the total number of participants

#### DISCUSSION

312 Speech language therapy professionals answered the questionnaire. 39,731 speech language therapists, in 2015, were registered in the Conselhos Regionais and Conselho Federal de Fonoaudiologia, acting in the most different Speech language therapy areas. Consequently, the sample here shows 0.8% of the professionals currently registered. Despite the percentage being low, its relativity is highlighted, once the present research deals exclusively with speech language therapists that work in the educational area.

Gender can be seen as an important parameter at the personal perceptions and motivation and its influence seems to be perceptible in some careers. In the present study, it was possible to notice this strong influence, once 93% of the respondents were from the female gender.

Speech Language Therapy can be characterized as a profession marked by "occupational sex segregation" other words, there is dominance of one gender over the other at the professional characterization.

In a study performed in the United Kingdom about gender difference within Speech Language Therapy, one of the hypothesis for the dominance of the female gender is the fact that women are seen as educators, caretakers and "good communicators", characteristics seen as relevant for the profession<sup>(9)</sup>. It should be highlighted, at this point, that in the United Kingdom the Speech language Therapy is split in speech and language therapy and audiology. The related study refers to the profession of the speech and language therapy/pathology).

Other studies performed in Brazil also identified a high prevalence of the female gender in relation to the male on performing speech language therapy. Teixeira and collaborators<sup>(10)</sup>, on analyzing the egresses track record in Speech Language Therapy, identified that 94% of the professionals were from female gender. Another study<sup>(11)</sup>, that investigated the academic professional training of the speech language therapy teaching staff of Bahia state, revealed that 96.9% of them were from female gender. Presumably, the predominance of female gender is not only a characteristic of acting in Educational Speech Language Therapy, but of the profession as a whole.

Still relating to the sample characterization of the present study, the results pointed at a number of egresses much higher from the decade 2000-2009 (Figure 2). The explanation for this fact can be obtained through some analysis on the Brazilian college education in the period ranging from the second half of the 1990 decade and the first decade of the XXI century. Initially, it is worth highlighting the approval of Law 9.394/96 (Lei de Diretrizes e Bases da Educação Nacional) in December 20th, 1996, at the government of President Fernando Henrique Cardoso. Such law supplied legal framework to alter the directives of the Brazilian college education, introducing real changes in the academic management, work plan, assessment standards and associating the teaching and the research. Despite the public universities having suffered significant financial cut in the period, the private universities had strong expansion<sup>(12)</sup>. After that, at the first term of the President Luís Inácio Lula da Silva (2003-2006) government, it was implemented the Prouni (scholarship granting program), kept and enlarged the Student Financing Fund ('Fundo de Financiamento Estudantil' - FIES). Finally, it can be mentioned the Support Plan to Restructuring and Expansion Plans of the Federal Universities ('Plano de Apoio a Planos de Reestruturação e Expansão das Universidades Federais' - REUNI), decree no 6,096 of April 24th, 2007(13), which has as objective to extend the access and the permanence of university students at college<sup>(14)</sup>. With this, the Instituto Nacional de Estudos e Pesquisas Educacionais (INEP) announced that from the year 2000 to 2010 the number of enrolments of university students more than doubled, going from 3,306,113 to 6,379,299 during the first years of President Dilma Vans Russef<sup>(15)</sup> term. Therefore, it is possible that the highest concentration of professionals graduated between the years 2000-2009 reflects the expansion policy of places in college courses that highlighted the Brazilian college education in the same period.

Regarding the continuous education, the present study pointed that most of the speech language therapists participating in the research invested on continuous studying after undergraduate studies, being specialization the most found. Studies on the profile of the speech language therapist in Brazil also observed that this is the most preferred training of the professional graduate level in the country<sup>(16-18)</sup>. In a study with newly undergraduated speech language therapists in Rio de Janeiro, the specialization was the line declared to be of higher interest at the intention of study updating<sup>(19)</sup>. This way, the profile of the speech language therapist of the educational area is similar to the general profile of the overall professional also regarding the preference for the specialization as the nature of the chosen graduate level course.

Yet the area in which the professional performs the specialization seems to vary according to the studied profile. In the present study, it was verified that the majority of professionals who answered the questionnaire have specialization in audiology, followed by oral motricity. Such fact is important once this sequence of options at specialization courses possibly reflects what occurs at Speech language therapy as a whole. It is surprising to see that the professionals that work in Educational speech language therapy are not specialized in the Education area (even considering the course diversity in the area, such as childhood education, special education, among others), neither in the language area, which has direct interface with the matters dealt with in the educational processes. In this regard, a specific study of the profile of the city of São José dos Campos, without restriction of working area, showed that oral motricity was the area of Speech language therapy with a higher number of specialists<sup>(16)</sup>. By contrast, studies on the demand of speech language therapy services point that the language is the predominant area of registered complaints<sup>(20-22)</sup>.

Another observed aspect of the present investigation was the important concentration of speech language therapists with up to 5 years of experience in the area, what suggests that the area has grown in the last years in the country. Another indicator of this growth was the creation of the department of Educational Speech Language Therapy in the Sociedade Brasileira de Fonoaudiologia, in the year 2012<sup>(3)</sup>.

**Table 4.** Total number of answers and answer percentage for weekly workload in Educational Speech Language Therapy and the value of p (p<0.05) for comparison among them

\\\ \\\\-\\\\-\\\\\	N	0/	Р					
W. Work.	N	%	0-10	11-20	21-30	More than 30		
0 – 10	48	15.38		0.000	0.2	0.1		
11 – 20	84	26.92	0.000		0.01	0.03		
21 – 30	59	18.91	0.2	0.01		0.8		
More than 30	62	19.87	0.1	0.03	0.8			
TA	253	81.09						

Caption: p: hypothesis test for one proportion (p<0.05), based on the total marked answers; N: absolute number found in the answer; %: percentage regarding the total number of participants; W. Work.: weekly workload in hours; TA: total of answers obtained in the question

Regarding the nature of the services (Table 2), the participants could opt for more than one place of working, resulting in a large concentration in the municipal public service and private sector, being the majority contracted or approved in public contest.

The levels of elementary and primary 1 cover the higher concentration of working speech language therapists, probably for encompassing students at the literacy phase. Studies in the area of childhood neurobiological development, based on cerebral plasticity concept, have produced scientific evidences to state that it is important to invest in quality education at the first years of the child's life<sup>(23)</sup>. According to such evidences, the children who have the best linguistics and cognitive stimulus until six years old, will have better conditions to learn. The preoccupation with this development at the initial phase of the school life seems, therefore, to be justifying higher integration of the professional at these levels of education.

This concern is coherent with the actions of countries such as Canada, United States and England, which give great importance to early identification of matters related to language and learning and suggest, since the early years, adapting and compensatory strategies of possible difficulties, belonging to the educational speech language therapist an extremely important role in this process<sup>(3)</sup>.

Finally, regarding the weekly workload, the studied specialty is divided, mainly: between 11 and 20 hours, between 21 and 30 hours and more than 30 hours (Table 4), being the first more expressive with 26% and the second and third around 20%. These results differ from the ones found in a study about the professional profile of speech language therapists working in the area of school hearing screening, in which 66.7% of the participants had workload of 30 to 40 hours<sup>(17)</sup>. It is possible, therefore, that there is a trend of part time hiring.

# CONCLUSION

The profile of the speech language therapist working in the area of Educational Speech language therapy in Brazil, is of a professional predominantly of the female gender, who values the study continuity after graduation, once the majority followed their studies, being specialization the most chosen. The most searched areas of specialization were audiology and orofacial motricity. The time of experience of the majority is up to 10 years and the nature of the service is mainly divided between municipal public and private. The work of the speech language therapists in the Educational area is concentrated in elementary and primary 1, with varied workload.

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#### **Author contributions**

LCC was responsible for forwarding the project to the Research Ethics Committee, data tabulation and analysis and elaboration of the manuscript; GZ was responsible for data collecting and tabulation and elaboration of the manuscript; BQ was responsible for data collecting and elaboration of the manuscript; LMA was responsible for data tabulation and analysis and elaboration of the manuscript.